DRAFT

ENVIRONMENTAL IMPACT REPORT

(STATE CLEARINGHOUSE NO. 2019110341)

THE COMMONS

CITY OF CLAREMONT

LOS ANGELES COUNTY, CALIFORNIA

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LSA

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Draft Environmental Impact Report (EIR) (State of California Clearinghouse No. 2019110341) for The Commons (herein referred to as the "Project" or "proposed Project") has been prepared by LSA on behalf of the City of Claremont (City) to identify and evaluate the potential environmental effects associated with the construction and operation of the proposed Project.

This EIR has been prepared in accordance with the California Environmental Quality Act (CEQA)[1] and *Guidelines for California Environmental Quality Act*[2] *(CEQA Guidelines),* both of which regulate the preparation of EIRs. As required pursuant to *CEQA Guidelines* (Section 15123), this section of the EIR summarizes the proposed Project; the environmental impacts and mitigation required to reduce or eliminate those impacts determined to be significant; areas of controversy known by the City including those raised by other agencies and the public; the issues to be resolved; and alternatives to the Project that could reduce the extent and/or severity of the proposed Project's environmental impacts. While this Executive Summary provides an overview of these issues, more detail is provided in subsequent sections of this EIR as follows:

- Project Description (Section 3.0).
- Environmental Impacts (Section 4.0).
- Other CEQA Topics (Section 5.0).
- Project Alternatives (Section 6.0).

1.2 PROPOSED PROJECT

The Commons Project (Project) is a proposed mixed-use development located on Foothill Boulevard, just west of Monte Vista Avenue in the City of Claremont. The applicant owns a total of 9.5 acres in this area which straddles the boundary between the Cities of Claremont and Upland. In the Notice of Preparation (NOP), the Project was described as including all 9.5 acres. However, since the release of the NOP, the applicant has separately applied to the City of Upland for approval of a development project on the 3.0 acres it owns in the City of Upland pursuant to Senate Bill (SB) 35. Pursuant to Government Code Section 65913.4, if that development project is within the scope of SB 35, it is not subject to CEQA review. The applicant represents that the currently proposed development within Upland will either be approved pursuant to SB 35, without CEQA review, or it will not be constructed. For this reason, and for purposes of this EIR, the Project comprises the 6.5 acres of land within Claremont, together with off-site improvements necessary to provide access and utilities to the Project. The potential development of the 3.0 acres of property owned by the applicant, which is

[1] California Environmental Quality Act, California Public Resources Code, Division 13. Environmental Quality, §§ 21000 – 21189.3, January 1, 2019.

[2] California Code of Regulations, Chapter 3: Guidelines for the Implementation of the California Environmental Quality Act, Title 14, §§ 15000 – 15387, January 1, 2019 (*CEQA Guidelines).*

located on the northwest corner of Foothill Boulevard and Monte Vista Avenue, will be treated as an adjacent cumulative project. The City of Claremont has no jurisdiction over that 3.0 acres in Upland.

The Project includes a Tentative Tract Map (TTM 82315), which proposes to subdivide Assessor's Identification Number (AIN) 8307-003-066 into lots for the Armstrong Garden Center and for the proposed single-family residential uses, residential flats, townhome uses, and streets within The Commons Specific Plan (Specific Plan). The Specific Plan area encompasses approximately 6.5 acres. The proposed lot of 1.42 acres containing the Armstrong Garden Center is not included in the Specific Plan. The Project does not propose any change in use or operation of the Armstrong Garden Center.

The applicant is processing a Specific Plan for the Project (The Commons Specific Plan). The proposed Project would result in the development of 27 single-family homes, 20 townhomes, 15 residential flats, 5,000 square feet of retail space below the residential flats and over an acre of park/open space (includes the Central Park and Park Plaza). Other actions associated with the proposed Project include a General Plan Map Amendment, General Plan Text Amendment, a Zoning District Change, Design Review approval, approval of The Commons Specific Plan, and approval of the previously mentioned TTM 82315. A detailed description of the Project is included in Section 3.0 (Project Description) of this EIR.

1.2.1 Project Objectives

As the Lead Agency, the City of Claremont's primary project objective is the development of the site with uses that are consistent with the policies and development guidelines established by the City. The City has identified the General Plan Goals applicable to development of the Project:

- Promote and encourage sustainable development, incorporating green practices, on vacant sites within a built up area. (LU Goal 2-1)
- Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes. Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community. (LU Goal 2-2, H Goal 8-3)
- Promote high quality architecture for new development. (LU Goal 2-5)
- Provide a variety of park facilities that meet the diverse needs and interests of the community. (OS Goal 5-9)
- Continue to require public art as part of new development projects and encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City. (LU Goal 2-5, 2-7)
- Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses. Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development. (LU Goal 2-15)
- Create distinctive gateways at all entry points into Claremont. (LU Goal 2-7)
- Encourage development that increases the City's economic base. (ED Goal 3-1)
- Encourage a high-quality project at what is now a long-term vacant site at the entry to the City.

- Establish a cohesive, contemporary, and innovative design character for the Project site that would be unique to the City of Claremont.

In recognition of the City's primary objective of ensuring a cohesive, attractive, and unique development that satisfies the goals established in the Claremont General Plan, the Specific Plan identifies the following "Guiding Principles" to provide a broad framework and direction for the site plan and building design:

- Provide a community that meets current and future housing demands on a highly accessible site located near major roads.
- Ensure compatibility with neighboring existing commercial areas, and with future institutional, and residential uses.
- Create a walkable environment and a definable sense of place.
- Create special places such as a large open space spine and central plaza.
- Provide for infill residential development on a vacant property.
- Emphasize distinct features of site and surroundings to create a unique, mixed-use neighborhood.
- Provide diversity in product mix design to target a variety of age groups.

1.3 ISSUES ADDRESSED AND AREAS OF CONTROVERSY TO BE RESOLVED

CEQA requires the Project be reviewed to determine the environmental effects that would result if the Project were approved and implemented. The City of Claremont is the Lead Agency[3] and has the responsibility of preparing and adopting the associated environmental document prior to consideration of the approval of the proposed Project.

An Initial Study (Appendix A1) has been prepared in accordance with the relevant provisions of CEQA; the *CEQA Guidelines,* and the rules, regulations, and procedures for implementing CEQA as adopted by the City of Claremont. The objective of the Initial Study was to inform City decision-makers, representatives of other affected/responsible agencies, the public, and interested parties of the potential environmental effects of the Project.

As established in *CEQA Guidelines,*[4] the purposes of an Initial Study are to:

- Provide the Lead Agency (City of Claremont) with information to use as the basis for deciding whether to prepare an EIR, Negative Declaration (ND), or Mitigated Negative Declaration (MND);
- Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for an ND or MND;
- Assist in the preparation of an EIR, if one is required;

[3] California Code of Regulations, Chapter 3: Guidelines for the Implementation of the California Environmental Quality Act, Title 14, § 15051(a) and (c).

[4] *CEQA Guidelines,* § 15063(c).

- Facilitate environmental assessment early in the design of a project;
- Provide a factual basis for finding in an ND or MND that a project will not have a significant effect on the environment;
- Eliminate unnecessary EIRs; and
- Determine whether a previously prepared EIR could be used with the project.

The Initial Study was distributed along with a Notice of Preparation (NOP) (Appendix A2) advising responsible and trustee agencies, other affected agencies, interested parties, and individual members of the public that the City is preparing an EIR to address the potential environmental impacts that may result from the construction and operation of the Project.

The Initial Study screens out those impacts that, 1) are less than significant and do not warrant mitigation, 2) identifies those issues that require further mitigation to reduce impacts to a less than significant level, and 3) identifies those issues that require further analysis in an EIR. Based on these analytical conclusions, the Initial Study supports the preparation of a project EIR for the proposed Project upon the request of the Lead Agency.

1.3.1 Impacts Determined not to be Significant

In evaluating the significance of the environmental effect of the project, the City must consider the direct physical changes in the environment which may be caused by the Project and reasonably foreseeable indirect physical changes in the environment which may be caused by the Project.[5] These physical changes may include:

- A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the Project. (For example, the removal of vegetation from the site during project construction.)
- An indirect physical change in the environment is a physical change in the environment which is not immediately related to the Project, but which is caused indirectly by the Project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment. (For example, construction of a new wastewater treatment plan could allow an increase in population, traffic, and new sources of air pollution.)

  An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the Project. A change which is speculative or unlikely to occur is not reasonably foreseeable.

Based on the Initial Study prepared for the Project (Appendix A1), the potential impacts for the following environmental issues were determined to not be significant. A summary of the potential impacts, and why they were not considered significant for further study, is provided in Sections 2.7.1 through 2.7.8 of this EIR.

[5] *CEQA Guidelines,* § 15064(d).

- Aesthetics;
- Agriculture and Forestry Resources;
- Geology/Soils;
- Mineral Resources;
- Population/Housing;
- Public Services;
- Recreation; and
- Utility/Service Systems.

1.3.2 Impacts Determined to be Potentially Significant

As detailed in the Initial Study, the environmental impacts related to the following issues were determined to be potentially significant and have been carried forward into the Draft EIR for further analysis:

- Air Quality (Section 4.1);
- Biological Resources (Section 4.2);
- Cultural Resources (Section 4.3);
- Energy (Section 4.4);
- Greenhouse Gas Emissions (Section 4.5);
- Hazards and Hazardous Materials (Section 4.6);
- Hydrology/Water Quality (Section 4.7)
- Land Use/Planning (Section 4.8);
- Noise (Section 4.9);
- Transportation (Section 4.10);
- Tribal Cultural Resources (Section 4.11); and
- Wildfire (Section 4.12).

The Project's impact(s), the severity of any impact(s), and the mitigation measures required to reduce or eliminate the impacts relative to these environmental issues are addressed in Sections 4.1 through 4.12 and summarized in Table 1.D at the end of this section. Issues of concern and/or controversy related to the Project were further identified by the City through responses to the NOP, Public Scoping Meetings, and Native American Tribal Consultation.

1.3.3 Notice of Preparation

The objective of distributing a NOP is to solicit public comment, ensuring the full and appropriate examination of issues of concern in the EIR. This notice informs the public that an EIR will be prepared for the project. The NOP was distributed to the State Clearinghouse, as well as to the agencies, organizations, and persons considered likely to be interested in the Project and its potential impacts. Comments received regarding the NOP have been used to identify impacts that could result from implementation of the Project. An NOP for the Project was distributed for a 30-day public comment period from November 19 through December 20, 2019. The NOP and response letters received are included in Appendix A2 of this EIR. Table 1.A provides a general summary of NOP comments received by the City during the NOP review period and identifies in which section of the EIR each specific NOP comment has been addressed.

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
State of California, Native American Heritage Commission	November 18, 2019	Recommends consultation with California Native American tribes traditionally and culturally affiliated with the project area. Provides a summary of statutory requirements of AB 52 and SB 18. Provides recommendations for the conduct of Cultural Resource Assessments. Reiterates that the absence of surface evidence does not preclude their subsurface existence.	4.11 (Tribal Cultural Resources)
Sanitation Districts of Los Angeles County	November 20, 2019	Requested clarification of routing of Project wastewater flows.	2.7.8 (Introduction)
Los Angeles County Registrar-Recorder/ County Clerk	November 21, 2019	Evidence of Posting	Issues raised are not environmental issues of concern.
Debbie Bellamy	November 21, 2019	Requested inclusion on waiting list for affordable housing	Issues raised are not environmental issues of concern.
Jennifer Jaffe	November 21, 2019	Questioned confirmation distribution date for the Notice of Preparation and method of distribution.	Issues raised are not environmental issues of concern.
California Department of Fish and Wildlife (CDFW)	December 10, 2019	Provides a summary of the Project and the CDFW's role as a Responsible Agency. Provides specific comments and recommendations regarding: • Regional Setting; • Project landscaping recommendations (California native species); and • Tree replacement ratios. Requests a complete assessment of on-site flora and fauna including: • Information on the regional setting; • Assessment of special-status plants and natural communities; • Mapping recommendations (as applicable); • An assessment of on-site habitat and biological resources; and • An assessment of rare, threatened, endangered and sensitive species. Observes the presence of a "bridge" over Foothill Boulevard at the site's southeastern corner and questions the status of areas "that may convey	4.2 (Biological Resources)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		flow during rain events." Specific issues raised include: • Whether the site supports aquatic, riparian or wetland habitats; • Protection of ephemeral streams; • Changes in upstream and downstream drainage patterns; and • Evaluation of 100, 50, 25, 10, 5 and 2-year frequency storm for the existing and proposed condition. Requested inclusion in the Draft EIR of a complete project description and consideration of a reasonable range of project alternatives to avoid any potential biological resources impact. Requested consideration of impacts to species protected under the California Endangered Species Act, including any required take authorization and necessary mitigation. Requested direct, indirect, and cumulative impacts be fully considered and appropriately mitigated. Recommended appropriate measures be undertaken to avoid Project impacts to nesting birds. Identified that the CDFW does not generally support the translocation/salvage of plant/animal species. Recommended and on-site monitor to avoid direct mortality during ground and habitat disturbing activities.	
California Department of Transportation (Caltrans), Division of Aeronautics	December 16, 2019	Identified the Division's expertise related to matters of airport land use compatibility, airport operations, noise and safety. Referenced location of site from end of Cable Airport Runway 6/24. Requested the Draft EIR clarify the site's location and distance relative to Cable Airport. Identified the City of Upland's Cable Airport Land Use Compatibility Plan (2015) prepared pursuant to the Division's *Airport Land Use Planning Handbook* (*Handbook*). Identified the site lies within Safety Zones 2 and 4 as identified in the *Handbook*. Residential uses are generally recommended to be avoided in Safety	Section 4.6 (Hazards and Hazardous Materials) and 4.9 (Noise)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		Zone 2 and limited to low-density uses in Safety Zone 4. Confirms that while the chance of airport accident is "historically quite low," such an accident is a "high consequence event." The Division states the methods for reducing risks to people on the ground is to, 1) limit the number of persons in the area, and 2) limit the area covered by occupied structures. Identified the Project will place residences within the 60 to 65 dBA CNEL contour, which would be inconsistent with existing regulations. The Division requested a thorough airport-related noise analysis including other community noise sources. Stated noise mitigation is not a substitute for good land use compatibility planning. Residential units must be constructed to provide appropriate interior noise attenuation and the granting of an avigation easement related to noise issues. The Division detailed the requirements for review of the Project by the Airport Land Use Commission (ALUC) prior to final Lead Agency action. The process for notification and override of any ALUC ruling, as well as the Division's review of such actions, was identified. The Division recommended coordination with Cable Airport and the City of Upland.	
South Coast Air Quality Management District (SCAQMD)	December 17, 2019	Requested copies of air quality and greenhouse gas analyses, including electronic versions of modeling files. Provides a summary of SCAQMD's available guidance, methodologies, and data sources. Recommended identification of potential adverse air quality impacts associated with construction and operation of the Project. Provided guidance for mitigation of any potentially significant impacts. Requested identification of alternatives (as applicable) to avoid or lessen potential significant air quality impacts. Identified permitting requirements (as applicable).	4.1 (Air Quality) and 4.5 (Greenhouse Gas)
County of Los Angeles Airport	December 17, 2018	The ALUC cited the applicable regulations and conditions which the ALUC considers in its review	Section 4.6 (Hazards and Hazardous Materials), 4.8 (Land Use), and 4.9 (Noise)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
Land Use Commission		of projects within the "planning boundary" established by the ALUC. The ALUC stated its airport compatibility review of the Project would be based on the *California Airport Land Use Handbook* (2011). The ALUC further stated that neither the *Handbook* nor the Cable Airport Land Use Compatibility Plan was used to address potential airport compatibility issues; the ALUC may not be able to determine the Project's consistency with the California Aeronautics Act.	
California Department of Transportation, District 7	December 17, 2019	Identified the nearest State highway facility to the site and requested on- and off-ramps at I-210/Base Line Road and I-10/Monte Vista Road be included in the Project traffic analysis. Suggest mitigation be included for impacts (if any) on State facilities. Per provisions of Senate Bill 743, noted the requirements to conduct Vehicle Miles Traveled (VMT) analysis for future development projects starting July 1, 2020, and provided a link to OPR's *Technical Advisory* (2018). Stated transport of oversized construction vehicles on State facilities would require a Caltrans transportation permit. Also, recommended any such transport occur during non-peak hours. Identified other potential matters of concern including: • Identifying viable solutions for alleviating congestion on State facilities; • Limiting the amount of parking to encourage the use of public transit; and • Consideration of provide measures to and include features to reduce vehicle speed to benefit pedestrian and bicyclist safety.	4.10 (Transportation)
Bob Gerecke	December 18, 2019	Requested the Los Angeles County Regional Planning Commission (acting as the Los Angeles Airport Land Use Commission) be identified as a regulatory agency. The commenter referenced historic storm flow patterns in the project area, cited site conditions and identified potential impacts to potential future residents of the site.	3.6.3 (Project Description) 4.7 (Hydrology and Water Quality)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		The commenter cited potential noise impacts resulting from aircraft operations at Cable Airport and cited potential aircraft hazards resulting from project design.	4.6 (Hazards and Hazardous Materials), and 4.9 (Noise)
County of Los Angeles Fire Department (LACoFD)	December 18, 2019	Clarified the jurisdiction responsible for fire protection and emergency medical response in the City of Claremont. The LACoFD Land Development Unit provided land development, access, and water system for new development. Identified general areas of responsibility the LACoFD Forestry Division and provided a general statement that potential impacts related to issues should be addressed in the Draft EIR. No comments from the LAcoFD Health and Hazardous Material Division were provided at this time.	2.7.6.1 (Introduction)
City of Upland (Was a Responsible Agency)	December 18, 2019	Summarized the location of the Project and the noted portions of the site are located within the City of Upland. Cited the Project's inconsistency with the Cable Airport Land Use Compatibility Plan. Identified it is the Project applicant's responsibility to demonstrate the conditions under which an incompatible use may be determined to be 'conditionally compatible' apply. Stated the Project conflicts with the surrounding character of the established professional/office enterprises and requested the EIR evaluate the economic effect the Project may have on existing businesses. All foreseeable components and phasing of the project must be identified in the Project Description. The City of Upland identified the following to be addressed in the Draft EIR: • Alternatives; • Existing Environmental Baseline; • Related projects (cumulative projects); • Changes in the existing character of the site and its surroundings;	Note, these comments primarily related to the development being proposed in Upland, which is no longer considered part of this project as explained above. The portions of the comments that are relevant to the project as now proposed are addressed in 4.6 (Hazards and Hazardous Materials), 4.8 (Land Use), and 4.9 (Noise) 3.0 (Project Description) 6.0 (Alternatives) 4.1 through 4.12 (all sections) 2.0 (Introduction) 4.1 through 4.12 (all sections)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		• Air Quality impacts, including preparation of a Health Risk Assessment;	4.1 (Air Quality)
		• The potential for hazardous materials impacts and hazards related to Cable Airport;	4.6 (Hazards)
		• Storm water runoff impacts;	4.7 (Hydrology and Water Quality)
		• Incompatibility with the Cable Airport Land Use Compatibility Plan and potential conflicts with the City's General Plan;	4.8 (Land Use)
		• Evaluate construction and operational noise and vibration impacts;	4.9 (Noise)
		• How the project induces population growth in the Cable Airport Area;	2.7.5, 2.7.6 through 2.7.8 (Introduction) and 5.0 (Other CEQA Topics)
		• How the project would increase demand for public services and utilities;	2.0 (Introduction) and Addressed in the Public Services and Utilities and Service Systems Sections of the Initial Study (Appendix A1)
		• How the project will generate traffic impacts and its effect on existing congestion management plans and other traffic plans and ordinance, including an analysis of Vehicle Miles Traveled (VMT) to determine Project Impacts; and	4.10 (Transportation)
		• Cumulative impacts of the Project.	4.1 through 4.12 (all sections)
Southern California Association of Governments (SCAG)	December 19, 2019	SCAG stated it will review the Draft EIR for consistency with the adopted 2016 Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS). SCAG provided a list of relevant RTP/SCS goals and suggested the Draft address the Project's consistency with said goals. SCAG provided demographic and growth forecast for the Cities of Claremont and Upland. SCAG recommended the review of the Final Program EIR for the 2016 RTP/SCS which includes project-level, performance-based mitigation which may be adopted (as appropriate) by the City.	4.8 (Land Use)
Sanitation Districts of Los Angeles County	December 19, 2019	Provided wastewater flow rates and the capacity of receiving sewer line and wastewater treatment plans.	2.7.8 (Introduction) and Addressed in the Public Services and Utilities and Service Systems Sections of the Initial Study (Appendix A1)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		Detailed the connection requirements for connection to District facilities, including the payment of applicable connection fees. Provided a summary of how the capacity of wastewater conveyance/treatment facilities is based on the regional growth forecasts adopted by SCAG. The capacity of these facilities is therefore limited to levels associated with the growth identified by SCAG.	
Pamela Nagler	December 19, 2019	The remains of the historic San Antonio riverbed have not been addressed. Native vegetation cannot be replicated by landscaping and manufactured bioswales. The Project's park and recreation facilities are inadequate to address the needs of the proposed residents. The on-site facilities are not "true parks." The Project should require a Native American monitor.	4.3 (Cultural Resources) 2.7.7 (Introduction) and Addressed in the Recreation Section of the Initial Study (Appendix A1). 4.11 (Tribal Cultural Resources)
Jennifer Jaffe	December 19, 2019	Provided a general statement regarding disturbing noise generated by aircraft during operations at Cable Airport. Questions the appropriateness of the site for residential development, as it is located at the intersection of two major roadways and is not adjacent to residential uses. There is a safety issue related to the proximity of Cable Airport to the site. Low-flying planes would create noise and air pollution issues. The avigation easement is described as a park, but easement restrictions preclude the planting of trees or other enhancements. The commenter identifies the Project's proposed General Plan and zoning change and states the Initial Study creates the impression that existing, compatible residential uses are located adjacent in Claremont. The Initial study does not make clear that the avigation easement is considered part of the designated park space. The easement area should be addressed as a separate variable of qualified open space.	4.9 (Noise) 4.1 through 4.12 (all sections) 4.1 (Air Quality), 4.6 (Hazards and Hazardous Materials), 4.8 (Land Use), 4.9 (Noise) 3.4.4 (Project Description) 3.3.1 (Project Description) and 4.8 (Land Use) 3.3.1 (Project Description) and 4.8 (Land Use)

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		The commenter provides information related to land use in the surrounding area.	3.0 (Project Description), 4.6 (Hazards and Hazardous Materials) and 4.8 (Land Use)
		The commenter identified additional "approval" is required from the Los Angeles Airport Land Use Commission and requested the identification of other county, regional, State and/or federal agencies whose approval may be required.	
		The commenter stated the site description is misleading or inadequate.	3.0 (Project Description)
		Requested an evaluation of impacts to scenic resources, including views of the San Gabriel Mountains which will be blocked by the project.	Addressed in the Aesthetics and Land Use Sections of the Initial Study (Appendix A1).)
		The commenter detailed the variety of flight operations occurring at Cable Airport and identified that a Project-specific noise assessment will be prepared for the Project.	4.9 (Noise)
		The commenter stated that changes to Cable Airport and its runways have occurred and are planned.	Issues raised are not environmental issues of concern.
		The commenter provided information to access crash data and daily aircraft operations. The commenter identified 2019 crash data.	4.6 (Hazards and Hazardous Materials)
		Because Claremont does not have its own airport plan, the commenter requested compliance with the *California Airport Land Use Planning Handbook* and the Cable Airport Land Use Compatibility Plan.	4.6 (Hazards and Hazardous Materials)
Geoff Hamill	December 19, 2019	Stated the 68 proposed townhomes are similar to the "hundreds" of similar units located along Baseline Road and in other areas of the City. The commenter stated this housing type will become "toxic within the community and neighborhood surroundings." The commenter claimed "oversaturation" of this housing type invites "trouble and crime at many levels."	Issues raised are not environmental issues of concern.
		The commenter agreed with the concept of the residential flats, but stated additional parking is required. The proposed single-family residences were deemed acceptable as long as ground floor master suites were provided in all units.	
		The commenter stated the proposed park amenities were insufficient.	

Table 1.A: Notice of Preparation Comments

Agency/ Organization/ Individual	Date Received by City	Summary of Comments	Addressed in Section(s) of the EIR
		The commenter expressed an opinion that he and other realtors have continually protested "this unwelcome housing option" that was not "friendly" to a specific segments of the community.	
Erik Griswold	December 20, 2019	The commenter stated the City needs to build more housing but stressed the elimination of the proposed 27 single-family residences in favor of multi-story flats.	Issues raised are not environmental issues of concern.
Drew Ready	December 20, 2019	Expressed concern the Project is located in the flight path of Cable Airport. Identified there is no reference of the condition of San Antonio Dam, which the commenter states presents a potentially serious risk in the event of dam failure. The commenter stated the Project's vicinity to the San Antonio Channel, the "poor condition" of San Antonio Dam, and projected climate-change influenced storm events requires further study.	4.6 (Hazards and Hazardous Materials) and 4.7 (Hydrology and Water Quality)
Christine Blair	December 20, 2019	The commenter references flight operations at Cable Airport, cites recent crash statistics, and states the Cable Airport Compatibility Land Use Plan designates the site as incompatible for residential uses. The commenter stated the age and leaded nature of airport fuel will create pollution. Noise from aircraft operations is disturbing, annoying, and nearly continuous during portions of the week. The amount and frequency of aircraft activity expose existing and future residents to increased noise and vibration.	4.6 (Hazards and Hazardous Materials) and 4.9 (Noise) 4.1 (Air Quality) 4.9 (Noise)
State of California Office of Planning and Research	December 21, 2019	Acknowledged completion of NOP public review period and provide access to State agencies providing comments (NAHC, CDFW, and Caltrans, Division of Aeronautics) previously provided to the City.	Notification only. Issues raised are not environmental issues of concern.

1.3.4 Public Scoping Meeting

Pursuant to *CEQA Guidelines,*[6] the City conducted a public scoping meeting, which was held to further determine the scope and content of the environmental analysis contained in the EIR.

6 *CEQA Guidelines,* § 15082(c)).

The public scoping meeting for the Project was held on September 24, 2018, at 6:30 p.m., in the City of Claremont Council Chambers. The Project's conceptual site plan was available to the public for review. City staff, the Project applicant, and the EIR consultant were present during this meeting to provide information regarding the Project and collect public comments. Table 1.B provides summary of comments made at the public scoping meeting. The scoping meeting materials (sign-in lists and PowerPoint presentation) are provided in in Appendix A3.

Table 1.B: Public Scoping Meeting Comments

Verbal/Written Comment	Agency or Individual	Summary of Comment	Relevant EIR Section
Verbal	Bob Cable, Cable Airport	Mr. Cable stated he has never seen a residential project rejected because of proximity to Cable Airport. The project is proposed 2,000 feet west of Cable Airport Runway 6, and aircraft fly approximately 344 feet above the Project site. Accordingly, the open space corridor along the line of sight of Runway 6 must remain clear of all obstructions. Additionally, Mr. Cable stated that avigation easements must be granted and filed with the City of Upland and San Bernardino County.	4.6 (Hazards and Hazardous Materials)
Verbal	Local resident	Concern about hazards to persons due to the Project site's proximity to Cable Airport.	4.6 (Hazards and Hazardous Materials)
Verbal	Local resident	Local residents prefer additional park space and a tot lot on site.	Addressed in the Recreation Section of the Initial Study (Appendix A1).
Verbal	Local resident	Concern about airport noise.	4.9 (Noise)
Verbal	Local resident	Consider a land swap between Upland and Claremont to place the proposed Project entirely within one jurisdiction.	4.8 (Land Use)
Verbal	Local resident	Is the decision to develop the site for mixed-use as opposed to the previously-approved commercial use irreversible?	4.8 (Land Use)
Verbal	Local resident	How would storm water flows from the north be handled on site and comingled with on-site and off-site flows.	4.7 (Hydrology and Water Quality)
Verbal	Local resident	Commenter expressed concern about community character, social cohesion, and walkability.	4.8 (Land Use) and 4.10 (Transportation)
Verbal	Local resident	Would the environmental analysis consider impacts to Riversidean Alluvial Sage Scrub habitat and be analyzed in the context of the California Endangered Species Act and Federal Endangered Species Act?	4.2 (Biological Resources)
Verbal	Local resident	What is the fiscal impact to the City of Claremont for developing the site as mixed-use rather than commercial?	6.0 (Alternatives)
Verbal	Local resident	What are the proposed building setbacks and density on site?	Addressed in the Aesthetics and Land Use Sections of the Initial Study (Appendix A1).

Table 1.B: Public Scoping Meeting Comments

Verbal/Written Comment	Agency or Individual	Summary of Comment	Relevant EIR Section
Verbal	Local resident	Would the Project include sufficient parking?	Not applicable: Parking is not a topic subject to CEQA consideration.
Verbal	Local resident	Would the Project facilitate use of alternative transportation?	4.10 (Transportation)
Verbal	Local resident	How would the Project affect public services and utilities?	Addressed in the Public Services and Utilities and Service Systems Sections of the Initial Study (Appendix A1).
Verbal	Local resident	Since the Project is in multiple Counties, terms of Federal Housing Administration versus Veterans Affairs versus Standard loans must be defined clearly. There is concern over foreign Limited Liability Companies purchasing multiple dwelling units of the proposed Project and using them strictly as rental properties.	Issues raised are not environmental issues of concern.
Verbal	Local resident	Commenter prefers more single-story flats townhomes and smaller units for "empty nesters."	6.0 (Alternatives)
Verbal	Local resident	Is mixed-use the only viable option to develop the site?	6.0 (Alternatives)
Verbal	Local resident	What about storm water management?	4.7 (Hydrology and Water Quality)
Verbal	Local resident	The Project site should include a statement entryway into Claremont.	Addressed in the Aesthetics and Land Use Sections of the Initial Study (Appendix A1).

1.3.5 Native American Consultation (Senate Bill 18 and Assembly Bill 52)

The proposed development is a project under CEQA and includes a General Plan Amendment and approval of a Specific Plan; therefore, consultation pursuant to both Senate Bill 18 (SB 18)[7] and Assembly Bill 52 (AB 52)[8] is required. The City provided consultation requests (via certified mail) to the following Native American entities on September 10, 2018. Table 1.C details the Native American governments contacted pursuant to this legislation.

Table 1.C: Native American Consultation

Native American Government/ Contact[1]	Date of Contact	Summary
Barbareno/Ventureno Band of Mission Indians	September 10, 2018	No further contact or consultation request received.
Fernandeno Tataviam Band of Mission Indians		No further contact or consultation request received.

7 California Government Code §§ 65040.2, 65092, 65351, 65352, 65560, 65352.3, 65352.4, and 65562.

8 California Public Resources Code §§ 5097.94, 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3

Table 1.C: Native American Consultation

Native American Government/ Contact[1]	Date of Contact	Summary
Gabrieleño Band of Mission Indians–Kizh Nation		The City received a consultation request on September 14, 2018 and the Tribe recommended mitigation measures on February 4, 2019.
Gabrielino/Tongva San Gabriel Band of Mission Indians		No further contact or consultation request received.
Gabrielino/Tongva Nation		No further contact or consultation request received.
Gabrielino-Tongva Tribe		No further contact or consultation request received.
Kern Valley Indian Community.		No further contact or consultation request received.
Kitanemuk and Yowlumne Teion Indians		No further contact or consultation request received.
San Manuel Band of Mission Indians		No further contact or consultation request received.
Soboba Band of Luiseño Indians		No further contact or consultation request received.
Santa Ynez Band of Chumash Indians		No further contact or consultation request received.

[1] Multiple contacts to some tribes (based on NAHC contact list)

The only response received by the City was from the Gabrieleño Band of Mission Indians–Kizh Nation (Tribe) on September 14, 2018. The Tribe requested further consultation to identify specific measures to mitigate for potential impact to Tribal Cultural Resources (TCRs). During consultation, the Tribe recommended mitigation to address potential impacts to tribal cultural resources (see Section 4.12, *Tribal Cultural Resources*). No other contact or consultation request was received from any other Native American tribal authority.

1.4 ALTERNATIVES TO THE PROPOSED PROJECT

An EIR must describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the Project objectives, and would avoid or substantially lessen its significant effects.[9] The EIR need not consider every conceivable alternative; rather it must consider a reasonable range of potentially feasible alternatives that "… foster informed decision making and public participation." The City, as Lead Agency, is responsible for selection the range of Project alternatives and must disclose its reasoning for selecting those alternatives.

Alternatives that fail to meet most of the stated Project objectives, are infeasible, or do not avoid significant environmental effects, may be rejected by the Lead Agency. The "no project" analysis shall discuss the existing conditions at the time the NOP preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the

[9] *CEQA Guidelines, §*15126.3.

environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.[10]

The City of Claremont has identified the following alternatives to the Project. Section 6.0 (Alternatives) of this EIR provides a detailed description of each Project alternative, assesses the potential environmental impacts associated with its construction and operation of each alternative, and provides justification for the selection of the "environmentally superior" alternative.

1.4.1 Alternative 1: No Project/No Build

In certain instances, the no project alternative means "no build," a condition in which the existing environmental setting is maintained. Under this alternative, no development or modification of the site would occur. The site would be retained in its current vacant condition. No roadway, utility, or storm water features would be installed within the limits of the site. The proposed discretionary actions (e.g., General Plan Amendment and Specific Plan) would not be required.

1.4.2 Alternative 2: No Project, Existing General Plan and Zoning/Approved Commercial/Office Project

This alternative would result in the development of the site with uses that are permitted under the Claremont General Plan Land Use Designation of Commercial, Zoning Designation of Commercial Highway. It is anticipated that development under this alternative would incorporate one- and/or two-story structures clustered north and south of the existing avigation easement and would also front Foothill Boulevard. This alternative does not include a residential component. The City of Claremont's Commercial Land Use designation "… provides opportunities for a broad range of retail, professional office, and service-oriented businesses, including supermarkets, theaters, restaurants, and specialty retail stores. Drive-through businesses are prohibited. The Commercial category accommodates uses that typically attract vehicular traffic."[11] Uses permitted under Claremont's Commercial Highway zoning designation generally follow the General Plan designation and are intended to provide for a broad spectrum of general retail, service, and office uses to serve local, as well as broader regional, market areas. These uses can be stand-alone businesses located as individual developments that face directly onto major or secondary arterial streets, or they may be located in larger commercial complexes or shopping centers located along arterial streets. They may be more intense and/or are typically more dependent on their visibility to large volumes of traffic than the uses located in the City's other commercial districts. Outdoor uses such as plant nurseries, lumberyards, automobile sales, and outdoor recreational facilities may also be permitted in the CH Commercial Highway District with a conditional use permit.

This Alternative would assume the construction of a project for the site which had been previously approved. This Alternative analyses a commercial/office development that would include the development of up to 70,800 square feet of office uses in four, two-story buildings, and 14,000 square feet of retail use in two, single-story buildings.

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10 *CEQA Guidelines* §15126.6(e)(2)

11 *City of Claremont General Plan. Land Use, Community Character, and Heritage Preservation Element. Page 2-67. November 2006, Last updated October 2009*.

Given the topography of the Project site, grading would still be required to accommodate the development, which would include grading for building pads, manufactured slopes, roadways, and other improvements.

The area within the avigation easement would be used for parking under this alternative; therefore, the Project's open space amenities would not be retained. Alternative 2 would result in a similar suite of roadway and other related infrastructure improvements, though the size and capacity of such facilities could be incrementally reduced relative to the proposed Project.

1.4.3 Alternative 3: Reduced Density

Alternative 3 would develop the 6.5-acre Project site with the 5,000 square feet of commercial uses but reduces the density of the residential potion of the Project to 8.2 units per acre. Alternative 3 would allow for development of up to 38 townhouses, 5,000 square feet of commercial use, and 15 flats over the commercial use. The linear park/open space proposed within the Project would be maintained.

It is anticipated that, given the topography of the Project site, grading would still be required to accommodate the development, which would include grading for residential lots, building pads, manufactured slopes, roadways, and other improvements. The extent and volume of earthmoving operations would be incrementally reduced under this alternative. This alternative is intended to decrease the overall development footprint of the proposed Project, which would result in reduced landform alteration and urban development that is visible from surrounding viewpoints, including public streets and highways. This alternative would require the installation of roadway and other related infrastructure improvements, though the size and capacity of such facilities could be incrementally reduced relative to the proposed Project. The location and capacity of such facilities could be altered relative to the proposed Project.

1.4.4 Alternative 4: Business Park

To be compatible with the existing business park uses surrounding the project site both within Claremont and the City of Upland, Alternative 4 proposes 141,570 square feet[12, 13] of business park uses on the site. The existing avigation easement would be used as a parking area for the buildings to maintain a 150-foot setback for the buildings as a safety area for the Cable Airport.

Development under Alternative 4 would require a City of Claremont General Plan Amendment to Business Park and a Zone Change to B/IP (Business/Industrial Park District). Claremont's General Plan Business Park designation provides locations for well-designed business and employment centers developed with uses consisting of professional offices, research/development businesses, laboratories, light manufacturing, and supportive commercial uses. The corresponding B/IP zone is intended to provide for a variety of professional and office uses, restricted industrial uses primarily engaged in research and testing, or in light manufacturing and the treatment of materials, that would

[12] 6.5 acres in Claremont × 43,560 square feet per acre = 283,140 square feet × 0.5 FAR = 141,570 square feet of business park uses.

[13] FAR range of 0.3 – 1.5, from *City of Claremont General Plan. Land Use, Community Character, and Heritage Preservation Element.* Page 2-16.

maintain and enhance employment opportunities in the community.[14] Business park developments should offer attractive and distinctive architectural design, innovative site planning, and landscaping.

While grading would still be required to accommodate development under this alternative, the extensive grading and creation of manufactured slopes on the northern portion of the site would not be required. Alternative 4 is intended to decrease the overall development footprint of the proposed Project, which would result in reduced landform alteration and the preservation of open space areas along the San Gabriel Mountains. While reduced in terms of overall intensity and site coverage, this alternative would result roadway, utility, and related infrastructure improvements, though the size and capacity of such facilities could be incrementally reduced relative to the proposed Project.

1.4.5 Environmentally Superior Alternative

As described and analyzed in Section 6.0 Alternatives of this EIR, Alternative 3 Reduced Density, is the environmentally superior alternative for the proposed Project.

1.5 SUMMARY OF IMPACTS, MITIGATION, AND LEVEL OF IMPACTS

Table 1.D provides a summary of the proposed Project impacts, proposed mitigation measures, and the level of significance of each impact following the application of identified mitigation measures.

[14] Chapter 16.054.000, City of Claremont Municipal Code.

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
4.1 Air Quality			
Impact 4.1.5.1 Air Quality Management Plan Consistency: Criteria pollutants during construction and operation of the proposed Project would not have the potential to cause or affect a violation of the ambient air quality standards. The proposed Project's residential units and 5,000 square feet of retail uses would introduce an estimated net residential population of approximately 172 persons (residents + employees). Thus, Project residents would account for less than 0.01 percent of the population growth forecast by Southern California Association of Governments (SCAG) in the County of Los Angeles subregion between 2015 and 2040. Because similar projections form the basis of the 2016 Air Quality Management Plan (AQMP), it can be concluded that the proposed Project would be consistent with projections in the AQMP. No consistency or obstruction of the AQMP would occur.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.1.5.2 Increase in Criteria Air Pollutants (Regional Construction and Operation): The proposed Project would adhere to standard (South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB) and other rules/regulations ensuring that sensitive receptors on the Project site or surrounding the site would not be exposed to substantial pollutant emissions during construction. During Project operation/occupation the proposed Project would not generate emissions that would exceed regional or daily thresholds.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.1.5.3: Sensitive Receptor Exposure to Pollutants (Local Construction and Operation): Adherence to standard SCAQMD, CARB, and other rules/regulations would ensure that sensitive	Less than Significant Impact	No mitigation measures required.	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
receptors are not exposed to substantial pollutants during construction activities. Emissions of regional pollutants during operation/occupation of the Project would not exceed established daily thresholds and would not expose sensitive receptors to substantial pollutants.			
Impact 4.1.5.4 Odors: Emissions leading to odors are typically produced by industrial uses, landfills, and other similar uses. Odors generated from the site during construction and operation would be temporary and typical of a mixed-use residential development.	Less than Significant Impact	No mitigation measures required.	Less than Significant
4.1.6 Cumulative Air Quality Impact: If a project does not exceed the SCAQMD recommended daily regional emission thresholds, the project-specific impacts would also not result in a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. The proposed Project's short-term construction CO, NO_2, PM_{10}, and $PM_{2.5}$ emissions would not exceed the Localized Significance Thresholds (LSTs). While the Project would contribute emissions to the cumulative condition, its long-term operational emissions would not exceed SCAQMD's criteria pollutant threshold. The Project impacts on air quality are not cumulatively considerable.	Not cumulatively considerable	No mitigation measures required.	Not cumulatively considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
4.2 Biological Resources			
Impact 4.2.5.1 Candidate, Non-listed Sensitive, or Special-Status Plant and Wildlife Species: Development of the Project would result in the modification of the site and the removal of existing vegetation. 14 special-status species have been reported within 1.5-miles of the site. The RAFFS habitat consisting of 3.01 acres in the study area provides low quality habitat for the coastal California gnatcatcher. While this species was not identified during the on-site general biological resources survey, the on-site Riversidean Alluvial Fan Sage Scrub (RAFSS) provides potentially suitable habitat for the coastal California gnatcatcher. California gnatcatcher surveys conducted onsite included 4 nonbreeding and 4 breeding season protocol surveys and no gnatcatchers were observed onsite.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.2.5.2 Sensitive Natural Communities: The on-site RAFSS community is highly degraded, small in size (3.01 acres), isolated from other RAFSS areas by existing residential, industrial, commercial, and roadway uses, and no longer functions as part of a fluvial system. No other sensitive natural community is located within the Project limits.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.2.5.3 Jurisdictional Waters/Wetlands: The Project site does not include any federally or State protected wetlands. One remnant drainage features is present on the Project site and is associated with an existing concrete box culvert under Foothill Boulevard. However, this drainage feature shows no upstream connectivity to any water conveyance features or systems.	No Impact	No mitigation measures required.	No Impact
Impact 4.2.5.4 Wildlife Movement and Nesting/ Migratory Birds: During the bird breeding season (typically February 1 through August 31), large trees	Potentially Significant Impact	**4.2.5.4A Pre-construction Nesting Bird Survey.** Vegetation removal shall be conducted outside of the nesting season (February 1, or January 1 for raptors, through September 15). If avoidance of the nesting season is not	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
adjacent to the Project site may be used by hawks, ravens, or other large birds for nesting. Trees, shrubs, and other vegetation on site may provide nest sites for smaller birds. Nesting bird species, with potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA) (16 USC 703–711).		feasible, then a qualified biologist shall conduct a nesting bird survey within three days prior any disturbance of the site, including disking, demolition activities, and grading. If an active avian nest is identified, a biological monitor shall be present to delineate the boundaries of the buffer area and monitor the active nest to ensure that nesting behavior is not adversely affected by construction activities. Construction activities must occur outside of a 300-foot buffer around the active nest. For listed and raptor species, this buffer may be expanded to up to 500 feet from the active nest. The biological monitor shall have the authority to temporarily halt construction if it occurs within an established avian buffer or if new nesting activity occurs and a new buffer is required. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur or resume. Upon completion of construction monitoring, the biological monitor shall prepare a report of findings documenting if any impacts to active avian nests occurred.	
Impact 4.2.5.5 Adopted Policies and/or Ordinances: The Project would not conflict with any local policies or ordinance protection biological resources.	No Impact	No mitigation measures are required	No Impact
Impact 4.2.5.6 Adopted Habitat Conservation Plans: The Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan.	No Impact	No mitigation measures are required	No impact
4.2.6 Cumulative Biological Resources Impact: The Project-specific biological resource impacts have been reduced to less than significant levels. Due to the disturbed and isolated nature of the site, the limited extent of degraded RAFSS habitat, and the proximity of existing urban development, the Project impacts on biological resources are not cumulatively considerable.	Not cumulatively considerable	No mitigation measures are required	Not cumulatively considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
4.3 Cultural Resources			
Impact 4.3.5.1 Historical Resources: A segment of former Route 66, adjacent to the site, was determined by Caltrans in 2010 to lack the requisite level of integrity to meet National and California Register criteria. The Project site contains remnants of concrete structures that were determined not to be historical. Overall, no historical resources as defined in Section 15064.5 of the *State CEQA Guidelines* located within the proposed Project site.	No Impact	No mitigation measures required.	No Impact
Impact 4.3.5.2 Archaeological Resources: Three historic-period archaeological resources were identified in the Project area. These resources were determined not to represent noteworthy archaeological data, have specific historic association, and were also moderately to severely disturbed by erosion. Although the resources on site do not meet significance criteria under CEQA and have no potential for significant archaeological data, the Project site's proximity to a historically renowned archaeological site (Planes of Fame aviation museum) and location within the former drainage of a major water course indicates that the site may have some sensitivity for subsurface archaeological resources.	Potentially Significant Impact	**4.3.1A: Archaeological Resources** a. Prior to the commencement of construction activities, the Construction Contractor shall provide evidence to the City for review and approval that a qualified archaeologist who meets Secretary of the Interior Standards has been retained to provide pre-construction briefing, monitoring, and investigation of ground-disturbing activities. The scope, limit, duration and frequency of construction monitoring shall be established by the qualified archaeologist, City, construction contractor and Native American monitor prior to the initiation of ground-disturbance operations. b. Prior to the commencement of construction activities, the construction Contractor(s) shall provide evidence to the City for review and approval that on-site work crews have been informed of the procedures to follow in the event an identified cultural resource is unearthed during construction. The pre-construction briefing shall be conducted by a qualified archaeologist. c. In the event previously unidentified cultural resources are unearthed during construction, all work within a minimum of 100 feet of the discovery shall cease until the extent and nature of the discovery has been identified by the qualified archaeologist. Construction activities outside the exclusion area shall be permitted to continue. d. Any potential cultural/archaeological resource unearthed by project construction activities shall be evaluated to determine eligibility for	Less Than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		the California Register of Historical Resources or qualification as unique archaeological resources pursuant to CEQA. If the resource is determined by the qualified archaeologist to constitute a "historical resource" pursuant to *CEQA Guidelines Section* 15064.5(a) or has a "unique archaeological resource" pursuant to Public Resources Code Section 21083.2(g), the qualified archaeologist shall coordinate with the Construction Contractor, City and Native American monitor to develop a formal treatment plan that would serve to reduce impacts to the resources. The treatment plan established for the resources shall be in accordance with *CEQA Guidelines Section* 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any non-Native American historic cultural/archaeological resource shall be curated at a public, non-profit institution with a research interest in the materials. e. The qualified archaeologist shall prepare a final report and appropriate California Department of Parks and Recreation (DPR) site forms at the conclusion of treatment and/or following archaeological construction monitoring. The report shall include a description of resources unearthed, treatment of the resources, results of the artifact processing, analysis, and research, and evaluation of the resources with respect to the California Register of Historical Resources. The report and the site forms shall be submitted by the Applicant to the City, the South Central Coastal Information Center and representatives of other appropriate agencies.	
Impact 4.3.5.3 Human Remains: No previously identified human remains are present on the Project site and there are no facts or evidence indicating that Native American or people or European descent are buried on the proposed Project site. However,	Potentially Significant Impact	**4.11.2A Human Remains Assessment and Treatment.** Upon discovery of human remains, cremations, and/or associated grave goods, the Tribal monitor and/or archaeological monitor shall halt work within a minimum of 150 feet of the discovery. The discovery shall be kept confidential and secure to prevent further disturbance. The Tribe and the County Coroner shall be notified within 24 hours of any such discovery. Work within the	Less Than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
undiscovered human remains may be present below the ground surface on any property.		150 foot buffer area shall be diverted while the County Coroner determines the nature of the remains and the Most Likely Descendant (MLD) identified. The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD shall identify and direct the most appropriate means of treating the human remains and any associated funerary object(s). Prior to the continuation of ground-disturbing activities, the landowner shall arrange a designated site within the footprint of the Project for the respectful reburial of the human remains and/or funerary objects. In cases where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered with muslin cloth and a steel plate that can be moved by heavy equipment to protect the remains. If this type of protection is not available, a 24-hour guard shall be posted outside of working hours. The Tribe will make every effort to recommend diverting the Project and keeping the remains in situ and protected. If the Project cannot be diverted, it may be determined that burials will be removed. The Tribal monitor will work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum, detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe/Tribal monitor for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all material. Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site. These items shall be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the Project site but at a location agreed upon between the Tribe monitor and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.	

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		If the discovery of human remains includes four or more burials, the location shall be considered a cemetery, and a separate treatment plan shall be developed. Once complete, a final report of all activities shall be submitted to the Tribe Nation and the Native American Heritage Commission. The Tribe does not authorize any scientific study or the utilization of invasive diagnostics on human remains. **Kizh-Gabrieleno Procedures for Burials and Funerary Remains.** If the Gabrieleno Band of Mission Indians - Kizh Nation is designated MLD, the following treatment measures shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. **Treatment Measures.** Prior to the continuation of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered "with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe shall make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials shall be removed. The Tribe "shall work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of	

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		documentation shall be approved by the Tribe for data recovery purposes. Cremations "shall either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be created. Once complete, a final report of all activities is to be submitted to the Tribe and the NARC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains. Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.	
Impact 4.3.6 Cumulative Cultural Resources Impact: Potential impacts of the proposed Project to unknown cultural resources, when combined with the impacts of past, present, and reasonably foreseeable projects in the City could contribute to a cumulatively significant impact due to the overall loss of historical and archaeological artifacts unique to the region.	Cumulatively Considerable Impact	Implementation of **Mitigation Measure 4.3.1A** and **Mitigation Measure 4.11.2A**.	Not cumulatively considerable
4.4 Energy			
Impact 4.4.5.1 Energy Consumption: Impacts related to energy use during construction would be temporary and would be relatively small in comparison to the Los Angeles County overall usage and the State's available energy sources. Energy use during occupation/operation would also be relatively small in comparison to the overall energy used in Los Angeles County and California. Regulatory Compliance Measures would also be	Less than Significant Impact	No mitigation measures required.	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
implemented to reduce energy usage by the Project during construction and operation/occupation.			
Impact 4.4.5.2 Project Consistency with Energy Strategies: The proposed Project would implement energy conservation strategies as put forth by California and the City of Claremont and therefore would not obstruct State or local plans for renewable energy or energy efficiency.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.4.6 Cumulative Energy Impacts: The proposed Project would consume electricity, natural gas, and fuel (gasoline and diesel); however, the consumption would be relatively small compared to the consumption on a regional and statewide basis and therefore would not be cumulatively considerable.	Not cumulatively considerable	No mitigation measures required.	Not cumulatively considerable
4.5 Greenhouse Gas			
Impact 4.5.6.1 Greenhouse Gas Emissions: The proposed Project would generate 1,695 metric tons (MT) of "CO_2 equivalents" per year (CO_2e/yr). The Project's emissions are less than the South Coast Air Quality Management District Tier 3 threshold of 3,000 MT CO_2e/yr for residential projects.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.5.6.2 Greenhouse Gas Plan, Policy, and Regulation Consistency: The Project would be consistent with the City of Claremont General Plan air quality policies, and the Project would be consistent with Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) performance standards.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.5.7 Cumulative Greenhouse Gas Emissions Impact: The proposed Project has incorporated sustainability design measures in accordance with regulatory requirements as provided throughout the	Not cumulatively considerable	No mitigation measures required.	Not cumulatively considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
analysis and to reduce the proposed Project's potential impact with respect to greenhouse gas (GHG) emissions. As GHG emissions would not exceed the SCAQMD Tier 3 numerical screening threshold and Project design measures would be applied to lower the GHG emissions, the proposed Project would result in a less than significant cumulative impact related to GHG emissions. The proposed Project's GHG reduction measures make it consistent with Assembly Bill 32, 2016 RTP/SCS, and City of Claremont General Plan. The proposed Project's GHG impacts are not cumulatively considerable.			
4.6 Hazards and Hazardous Materials			
Impact 4.6.5.1 Within Two Miles of a Private Airport or Within an Airport Land Use Plan or Within Two Miles of a Public Airport: The proposed Project is located in Safety Zone 2 and Safety Zone 4 as established under the *California Airport Land Use Planning Handbook*. The proposed Project would place residents and buildings on a parcel that is undeveloped; as such, although the potential for a Cable Airport plane crash causing onsite injuries or casualties to occur on the site is low it is greater than the probability of such an injuries occurring if the site was vacant/unoccupied.	Potentially Significant Impact	**4.6.1A:** Prior to the issuance of building permits, the Project applicant shall provide the City of Claremont a copy of an *Airport Proximity Disclosure* that will be presented to prospective buyers of real estate within the Project site. The *Airport Proximity Disclosure* shall convey information to prospective buyers about airport-associated annoyances or inconveniences such as noise, vibration, or odors. The *Airport Proximity Disclosure* shall: 1. Contain the following language dictated by State law in conjunction with real estate transfer: "*NOTICE OF AIRPORT IN VICINITY: This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what appropriate annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.*"	Significant and Unavoidable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		2. Include signs declaring the NOTICE OF AIRPORT IN VICINITY and a map of the Airport Influence Area to be prominently posted in the real estate sales office and/or other key locations at the Project site. **4.6.1B:** Any activity (i.e., activities taking place in the common areas and parks within the site) or development (i.e., residential and retail development) on the Project site shall be prohibited from: • Emitting/generating smoke (or any visibility-reducing emissions); • Producing electromagnetic frequencies at levels that could interfere with the safe operation of Cable Airport; and, • Installing lighting that is not shielded and focused in a downward position to avoid direct light spillage/light glare/illumination into the direction of Runway 6/24 of the Cable Airport and into the sky where aircraft cross over the Project site. The Project applicant shall provide final design of the proposed Project to staff at the City of Claremont and to the owners of Cable Airport showing that onsite activities will not cause safety issues to pilots arriving and departing from Cable Airport or to pilots flying over the Project site. **4.6.5.1C:** Prior to recording of final tract maps of the Project site, the Project applicant shall provide a copy of a recorded and deed restricted avigation easement between the property owner (grantor) and Cable Airport (grantee) to the City of Claremont. This would establish a perpetual right and easement for the unobstructed flight of aircraft over the proposed Project site and the perpetual right to cause noise and other impacts inherent in the operation of aircraft of all types over the proposed Project site.	
Impact 4.6.6 Cumulative Hazards and Hazardous Materials Impact: The proposed Project would not combine with other projects to result in a cumulatively considerable impact related to safety hazards from nearby airport as this type of impact is considered on a project-by-project basis.	Cumulatively Considerable Impact	Implementation of **Mitigation Measure 4.6.1A, 4.6.1B**, and **4.6.1C**.	Not Cumulatively Considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
4.7 Hydrology and Water Quality			
Impact 4.7.5.1 Water Quality Standards and Waste Discharge: The Project-specific Low Impact Development (LID) Plan would be reviewed and approved as a routine action during the processing of the Project by the City. The LID Plan measures would be implemented to safeguard water quality. **Standard Conditions HYD-1** through **HYD-3** and Regulations would be implemented as part of the Project to ensure the protection of surface and groundwater quality.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.7.5.2 Groundwater: Nearby wells indicate groundwater in the Project area is greater than 115 feet below the ground surface. Therefore, development of the Project site is not expected to encounter any groundwater or require dewatering during construction activities. Through preservation of the site's existing drainage pattern and implementation of the underground Contech retention/infiltration system on site designed to exceed the site's design capture volume in accordance with the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) Permit, storm flows would be ultimately conveyed to the same areas where groundwater recharge in the Upper Claremont Heights Basin and the Pomona Basin predominantly occurs. Furthermore, these basins are subject to adjudication through the Six Basins Judgment to ensure safe operating yield and avoidance of groundwater over-extraction.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.7.5.3 Drainage Pattern and Capacity-Related Impacts: The Project would potentially increase runoff volume due to the increase in impervious surfaces on site; as such, approximately	Less than Significant Impact	No mitigation measures required.	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
30 percent of the site would comprise drought-tolerant landscaping and other pervious surfaces designed to retain or detain storm water runoff while minimizing volume and pollutant concentrations. The remainder of on-site flows that currently sheet flow onto Foothill Boulevard and comingle with the San Antonio Creek Channel approximately 0.4 mile east of the Project site would be captured on site via a retention/infiltration system designed to capture more storm water runoff than currently flows across the site during a design storm event. The drainage channel that proceeds beneath Foothill Boulevard via a box culvert shows no upstream connectivity to any water conveyance features or systems. The on-site runoff is not carried via this drainage feature, which would drain to catch basins along the north property line and convey flows underground through the site via pipelines before discharging into an existing box culvert beneath Foothill Boulevard without comingling with on-site storm water flows. Although conversion of pervious surfaces to impervious surfaces has the potential to increase the velocity and volume of on-site storm water runoff, this conversion would reduce the potential for on-site siltation and erosion during operation of the Project because less soil would be exposed to runoff.			
Impact 4.7.5.4 Flood Hazard, Tsunami, and Seiche Zones: The Project site is 34 miles from the Pacific Ocean and is located at an elevation of 1,362 feet above mean sea level. No bodies of water or enclosed water storage features are located on, upslope of, or in the vicinity of the Project site. As such, the Project is not subject to known flood hazards, tsunamis, or seiches.	Less than Significant Impact	No mitigation measures required.	Less than Significant

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Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
The Project site is in an area of potential dam inundation for the San Antonio Dam. In December 2008, the United States Army Corps of Engineers (USACE) issued San Antonio Dam a Dam Safety Action Class II rating, which is given to dams where failure could begin during normal operations or be initiated as the consequence of an event. However, the San Antonio Dam was designed to withstand the strongest possible earthquake that could occur in the area, and flooding that would occur from a dam breach would be reduced by the number and capacity of settling basins that are located south of the dam and upslope of the Project site. Claremont General Plan Policies 6-6.1 and 6-6.2 require the City to work with the USACE and Los Angeles County to ensure dam structures are upgraded as needed to best withstand earthquakes and prevent dam inundation and to encourage regular maintenance of flood-control facilities. The Federal Emergency Management Agency (FEMA) requires that all dam owners develop Emergency Action Plans (EAPs) for warning, evacuation, and post-flood actions, and development of potential flood inundation maps and facilitation of emergency response is the responsibility of the dam owner. Therefore, through implementation of Claremont General Plan Policy 6-6.1 it is reasonable to conclude the Project site is adequately protected from potential dam inundation to the degree that other surrounding developed properties are protected.			
Impact 4.7.5.5 Water Quality Control Plan and Sustainable Groundwater Management Plan: The proposed Project would comply with the requirements of the State Water Resources Control Board NPDES Construction General Permit pursuant to the Clean Water Act, California's Porter-Cologne	Less than Significant Impact	No mitigation measures required.	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
Act, and the City's NPDES MS4 Permit through implementation of **Standard Conditions and Regulations HYD-1** through **HYD-3**. Pursuant to the Groundwater Management Act, the Six Basins Judgment defines adjudication for the Upper Claremont Heights Basin and the Pomona Basin underlying the Project site. The Watermaster calculates the operating safe yield based on fluctuating hydrologic conditions to ensure safe operating yield and avoidance of groundwater over-extraction.			
Impact 4.7.6 Cumulative Hydrology and Water Quality Impacts: Similar to the proposed Project, all future development in the cumulative study area and throughout the Santa Ana RWQCB would be required to comply with the applicable requirements of the NPDES permit program and water quality standards defined by local, regional, State, and federal agencies. The proposed Project would make an incremental contribution to production of urban pollutants, but the site-specific water quality best management practices (BMPs) would help ensure that these contributions would not make a significant contribution to any cumulatively considerable regional water quality impacts. Implementation of the Project would result in continuation of the drainage pattern consistent with the Los Angeles County's *Low Impact Development Standards Manual* and would not result in a cumulatively considerable impact to water quality, drainage, or hydrology.	Not Cumulatively Considerable	No mitigation measures required.	Not Cumulatively Considerable
4.8 Land Use and Planning			
Impact 4.8.5.1 Physically Divide an Established Community: Since the proposed Project is a mixed-use development in an area currently comprising	No Impact	No mitigation measures required.	No Impact

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Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
commercial, office, and residential uses currently divided by the vacant, underutilized Project site, the proposed Project would facilitate residential and commercial connectivity in the area instead of physically divide an established community.			
Impact 4.8.5.2 Conflict with Applicable Land Use Plans, Policies, or Regulations: The proposed Project will be consistent with the following applicable planning documents: City of Claremont General Plan; 2011 California Airport Land Use Planning Handbook (in lieu of a Los Angeles County Airport Land Use Compatibility Plan for Cable Airport in Claremont); Regional Comprehensive Plan; Regional Transportation Plan; and, the Sustainable Communities Strategy (SCS) Plan. The proposed Project will include a text amendment to the Claremont General Plan to permit residential units within an area exposed to aircraft generated noise levels of up to 70 dBA CNEL.	Less than Significant Impact	No mitigation measures are warranted.	Less than Significant
Impact 4.8.6 Cumulative Land Use and Planning Impacts: Since the proposed Project would not affect land uses of properties it would not occupy, the proposed Project would not combine with other projects to result in a cumulatively considerable impact related to physical division of communities. Furthermore, the proposed Project represents a shift in land use designations for the site (i.e., commercial to mixed-use) and would introduce more housing in an area determined to be "jobs-rich" and "housing-poor."	Not Cumulatively Considerable	No mitigation measures required.	Not Cumulatively Considerable
4.9 Noise and Vibration			
Impact 4.9.7.1 Noise Levels in Excess of Established Local Standards: Project construction activities would not generate a substantial temporary or permanent increase in ambient noise levels in the	Potentially Significant Impact	**4.9.1A:** Prior to the issuance of building permits, the Project applicant shall submit evidence to the City of Claremont for review and approval that air conditioning units would be installed in all proposed structures on site.	Less Than Significant

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Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
vicinity of the Project in excess of standards established in the City of Claremont General Plans or noise ordinances. Project-related traffic noise increase would reach up to 0.2 dBA. Noise level increases less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Exterior noise levels at on-site sensitive receptors would not be exposed to noise levels that exceed City of Claremont standards. Interior noise levels of the onsite residential units would be exposed to noise levels that exceed City of Claremont standards; as such, the impact is potentially significant.		**4.9.1B:** Prior to the issuance of building permits and once final architectural plans are available showing exterior wall detail and window types, the Project applicant shall prepare and submit to the City of Claremont for review and approval a Final Acoustic Report confirming that the interior living spaces of all residential dwelling units would meet the Claremont's interior noise standard of 45 dBA CNEL with windows and doors closed. Additionally, the Final Acoustic Report shall include analysis that confirms that aircraft-related interior noise levels would be no greater than 40 dBA CNEL with windows and doors closed for interior living spaces of all residential units within the proposed Project.	
Impact 4.9.7.2 Groundborne Vibration/ Groundborne Noise Impacts: Vibration levels generated by construction activities have the potential to result in community annoyance because the vibration levels exceed the Federal Transit Administration's (FTA) community annoyance threshold of 84 vibration velocity decibels (VdB) for non-sensitive uses; however, vibration levels would not result in building damage because vibration levels would not exceed the FTA vibration damage threshold of 94 VdB (0.2 peak particle velocity (PPV) [in/sec]) for structures constructed of non-engineered timber. The proposed residences and commercial uses would not generate vibration during Project occupation/operation. Vibration sources from nearby roadways would not affect on-site residential uses.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.9.7.3 Public/Private Airport Noise: Residential units on the Project site would be exposed to excessive interior noise levels due to aircraft overflights from Cable Airport. As part of the proposed Project, a General Plan Text Amendment would be requested to update existing text in the	Potentially Significant Impact	Implementation of **Mitigation Measures 4.9.1A and 4.9.1B** would reduce interior noise levels to 40 dBA CNEL.	Less than Significant

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Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
general plan pertaining to the "...maximum acceptable exposure from aircraft-related noise for new residential development is 60 dBA CNEL" to the following: "However, in order to promote the development of housing urgently needed during the current California housing crisis and to meet the City's current Regional Housing Needs Assessment RHNA, residential uses located in a mixed-use development where there is a mix of residential housing types including multi-family housing, are allowed maximum noise level exposures up to 70 dBA CNEL." With implementation of the proposed General Plan amendment impacts the exterior noise levels would be less than significant. Residential interior noise levels would be above the City's threshold of 45 dBA CNEL from Cable Airport aircraft overflights, which is a significant impact requiring mitigation.			
Impact 4.9.8 Cumulative Noise and Vibration Impact: In the event that adjacent properties (or projects within the cumulative study area) are developed at the same time as the proposed Project, adherence to the City of Claremont provisions (e.g., construction exemption) that regulate the timing construction activities would reduce impacts pertaining to construction noise. The proposed Project's construction noise would not be cumulatively considerable. It is likely that operation activities on adjacent properties (or projects within the cumulative study area) would generate noises that would be additive in nature because (1) the noise sources would have to be adjacent or in close proximity to one another	Not Cumulatively Considerable	No mitigation measures required.	Not Cumulatively Considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
in order for the noises to intermingle, and (2) the sensitive receptor or receptors would also have to be adjacent to or in close proximity to the noise generators. Increasing traffic on local roadways would cumulatively increase traffic noise in the Project area, which would increase the potential for cumulatively significant noise levels at new and existing development. However, each project would be required to identify and mitigate noise such that exterior and interior noise levels do not exceed established City of Claremont (or jurisdictions where the cumulative projects are located) standards at any noise-sensitive use. Adherence to standard City of Claremont provisions that regulate noise and implementation of Project-specific mitigation for the proposed development as well as other identified cumulative projects would ensure operational noise generated by the proposed Project would not be cumulatively considerable.			
4.10 Transportation			
Impact 4.10.5.1 Conflicts with a program, plan, ordinance, or policy addressing the circulation system: The Project, during construction, would generate more trips than are currently being generated. However, the Project would adhere to City of Claremont requirements and the *California Manual on Uniform Traffic Control Devices* to reduce potential impacts to roadways during construction. Overall, the Project would be consistent with all programs, plans, ordinances, or policies addressing the local circulation system in Claremont.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.10.5.2 State CEQA Guidelines *Section 15064.3, Subdivision(b)* VMT: Claremont has not adopted methodologies or thresholds for Vehicle miles traveled (VMT) to analyze impacts within their	Potentially Significant Impact	No feasible mitigation measures available to reduce impacts.	Significant and Unavoidable Impact

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
jurisdictions. However, the State Office of Planning and Research Technical Advisory provides a threshold to analyze VMT and determine impacts to transportation. The VMT of the proposed Project would be 23 percent higher than the Region VMT and would also be 8 percent higher than the 15 percent thresholds as suggested by the Technical Advisory.			
Impact 4.10.5.3 Design Features or Incompatible Uses: With the installation of Project improvements, it is reasonable to conclude that geometric design features required for the Project site and the cities in general would be installed and appropriately maintained.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.10.5.4 Inadequate Emergency Access: The proposed Project is not anticipated to cause significant impacts to roadways or intersections that may be used by emergency vehicles. The implementation of recommendations outlined in the *California Manual on Uniform Traffic Control Devices* would minimize the length of time that any roadways would be blocked for construction vehicle and material delivery. At all times during construction and operation, no roadways would be closed or feature obstructions to through traffic and emergency vehicles.	Less than Significant Impact	No mitigation measures required.	Less than Significant
Impact 4.10.6 Cumulative Transportation Impacts: All study area intersections are anticipated to operate at an acceptable LOS under Cumulative with Project Traffic volumes. Given the distance between the proposed Project site and cumulative project sites, impacts associated with air traffic patterns, design hazards, emergency access, or conflicts with adopted policies, plans, or programs supporting alternative transportation would not comingle and	Cumulatively Considerable Impact	Feasible mitigation measures are not available to reduce the incremental cumulative increase in the Project contribution to Regional VMT.	Cumulatively Considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
create impacts over and above those associated with the proposed Project. The proposed Project would not have a cumulatively considerable impact on traffic. The proposed Project would cumulatively contribute to an incremental increase in the Region's VMT. Mitigation is not available to reduce such a cumulative contribution.			
4.11 Tribal Cultural Resources			
Impact 4.11.5.1 Tribal Cultural Resources: Due to the longevity of use of tribal cultural landscapes in the Project area, the Tribe identified a "high potential" that Tribal Cultural Resources may be present in the Project area; therefore, a significant potential exists that Project-related development activities could affect or inadvertently unearth, disturb, and/or destroy such resources. The City of Claremont entered into an agreement on February 4, 2019 with the Gabrieleño Band of Mission Indians–Kizh Nation to "Accept Tribal Mitigation Measures" which are presented as the mitigation measures for this potentially significant impact.	Potentially Significant Impact	The following measures have been identified to mitigate potential impacts to known, unknown or potential Tribal cultural resources in the Project area. For purposes of these measures, the term "Tribe" shall refer to the Gabrieleño Band of Mission Indians–Kizh Nation. **4.11.1A:** Retention of Tribal Monitor. Prior to the issuance of grading applicants, the Project applicant shall provide evidence a Native American monitor has been retained and appropriately compensated for construction monitoring services. The monitor shall be approved by the Gabrieleño Band of Mission Indians–Kizh Nation (Tribe) and shall be listed on the Native American Heritage Commission's (NAHC's) Tribal Contact list for the area of the Project location. The monitor shall be present on site only during the construction phases that involve ground-disturbing activities. Ground-disturbing activities are defined as activities that include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling and trenching within the Project area. The Kizh monitor shall complete daily monitoring logs that provide a description of the day's activities, including construction activities, locations, soils, and any cultural materials identified. The on-site Tribal monitoring shall end when the Project site grading and excavation activities area completed, or when the Kizh representatives, in consultation with the City, have indicated that the site has a low potential for impact to Tribal Cultural Resources. **4.11.1B:** Unanticipated Discovery. Upon discovery of any archaeological resource, construction activities in the immediate vicinity of the find shall	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		ceased until the find can be assessed. All archaeological resources unearthed by the Project construction activities shall be evaluated by a qualified archaeologist and the Tribe. If the resources are Native American in origin, the Tribe shall coordinate with the landowner regarding the treatment and curation of these resources. Typically, the Kizh request reburial or preservation for educational purpose. Work may continue on other parts of the Project while evaluation occurs. If a discovery is determined by the qualified archaeologist to be a "historical resource" or "unique archaeological resources," a treatment plan shall be developed (pursuant to CEQA Guidelines, Section 15064.5[f]) allowing for sufficient time and funding to identify and implement avoidance measures and/or appropriate mitigation. For unique archaeological resources, preservation in place is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery extraction to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall, at the discretion of the landowner, be curated at a public, non-profit institution with a research interest agreeing to accept in the materials. If no such institution agrees to accept the materials, they shall be offered to a local school or historical society in the area for educational purposes. **4.11.1C:** Archaeological and Native American monitoring and excavation during construction shall be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel shall meet the Secretary of Interior standards for archaeology and have a minimum of ten years of experience as a principal investigator working with Native American archaeological sites in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified. **4.11.1D:** Prior to the issuance of grading permits, the applicant shall provide evidence that the Tribal Cultural Resource mitigation measure(s)	

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		identified in this EIR and the current contact information for the Tribe, Tribal monitor, qualified archaeologist, County Coroner(s) and Native American Heritage Commission are included in construction documentation and are readily available to the construction contractor(s) for the duration of on-site ground disturbance activities.	
Impact 4.11.5.2 Native American Human Remains: Although no evidence exists to suggest the Project site has been utilized in the past for human burials, on-site construction could uncover previously unknown buried human remains.	Potentially Significant Impact	**4.11.2A: Human Remains Assessment and Treatment.** Upon discovery of human remains, cremations, and/or associated grave goods, the Tribal monitor and/or archaeological monitor shall halt work within a minimum of 150 feet of the discovery. The discovery shall be kept confidential and secure to prevent further disturbance. The Tribe and the County Coroner shall be notified within 24 hours of any such discovery. Work within the 150 foot buffer area shall be diverted while the County Coroner determines the nature of the remains and the Most Likely Descendant (MLD) identified. The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD shall identify and direct the most appropriate means of treating the human remains and any associated funerary object(s). Prior to the continuation of ground-disturbing activities, the landowner shall arrange a designated site within the footprint of the Project for the respectful reburial of the human remains and/or funerary objects. In cases where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered with muslin cloth and a steel plate that can be moved by heavy equipment to protect the remains. If this type of protection is not available, a 24-hour guard shall be posted outside of working hours. The Tribe shall make every effort to recommend diverting the Project and keeping the remains in situ and protected. If the Project cannot be diverted, it may be determined that burials would be removed. The Tribal monitor shall work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum, detailed descriptive notes and sketches. Additional types of	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		documentation shall be approved by the Tribe/Tribal monitor for data recovery purposes. Cremations shall either be removed in bulk or by means as necessary to ensure complete recovery of all material. Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site. These items shall be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the Project site but at a location agreed upon between the Tribe monitor and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered. If the discovery of human remains includes four or more burials, the location shall be considered a cemetery, and a separate treatment plan shall be developed. Once complete, a final report of all activities shall be submitted to the Tribe Nation and the Native American Heritage Commission. The Tribe does not authorize any scientific study or the utilization of invasive diagnostics on human remains. **Kizh-Gabrieleno Procedures for Burials and Funerary Remains.** If the Gabrieleno Band of Mission Indians - Kizh Nation is designated MLD, the following treatment measures shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. **Treatment Measures.** Prior to the continuation of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human	

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered "with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe shall make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials shall be removed. The Tribe "shall work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations "shall either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be created. Once complete, a final report of all activities is to be submitted to the Tribe and the NARC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains. Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between the Tribe and landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.	
Impact 4.11.6 Cumulative Tribal Resources Impacts: Past, present, and reasonably foreseeable future projects in Native American traditional use area(s) would similarly include ground-disturbing activities with the potential to destroy, damage, or displace surface or previously undiscovered Native American	Cumulatively Considerable Impact	Implementation of **Mitigation Measures 4.11.1A** through **4.11.1D** and **Mitigation Measure 4.11.2A**.	Not Cumulatively Considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
cultural resources, including burials and associated funerary objects; therefore, the Project, in combination with other cumulative activities in the Project area, has the potential to result in a cumulatively considerable impact.			
4.12 Wildfire			
Impact 4.12.5.1 Impair an Emergency Response or Emergency Evacuation Plan: Based on the features to be implemented as part of the Project, operation of the proposed Project would not physically interfere with or impair an adopted emergency response or emergency evacuation plan. Although these design features would be implemented to reduce the spread of wildfire (or fires) a Fire Protection Plan, Fire Master Plan, Fuel Modification Plan for the Project would need to be prepared and approved by the Fire Code Official.	Potentially Significant Impact	**4.12.1A: Fire Protection Plan.** The Project applicant/developer shall adhere to Chapter 7A of the California Building Code (CBC) and/or Section R337 of the California Residential Code (CRC). All structures in the Project shall adhere to the standards from Chapter 7A of the CBC and/or Section R337 of the CRC pertaining to roofing and venting to help prevent the intrusion of embers into structures. **Fire Master Plan.** Since the proposed Project is located in an LRA VHFHSZ, the Project applicant/developer shall develop a Fire Master Plan that identifies the proper installation and maintenance of fire access roadways, the locations of fire hydrants, a sufficient water supply for adequate fire flow requirements, and emergency access to residences and structures within the Project site as required by the most current California Fire Code and City of Claremont Municipal Code. **Fuel Modification Plan.** A Fuel Modification Plan shall be prepared for the proposed Project by the Project applicant/developer and reviewed and approved by the Fire Code Official at the time of final plan submittal as the Project site is located within a LRA VFHFSZ. As part of the Fuel Modification Plan, all new buildings to be developed or installed in hazardous fire areas shall comply with the following: • A preliminary Fuel Modification Plan shall be submitted to and approved by the Fire Code Official prior to or concurrently with the approval of the tentative map. • A Final Fuel Modification Plan shall be submitted to and approved by the Fire Code Official prior to the issuance of the grading permit. • The Fuel Modification Plan shall be reviewed by the Forestry Division of the Fire Department (Los Angeles County) for defensible space, fire safety and compliance with Section 325.2.1, 325.2.2, 325.10 and	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
		503.2.1 of the Los Angeles County Code of Ordinances, the Los Angeles County Fire Department's fuel modification guidelines, and California Code of Regulations, Title 14, Division 1.5, Chapter 7, subchapter 2. • The Fuel Modification Plan may be altered if conditions change. Any alterations to the fuel modification areas shall have prior approval from the Fire Code Official. • All elements of the Fuel Modification Plan shall be maintained in accordance with the approval plan and are subject to the enforcement process outlined in the California Fire Code.	
Impact 4.12.5.2 Risks from Pollutant Concentrations or Uncontrolled Spread from Wildfires: The Project site is located in a Local Responsibility Area (LRA) Very High Fire Hazard Severity Zones (VHFHSZ) as designated by California Department of Forestry and Fire Protection Fire Resources Assessment Program (CAL FIRE FRAP). The area to the northeast of the site designated as LRA VHFHSZ continues north into the foothills of the San Gabriel Mountains. Despite the LRA VHFHSZ designation of the Project site, the uncontrolled spread of a wildfire in the vicinity of the Project site is unlikely due to the existing non-combustible development and roadways and due to the fire break State Route 210 provides north of the site. Impacts of downwind pollutant concentrations from a wildfire to occupants as a result of the Project would be negligible.	Potentially Significant	Implementation of **Mitigation Measure 4.12.1A.**	Less than Significant
Impact 4.12.5.3 Fire Risk Exacerbation Due to Project Related Infrastructure Maintenance or Installation: The proposed Project would not require the installation or maintenance of associated infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines, or other utilities) that	Less than Significant Impact	No mitigation measures are required.	Less than Significant

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
would exacerbate fire risk or result in temporary or ongoing impacts to the environment.			
Impact 4.12.5.4 Secondary Risks Due to Post-Fire Hazards: In the event that a wildfire should spread to the Project site, it would not expose any on-site slopes to erosion and potential failure because the Project site does not contain any steep slopes that are prone to landslides or mudslides. The proposed Project would not expose people or structures to significant risks, including downslope landslides of mudslides, as a result of runoff, post-fire slope instability, or drainage changes.	No Impact	No mitigation measures are required.	No Impact
Impact 4.12.5.5 Risk to People and Structures Involving Wildland Fires: The Project site is located in a Local Responsibility Area (LRA) Very High Fire Hazard Severity Zones (VHFHSZ) as designated by California Department of Forestry and Fire Protection Fire Resources Assessment Program (CAL FIRE FRAP). Required mitigation would ensure the proposed Project is developed in a manner that reduces the potential for the commencement of wildfires on the property and therefore would not expose nearby people or structures either directly or indirectly to a significant loss of injury or death.	Potentially Significant Impact	Implementation of **Mitigation Measure 4.12.1A**.	Less than Significant
Impact 4.12.6 Cumulative Wildfire Impacts: Potential impacts of the proposed Project with regard to a wildfire, when combined with the impacts of past, present, and reasonably foreseeable projects in the cumulative project study area, could contribute to a cumulatively significant impact due to the increased risk of wildfire and impacts to resources and human life as a result of wildfire. However, each development application received by the City of Claremont and jurisdictions where the cumulative projects are located is required to	Not Cumulatively Considerable	No mitigation measures are required.	Not Cumulatively Considerable

Table 1.D: The Commons Environmental Impacts and Mitigation Measures

Issues/Impacts	Significance before Mitigation	Mitigation Measure(s)	Significance after Mitigation
undergo environmental review pursuant to CEQA and identify the appropriate mitigation measures. As the proposed Project is subject to environmental review and includes mitigation for wildfire risks, it would not generate a cumulatively considerable impact from wildfire.			

2.0 INTRODUCTION AND PURPOSE

This Environmental Impact Report (EIR) has been prepared utilizing information from planning and environmental documents from the City of Claremont, applicant-provided technical studies, and other publicly available data. Alternatives to the proposed Project are also discussed and mitigation measures that would offset, minimize, or otherwise avoid significant environmental impacts from the proposed Project have been identified. This section of the EIR provides an overview of the California Environmental Quality Act (CEQA) process, outlines the document's format, summarizes public review of the EIR, describes the Mitigation Monitoring and Reporting Program (MMRP), identifies the environmental issues discussed in the EIR, and defines the parameters and data to be used in the analysis of cumulative impacts.

2.1 LEAD AGENCY

CEQA requires the preparation of an EIR for any project that has the potential to significantly affect the environment.[1] The City of Claremont is the "… public agency which has the principal responsibility for carrying out or approving the project." As such, it is the "Lead Agency" pursuant to CEQA.[2] CEQA requires the Lead Agency to prepare, process, and consider the information contained in the EIR prior to taking any discretionary[3] action on the project.

Through its preliminary review of the Project, the City of Claremont has determined the Project may have a significant impact on the environment and, therefore, has required the preparation of this EIR. A primary purpose of this EIR is to provide decision-makers and the public with information regarding the significant environmental effects associated with the Project; identify methods to reduce or eliminate significant direct, indirect and cumulative Project impacts; and to detail reasonable Project alternatives that would reduce any identified significant impacts.[4] The City will use and consider information in and supporting this EIR during the CEQA process, during the decision to approve, disapprove, or modify the proposed Project.

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1 *CEQA Guidelines* §15360. "Environment" is defined as the physical conditions which exist within the areas that will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be that in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions.

2 *CEQA Guidelines* §15367.

3 *CEQA Guidelines* §15357. "Discretionary Project" is defined as a project that requires the exercise of judgment or deliberation when a public agency decides to approve or disapprove a particular activity, as distinguished from situations where the public agency merely has to determine where there has been conformity with applicable statutes, ordinances, regulations, or other fixed standards. The key question is whether the public agency can use its subjective judgment to decide whether and how to carry out or approve a project.

4 *CEQA Guidelines* §15126.0. "Alternatives": An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.

The EIR must be prepared directly by or under contract to the Lead Agency. LSA has prepared this EIR under the direction of City staff. When prepared by a party other than the Lead Agency, the EIR must be subjected to Lead Agency review and reflect the City's independent judgment.[5]

2.2 OVERVIEW OF THE EIR PROCESS

Pursuant to *CEQA Guidelines*[6] the basic purposes of CEQA are to:

- Inform government decision-makers and the public about the potential significant environmental effects of proposed activities;
- Identify ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governing agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The EIR contains a detailed description of the project under consideration; establishes the existing environmental conditions of the project site and adjacent areas; identifies the standards and thresholds against which environmental impacts are measured; assesses the environmental effects that would result from the project; identifies measures to reduce or eliminate significant environmental impacts; and evaluates alternatives that may reduce the impacts associated with project development.

The recognized standard[7] is that an EIR analysis presents an adequate, complete, and good faith effort to provide decision-makers with the information to intelligently consider the environmental consequences of the project under consideration. While not requiring exhaustive evaluation, the EIR must include a "reasonably feasible" assessment of project impacts. Where disagreement amongst experts occurs, the EIR must detail the main points of disagreement.

The Draft EIR is distributed to public agencies and made available to the general public for review and comment. Upon completion of the public comment period, the Lead Agency prepares responses to comments received and, as appropriate, revises the EIR to accommodate minor corrections or modifications to the Draft EIR. The revised document, the Final EIR, must be certified by the Lead Agency prior to or in conjunction with the decision to approve the project.

5 *CEQA Guidelines* §15084(e).

6 *CEQA Guidelines* §15002(a).

7 *CEQA Guidelines* §15151. An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

The City of Claremont will consider the information contained in this EIR in their evaluation of the project. The information presented in the EIR does not serve to control the decision(s) related to the project; rather, it fosters informed decision-making and appropriate public participation.

2.3 EIR CONTENT AND FORMAT

As identified in the Project Initial Study (Appendix A1) and in response to public comments to the Notice of Preparation (NOP) distributed for the Project, this EIR focuses on those issues that may have the potential to result in significant environmental impacts. After analysis in this EIR, these issues may in fact be determined to not have a significant impact. The following 12 environmental issues are addressed in Sections 4.1 through 4.12 of this EIR:

- Air Quality (Section 4.1);
- Biological Resources (Section 4.2);
- Cultural Resources (Section 4.3);
- Energy (Section 4.4);
- Greenhouse Gas Emissions (Section 4.5);
- Hazards and Hazardous Materials (Section 4.6)
- Hydrology/Water Quality (Section 4.7)
- Land Use/Planning (Section 4.8);
- Noise (Section 4.9);
- Transportation (Section 4.10);
- Tribal Cultural Resources (Section 4.11); and
- Wildfire (Section 4.12).

This EIR is organized as follows:

Section 1.0 *Executive Summary* provides a summary of the Project; identifies potentially significant impacts, mitigation measures, and the level of significance of each impact following mitigation; and a description of Project alternatives.

Section 2.0 *Introduction and Purpose* outlines the EIR document's format including technical appendices; describes the purpose of the EIR including the legal purpose of CEQA, the intended use of EIR, and the EIR's incorporated documents and referenced technical reports; summarizes the public review of the EIR to date; identifies environmental issues that are discussed; and defines the cumulative analysis provided in the EIR.

Section 3.0 *Project Description* details the geographical setting, Project location, Project setting, applicable land use and zoning designations, Project characteristics, Project objectives, and discretionary actions required to implement the proposed Project.

Section 4.0 *Environmental Impact Evaluation* provides the detailed analysis of each environmental issue. Evaluation of each issue follows the following format:

- *Summary.* Provides an introduction to the issue to be discussed, summarizing the content of the analysis to follow. This section identifies the specific reference material utilized in the environmental analysis.
- *Existing Setting.* Identifies the existing local and regional environmental conditions (natural and built) in existence at the time the EIR was prepared. Existing setting information provides the reader with the "baseline" from which

future impacts are analyzed, and provides a standard against which to measure these impacts.

- *Existing Policies and Regulations.* Details the federal, State, and local regulations, ordinances, and policies applicable to the issue area under discussion.
- *Thresholds of Significance.* Provides the criteria against which the relative significance of impacts resulting from Project implementation are measured.
- *Methodology.* A brief summary of the methods and resources utilized in the preparation of the environmental analysis.
- *Impacts and Mitigation.* This discussion focuses on the potential short-term, long-term, and cumulative impacts of the Project. For those issues where no impact or a less than significant impact would occur, either 1) no mitigation would be required or, 2) adherence to established regulations, standards, and policies would reduce sufficiently mitigate Project impacts to below the established significance threshold.

  In instances when the implementation of measure(s) cannot eliminate or reduce a Project impact to below established significance thresholds, the impact will be identified as "significant and unavoidable."
- *Cumulative Impacts.* This discussion focuses on the potential environmental effect of the proposed Project combined with the effects of reasonably foreseeable cumulative projects within the Project study area.

Section 5.0 *Other CEQA Topics* contains discussions of additional topics required by CEQA, including effects found to be significant and unavoidable, and irreversible environmental changes caused by the Project.

Section 6.0 *Alternatives* contains discussion of alternatives to development of the proposed Project. As allowed by CEQA, the impacts of these alternatives are evaluated at a more general level than the analyses of the proposed Project that is contained in Section 4.0. This section also evaluates the proposed effects of the No Project Alternative and identifies the environmentally superior alternative.

Section 7.0 This section identifies the references used in the preparation of the EIR, the persons contacted, and the other source material.

Section 8.0 This section identifies City and Consultant staff who participated in the preparation and review of the EIR.

Section 9.0 This section defines the acronyms and abbreviations used in the document, and definitions of terms used, including those specific to the Project.

Appendices The Appendices contain the NOP, NOP mailing list, NOP comment letters and responses, public scoping meeting information; the various technical studies that support the EIR analysis; referenced materials; and other relevant material utilized during the preparation of the EIR.

2.4 AREA-WIDE, REGIONALLY, OR STATEWIDE SIGNIFICANT PROJECT

CEQA establishes the criteria[8] for identifying projects of statewide, regional, or area-wide significance. Projects that include the adoption or amendment of a local general plan or general plan element or cause significant impacts (e.g., significant amounts of traffic or exceedance of State or federal air quality standards) beyond the boundary of the jurisdiction in which the project is located are representative conditions that would be considered of area-wide, regional, or statewide significance. An EIR for such projects must be sent to the State Clearinghouse and the appropriate metropolitan area council of governments for review and comment.

The Project proposes two amendments to the City's General Plan and is therefore, considered a regionally significant project. The EIR will be transmitted to the State Clearinghouse and the Southern California Association of Governments (SCAG), for review and comment.

2.5 DOCUMENTS INCORPORATED BY REFERENCE

CEQA permits the incorporation by reference of portions or all of other documents that provide information relevant to the project and the environmental analysis.[9] Documents incorporated by reference must be available for public review at an office of the Lead Agency or other public building. The documents identified below are incorporated by reference, and where relevant, the information therein has been summarized throughout the EIR.

2.5.1 City of Claremont

2.5.1.1 City of Claremont General Plan (2006)

The State of California mandates that every city and county adopt a general plan. The City's General Plan is considered its blueprint for the future. It lays out the vision for how the City would develop over the next 20 to 50 years. The plan contains many goals designed to help City officials and the community preserve our past while building a future that enhances the quality of life for all age groups. The City's General Plan was adopted in September 2006.

The City's General Plan is available at the City's Planning Department and can be accessed online at the following location:

https://www3.ci.claremont.ca.us/WebLink/Browse.aspx?id=228058&dbid=1&repo=CLAREMONT

2.5.1.2 City of Claremont General Plan Final EIR (2006)

The City of Claremont General Plan Final EIR summarizes the potential environmental impacts associated with implementation of the City's General Plan, including growth-inducing and cumulative impacts. The Final EIR was certified by the Claremont City Council on October 3, 2006. The proposed Project would require an amendment to the General Plan. As appropriate, the analysis and mitigation identified in the General Plan Final EIR has been incorporated into this EIR.

8 *CEQA Guidelines* §15206.
9 *CEQA Guidelines* §15150.

The City's General Plan Final EIR is available at the City's Planning Department and can be accessed online at the following location:

https://www3.ci.claremont.ca.us/WebLink/Browse.aspx?id=203338&dbid=1&repo=CLAREMONT

2.5.2 California Airport Land Use Planning Handbook (2011)

The October 2011 *California Airport Land Use Planning Handbook* (*2011 Handbook*) was prepared to provide guidance for conducting airport land use compatibility planning.[10] The *2011 Handbook* is intended to do the following: (1) provide information to Airport Land Use Commissions (ALUCs), their staffs, airport proprietors, cities, counties, consultants and the public; (2) to identify the requirements and procedures for preparing effective compatibility planning documents; and (3) define exemptions where applicable. The *2011 Handbook* provides guidance for meeting the baseline safety and compatibility requirements of the FAA and Division of Aeronautics; however, ALUCs may choose to be more restrictive than California's guidance when local conditions warrant.[11]

The Division of Aeronautics does not have the authority to adopt land use development standards; whereas, Los Angeles County ALUC is statutorily permitted (i.e., they have the option and the authority) to include building standards, height restrictions, and land uses in their Airport Land Use Compatibility Plans. When an ALUC chooses to establish development standards in an ALUCP to prevent airport noise and safety hazards, they are indirectly setting development standards for local government because local government general and specific plans must be consistent with the ALUCP[12] unless otherwise overruled by the local agency.

In the case of the proposed Project, the *2011 Handbook* provides guidance to the City of Claremont for the Cable Airport ALUCP. Since the Cable Airport ALUCP is only applicable to those jurisdictions within Upland, Montclair and San Bernardino County, the Cable Airport ALUCP would not be applicable to the portion of the project site located in the City of Claremont.

The *California Airport Land Use Planning Handbook* is included as Appendix J4 and can be accessed online at the following location:

https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/airportlanduseplanninghandbook.pdf.

[10] As required by Article 3.5, Airport Land Use Commissions, Public Utilities Code (PUC) Sections 21670 – 21679.5. Article 3.5 outlines the statutory requirements for Airport Land Use Commissions (ALUCs) including the preparation of an Airport Land Use Compatibility Plan (ALUCP) and also mandates that the Division of Aeronautics create a handbook that contains the identification of essential elements for the preparation of an ALUCP.

[11] The Los Angeles County Airport Land Use Commission has not prepared and implemented an Airport Land Use Plan for Cable Airport and those parcels within Los Angeles County within the Cable Airport Influence Area. As such, the 2011 California Airport Land Use Planning Handbook is required to be used to analyze potential conflicts with land uses on parcels within an Airport Influence Area where an Airport Land Use Plan has not been prepared for the specific Airport.

[12] Public Utilities Code, Section 21670.1(c)(2)(D) and Government Code Section 65302.3(a).

2.5.3 Avigation Easement (1997)

In 1993, the San Bernardino County West Valley ALUC was disbanded and, in 1994, the City of Upland commenced serving as the responsible agency for development of projects within the former San Bernardino County West Valley ALUC jurisdiction for Cable Airport. To the City of Claremont's knowledge, after the San Bernardino County West Valley ALUC disbanded, the 1981 Cable Airport Comprehensive Airport Land Use Plan no longer has any "legal significance" within the jurisdictional boundary of the City of Claremont.[13]

In 1997, the owner of the site (Columbia Group Ltd) granted an "avigation easement" to the City of Claremont. On June 19, 1997, the avigation easement was recorded in the Official Records of the Los Angeles County Recorder's Office as Instrument Number 97-917067.[14] The avigation easement confirms aircrafts using Cable Airport have the right and ability to fly in airspace over the parcel as long as such flights are in compliance with regulations promulgated by the Federal Aviation Administration. The Avigation Agreement includes the following requirements (not an exhaustive list):

- The right of unobstructed passage in flight granted including the right to allow, make, and emit such noise, light, vibrations, fumes, exhaust, smoke, air currents, dust, fuel particles, radio, television, and other electromagnetic interferences, and all other incidents inherent to Cable Airport operations, not otherwise in violation of law or regulations.
- No structure or object on the parcel is permitted to intrude into space above a plane located 400 feet above the parcel.
- The rights and obligations of the avigation easement are in effect on the parcel only while the Cable Airport remains in operation and would cease to be effective for all purposes if Cable Airport ceases to be used as an airport open for public use.
- The avigation easement has been expressly conditioned on the non-enforceability of the 1981 Cable Airport Comprehensive Airport Land Use Plan by the City of Claremont. The limitations imposed by the avigation easement are intended to be the only limitations, enforceable by the City of Claremont, on the use and development of the parcel, resulting from, or associated with, the operation of Cable Airport regardless of anything to the contrary contained in the 1981 Cable Airport Comprehensive Airport Land Use Plan.

The avigation easement is in place in perpetuity on the parcel unless Cable Airport is closed and no longer operates as a public use airport or the owner of the parcel requests and receives written consent from the City of Claremont to amend or cancel the easement. As such, the avigation easement continues to be recorded against the project site (which is now Parcel 8307-003-066) even though the previous Colombia Group Ltd. no longer owns the parcel.

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13 Avigation Easement 97-917067, May 1, 1997.

14 Since the recordation of this easement, the parcel had been split into three separate parcels: 8307-065-061, 8307-003-065, 8307-003-066. https://portal.assessor.lacounty.gov/parceldetail/8307003066, accessed January 3, 2020. The Project proposes Tentative Tract 82135, which would split APN 8307-003-066 into 30 separate lots.

2.5.4 Other Relevant Plans/Programs

2.5.4.1 Southern California Association of Governments (SCAG) 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)

The 2016–2040 RTP/SCS, adopted by SCAG on April 7, 2016, analyzed the region's transportation system, future growth projections, and potential funding sources in order in order to develop a long-term framework for transportation improvements and maintenance. The RTP/SCS replaces SCAG's Compass Blueprint Growth Vision[15] and includes policies and regulations set forth to ensure development within the SCAG regional area is within planned and forecast socioeconomic projections. As part of the RTP, SCAG developed an SCS, which was required by Senate Bill 375, the Sustainable Communities Act of 2008. The SCS is intended to combine land use and transportation planning with the overall goal of reducing greenhouse gas emissions generated by vehicle travel. This document is accessible online at: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx.

2.5.4.2 2019 California Housing Bills

In October 2019, Governor Gavin Newsom signed 18 Bills to boost housing production in California. The intent of the legislation is to remove barriers to building more housing. The legislation builds on urgent action undertaken by the Administration to tackle California's housing affordability crisis. The bills are to provide streamlining of housing approvals, allow accessory dwelling units (ADUs), bonus densities, and affordable housing affective January 1, 2020:

- STREAMLINING HOUSING APPROVALS
    - SB 330 establishes the Housing Crisis Act of 2019, which will speed up housing construction by cutting the time it takes to obtain building permits. It also will limit fees on housing and bar local governments from reducing the number of homes that can be built. The bill, among other things, limits cities and counties' ability to downzone and establish housing construction moratoriums. The bill also streamlines the permitting process for new developments.
    - AB 1485 would build on existing environmental streamlining law (AB 35) and provide financial incentives to encourage moderate-income housing production. AB 1485 would provide valuable incentives to make housing more affordable, especially for our "missing middle" moderate income earners.
- ACCESSORY DWELLING UNITS
    - AB 68 reduces barriers to the approval and construction of accessory dwelling units, also known as granny flats. The law will increase production of these low-cost, energy-efficient units and add to California's affordable housing supply.
    - AB 881 removes impediments to ADU construction by restricting local jurisdictions' permitting criteria. The law clarifies that ADUs must receive streamlined approval if constructed in existing garages, and it eliminates the ability of local agencies to require owner-occupancy for five years.

[15] *Sustainability Program.* Southern California Association of Governments. 2017. http://sustain.scag.ca.gov/Pages/Grants%20and%20Local%20Assistance/GrantsLocalAssistance.aspx (accessed September 21, 2017).

  - SB 13 creates a tiered fee structure for ADUs that's more fairly based on their size and location. The law also lowers the application approval timeframe, creates an avenue to get unpermitted ADUs up to code, and enhances an enforcement mechanism so the state can ensure that localities follow ADU statute.
  - AB 671 requires local governments' housing plans to encourage affordable ADU rentals and requires the state to develop a list of state grants and financial incentives for affordable ADUs.
- DENSITY BONUSES
  - AB 1763 by Assemblyman David Chiu, D-San Francisco, gives 100 percent affordable housing developments an enhanced density bonus to encourage development, thus increasing the state's affordable housing stock.
- AFFORDABLE HOUSING
  - AB 587 by Assemblywoman Laura Friedman, D-Glendale, provides a narrow exemption for affordable housing organizations to sell deed-restricted land to eligible low-income homeowners.
  - SB 35 signed by Governor Jerry Brown on September 29, 2017 is intended to expedite and facilitate construction of affordable housing. In adopting SB 35, the Legislative found that providing affordable housing opportunities is a matter of statewide concern and declared that SB 35 would apply to all cities, and counties, including charter city/counties. SB 35 applies to cities and counties that have not made sufficient progress toward meeting their affordable housing goals or above-moderate and lower income levels as mandated by California. In an effort to meet the affordable housing goals, SB 35 requires cities and counties to streamline the review and approval of certain qualifying affordable housing projects through a ministerial process.

2.5.4.3 Technical Studies and Plans

A number of technical Project-related reports have been prepared to assess specific issues that may result from the construction and operation of the Project. As relevant, the EIR analysis is supported by information obtained from the following technical studies, which have been included as appendices to this EIR (listed in order of appearance.)

- *Air Quality and Greenhouse Gas Analysis, The Commons Project, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California*, LSA Associates, Inc., October 2019 (Appendix B).
- *Biological Resources Assessment, The Commons Project, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties*, LSA Associates, Inc., March 2020 (Appendix C-1).
- *California Gnatcatcher Protocol Surveys for The Commons, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California*. LSA Associates, Inc. April 2020 (Appendix C-2).
- *Cultural Resources Assessment for the Commons Specific Plan, in the Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California.* LSA Associates, Inc., May 2019 (Appendix D).

- *Phase I Environmental Site Assessment, Concerning Commercial and Undeveloped Property at 735-911 East Foothill Blvd., Claremont, CA, 91711,* PIC Environmental Services, April 10, 2018 (Appendix E-1).
- *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites,* ACTA, July 2017 (Appendix E-2).
- *Drainage Report for The Commons at NW Corner Foothill Blvd & Monte Vista Ave. City of Claremont and City of Upland.* Andreasen Engineering, Inc. October 16, 2018 (Appendix F-1).
- *Standard Urban Stormwater Mitigation Plan (SUSMP), Claremont Commons. Everest Environmental*, Inc. June 27, 2018, revised January 28, 2020 (Appendix F-2).
- Hydrology Work Maps. On-site Map prepared by Andreasen Engineering, Inc. on October 16, 2018. Off-site Map prepared by Arrow Engineering on October 16, 2018 (Appendix F-3).
- *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California, Alta California. Geotechnical, Inc*. June 20, 2018 (Appendix F-4).
- *Noise and Vibration Impact Analysis, The Commons Project, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California*, LSA Associates, Inc. December 2019 (Appendix G).
- *The Commons Project Traffic Impact Analysis, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California*, LSA Associates, Inc., October 2019 (Appendix H-1).
- *VMT Memorandum, The Commons City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California*, LSA Associates, Inc. (Appendix H-2).
- *The Commons Specific Plan, Screencheck No. 44,* KTGY Group Inc., April 2020 (Appendix I).
- *Cable Airport Comprehensive Airport Land Use Plan, West Valley Planning Agency Airport Land Use Commission,* December 9, 1981 (Appendix J-1).
- *Cable Airport Master Plan,* AECOM*,* May 2012 (Appendix J-2).
- *Cable Airport Land Use Compatibility Plan*, Mead and Hunt, September 14, 2015 (Appendix J-3).
- *Cable Airport Land Use Planning Handbook*, California Department of Transportation, Division of Aeronautics, October 2011 (Appendix J-4).
- *Avigation Easement,* May 1, 1997 (Appendix J-5).

The documents incorporated by reference in this EIR are available for review at the following location:

City of Claremont
Community Development Department, Planning Division
207 Harvard Avenue
Claremont, California 91711
Phone: (909) 399-5470
Monday–Thursday from 7:00 a.m. to 2:30 p.m. (closed for lunch from 12:00 p.m. to 1:00)

https://www.ci.claremont.ca.us/government/departments-divisions/planning-division/ceqa-documents.

2.6 PUBLIC REVIEW PROCESS

2.6.1 Notice of Preparation

The NOP was distributed to the State Clearinghouse, as well as agencies and organizations that may provide comment on the proposed Project and the potential environmental impacts that may result from the construction and operation of the proposed on-site uses. The 30-day public comment period extends from November 19 to December 20, 2019. Comments received during the public review of the NOP have been previously identified in Table 1.A and were utilized to identify potential impacts addressed in Section 4.0 of this EIR. The NOP and all comments received are provided in Appendix A2.

2.6.2 Public Scoping Meeting

A public scoping meeting was held on September 24, 2018, at 6:30 pm, in the City of Claremont Council Chambers. Table 1.B provides a general summary of public scoping comments received on the Project. The public scoping meeting materials are provided in Appendix A3.

2.6.3 Tribal Consultation

The proposed development is a project under CEQA and includes a General Plan Amendment and implementation of a Specific Plan; therefore, consultation provisions pursuant to both Senate Bill 18 (SB 18) and Assembly Bill 52 (AB 52) are required. The City requested a Sacred Lands File (SLF) Search and Native American Contact List from the Native American Heritage Commission (NAHC) on August 15, 2018. While the NAHC responded that the SFL search indicated "negative results," it did not preclude the presence of cultural resources in the Project area. On September 10, 2018, pursuant to provisions of SB 18 and AB 52, the City provided consultation requests (via certified mail) to Native American entities identified in Table 1.C.

2.6.4 Draft Environmental Impact Report

This EIR was distributed to responsible and trustee agencies, other affected agencies, and interested parties. The EIR has been provided to all parties who have previously requested copies.[16] The Notice of Completion (NOC) and Notice of Availability (NOA) of the EIR have been distributed as required by CEQA. During the 45-day public review period, the Draft EIR and technical appendices have been made available for review. The Draft EIR will be available for review on the City's website at the location below and at City Hall, Planning Department during the public review period.

https://www.ci.claremont.ca.us/government/departments-divisions/planning-division/ceqa-documents.

[16] Public Resources Code §21092(b)(3).

Written comments and email comments related to this EIR should be addressed to:

City of Claremont
Community Development Department, Planning Division
207 Harvard Avenue
Claremont, California 91711
Phone: (909) 399-5470
Contact: Jennifer Davis
jdavis@romonplanninggroup.com

Monday–Thursday from 7:00 a.m. to 2:30 p.m. (closed for lunch from 12:00 p.m. to 1:00)

After the 45-day public review period, written responses to all comments on the Draft EIR raised will be prepared. These responses will be available for review for a minimum of 10 days prior to the public hearings before the City's Planning Commission and City Council, at which time the certification of the Final EIR will be considered. The City will respond as appropriate to comments made at public hearings on the Project and this EIR. The Final EIR (which will include the Draft EIR, the public comments and responses to the Draft EIR, and findings) will be included as part of the environmental record used during the consideration of the Project by the City decision-makers.

2.7 IMPACTS DETERMINED NOT TO BE SIGNIFICANT

The City of Claremont formally initiated the environmental process for the proposed Project with the preparation of the Project's Initial Study. The Initial Study screened out those impacts that would be less than significant and do not warrant mitigation, identified those issues that require further mitigation to reduce impacts to a less than significant level, and identified those issues that require further analysis in an EIR.

Based on the Initial Study, included as Appendix A1, the following issues were fully considered and did not require further analysis in this EIR. A summary of the Initial Study analysis for each issue is provided below.

2.7.1 Aesthetics

According to the City of Claremont's Hillside Ordinance, "The ordinance provides the framework for allowing residential development in the hillsides within concentrated areas where the terrain is flatter and easier to develop." The Project site would not be in a hillside area within Claremont. According to the City of Upland General Plan, there are no designated scenic views or vistas within the City. Policy CC-1.6 of the Community Character Element of the City's General Plan requires development to enhance public view corridors of the San Gabriel Mountains, where feasible.

The Project is not located within the hillside portions of Claremont and would not block views of the San Gabriel Mountains. Views of the hillsides and mountains to the north as well as other topographic features to the south would continue to be available from vantage points along Monte Vista Avenue. Views of the hillsides and the distant San Bernardino Mountains and other topographic features to the east would continue to be available from vantage points along Foothill Boulevard. While a portion

of the Project frontage on Foothill Boulevard is designated "Route 66", this Project frontage lacks sufficient integrity to contribute to the significance of Route 66 as a whole and is not a "historical resource" under CEQA. The Project site is not located within the area of a scenic highway; therefore, it would not substantially affect scenic resources.

The Project would be developed in accordance with the land use and development standards contained in the Specific Plan resulting in a planned and orderly residential master planned community. Accordingly, no significant degradation to the visual character of the Project site or the surrounding area would occur. While development of the site would result in new lighting sources, outdoor lighting would be required with the appropriate regulations outlined in the Specific Plan governing the location, design, and installation of outdoor lighting.

No potentially significant impact requiring mitigation related to Project aesthetics, including lighting, was identified in the Initial Study. No further analysis of these issues in the EIR is warranted.

2.7.2 Agriculture and Forestry Resources

As classified by the Farmland Mapping and Monitoring Program,[17] the Project site is designated as "Other Land." This category consists of land that is vacant and nonagricultural. As no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is located on site, no conversion of these agricultural soils to a non-agricultural use would occur. No Williamson Act contract is enforce on or near the Project site; therefore, the Project would not conflict with a Williamson Act contract.[18] The site is not designated for agricultural or forestry-related use in the General Plan or Zone code of the City; therefore, no conversion of agricultural or forestry land would result from development of the Project. The site is not utilized agricultural or forestry production; therefore no conversion of an active agricultural or forestry use would occur.

Development of the Project would not result in any impact related to agriculture and/or forestry resource. No further analysis of these issues is required in the EIR.

2.7.3 Geology/Soils

The nearest known active faults (movement occurring within the past 11,000 years) are the Sierra Madre Fault, the Clamshell-Sawpit Fault, and the San Jacinto Fault, located approximately 2.8, 12.6, and 14.5 miles from the site.[19] The City's General Plan identifies that portions of the Indian Hill, San Jose, and San Antonio Faults pass through Claremont.[20] The site is not located within an Alquist-Priolo Earthquake Fault Zone (or other fault hazard zone).[21] All future construction and development would be required to comply with applicable provisions of the most current edition of the California Building Code (CBC) at the time of construction and the City's adopted building codes pursuant to the

17 California Department of Conservation, *Farmland Mapping and Monitoring Program.*

18 *San Bernardino County Williamson Act FY 2015/2016 (Sheet 2 of 2*). State of California Department of Conservation, California Important Farmland Finder. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/ (accessed December 4, 2018).

19 *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

20 Figure 6.1, City of Claremont General Plan.

21 https://maps.conservation.ca.gov/cgs/EQZApp/app/ site accessed, January 3, 2020.

Municipal Codes of Claremont; therefore, impacts related to ground rupture and ground shaking are less than significant.

Based on the depth of groundwater (40 to 50 feet below surface grade) and the underlying soil type (primarily gravel), the potential for liquefaction on site is considered minimal.[22] The site is not located within a designated liquefaction hazard zone; therefore, no significant liquefaction hazard is present on site. The topography at the Project area is relatively flat and, since there are no hillside areas, the risk of landslides is not significant. Based on the composition of the on-site soils (primarily gravel) and the anticipated minimal fill loads, the potential for hydro-collapse on site is minimal and should be within foundation tolerances upon the completion of the recommended unsuitable soil removals. The majority of materials on site are "very low" to "low" in expansion potential.[23] No significant impact related to these geotechnical impacts were identified in the Initial Study.

The Project must comply with City grading permit requirements, which would ensure that construction practices include measures to protect exposed soils such as covering stockpiled soils and use of straw bales and silt fences to minimize off-site sedimentation. These practices are required for any project and, upon implementation, would ensure no significant impact related to soil erosion or loss of topsoil would occur.

The alluvial deposits in this area are thick (greater than 20 feet below ground subsurface) and subsurface disturbance would not be at a depth that would have the potential to be in deposits that may contain paleontological resources. Impacts to paleontological resources are not considered significant.

In the absence of any significant impact related to geology, soils and/or paleontological resources, no mitigation is required. No further analysis of these issues is required in the EIR.

2.7.4 Mineral Resources

The Project site is located within Mineral Resource Zone 2. The site is not designated for mining resources or activity in the General Plan of Claremont. The site is currently vacant and undeveloped land. No mineral processing activity occurs on site. As such, development of the site as proposed would not result in the loss of a mineral resource of local or statewide importance. No significant mineral resource impact would occur; therefore, no mitigation is warranted. No further analysis of this subject is required in the EIR.

2.7.5 Population/Housing

The Project proposes the development of 62 dwelling units in Claremont; which could increase the population by up to 162 persons[24] respectively. The expected increase in population is not anticipated to result in population growth not previously anticipated. Access to the site would be from existing roadways; therefore, the construction of new roadway infrastructure to the site is not required. While the Project includes the extension of utilities to the site, due to the limited increase of the number of

22 Ibid.
23 Ibid.
24 2.61 persons/dwelling unit × 62 units = 161.82 persons.

potential residents, the expansion of wastewater or water treatment facilities is not required. Therefore, the Project would not induce substantial population growth in an area, either directly or indirectly.

The site is located on undeveloped land. No existing residential structures are located within the site; therefore, the Project would not result in the displacement of residential structures or residents. Because no significant population or housing related impact would result from the proposed development, no mitigation is required. No further analysis of these issues is warranted in the EIR.

2.7.6 Public Services

2.7.6.1 Fire Protection

The City of Claremont receives Fire Protection and emergency medical services from the Consolidated Fire Protection District of Los Angeles County, also known as the LACoFD, which maintains three stations in the City. Additional fire services can be dispatched as needed from stations in Pomona, San Dimas, or Glendora depending on availability and distance.

The Project is required to incorporate adequate emergency water flow, early warning systems and evacuation routes, and to identify and mitigate any fire hazards during the development review process. Development of the Project site would occur in accordance with the 2016 California Building Code (as updated) and within an area adequately serviced by existing facilities. The Project would not generate demand for new or necessitate the expansion of existing facilities to maintain acceptable levels of service; therefore, impacts would be less than significant and no further discussion of this issue in the EIR is required.

2.7.6.2 Police

The City of Claremont Police Department (CPD) maintains its nearest station at 570 W. Bonita Avenue, approximately 1.5 miles southwest of the Project site. Response time for critical calls is an average of less than three minutes. The CPD also utilizes reserve police officers who perform similar duties as regular police officers and enhance police services to the community.

Claremont monitors staffing levels to ensure that adequate police protection and response times are be provided, through a review of individual development projects proposed and on an annual basis as part of the City's budgeting process. Funding for new police facilities commensurate with the increased demand for services would be provided from capital improvement fees levied on new development. The fees are one-time charges applied to new development and are used for the construction or expansion of capital facilities located in the service area which would benefit the project and the community at large. It is reasonable to conclude the Project would be conditioned to provide the features (e.g., emergency access and security lighting) deemed necessary and appropriate by the police department. Development of the Project site would occur within an area adequately serviced by existing facilities. The Project would not generate demand for new or necessitate the expansion of existing police facilities to maintain acceptable levels of service; therefore, impacts would be less than significant, and no further discussion of this issue in the EIR is required.

2.7.6.3 School Services

The Project includes the development of 62 residential units in Claremont which would be serviced by the Claremont Unified School District. The Project could increase the population of Claremont by up to 162 persons; therefore, it is likely the Project could potentially increase student population at existing schools within the district. According to the Claremont General Plan EIR, the Claremont Unified School District student generation rate is 0.4 students per household.[25] Based on Claremont Unified School District's student generation rate, the residential units within the Claremont portion of the Project are anticipated to generate 25 students (24.8 students rounded to 25).

To address potential impacts associated to increased student enrollments, local school districts require the payment of fees in accordance with Senate Bill 50. These fees are collected by school districts at the time of issuance of building permits. Residential development can be assessed a current maximum Level 1 fee of $2.97 per square foot.[26] The amount of fees that can be charged over the Level 1 amount is determined by the district's total facilities needs and the availability of State matching funds. If there is State facility funding available, districts are able to charge fees equal to 50 percent of their total facility costs, termed "Level 2" fees. If, however, there are no State funds available, "Level 3" fees may be imposed for the full cost of their facility needs. The payment or satisfaction of a fee, charge, or other requirement levied or imposed is deemed to be full and complete mitigation of the impacts related to the provision of adequate school facilities.[27]

Payment of these fees by the Project applicant would offset impacts from increased demand for school services associated with buildout of the proposed Project by providing an adequate financial base to construct and equip new and existing schools; therefore, development of the Project would not have a significant impact on school services and facilities. No mitigation is required and no further discussion of this issue in the EIR is warranted.

2.7.7 Recreation

The addition of 62 residential units and 5,000 square feet of retail uses could collectively increase the City's populations by up to 162 persons. The Project includes the construction of two different park areas that provide approximately an acre of open space within the site. Occupying the area of the site's existing avigation easement, the construction of permanent structures taller than 400 feet, storage of flammable materials (e.g. gas barbecues), and the construction of photovoltaic solar canopies is prohibited in this area. The Central Park spans from the primary entrance off of Foothill Boulevard and includes common area landscaping, pedestrian paths, public art features, passive open turf area, bocce ball court, fire pits, decorative paving, bike racks, benches, umbrellas, and chairs. This area would be enhanced with surrounding street furnishings, lighting, and paving. Plaza Park is located next to the Mixed-Use District and includes bike racks, benches, umbrellas, and chairs for outdoor seating and dining. The design includes enhanced paving and colored concrete to differentiate this area from the sidewalk. Low fencing may also be included within this area to designate an area specifically for a particular tenant. The identified amenities would be open to the public.

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25 Claremont General Plan, Program Environmental Impact Report, Section 5.11 Public Services and Utilities, page 5-149.
26 Education Code §17620 and Government Code §65995.
27 Government Code §65995(h).

There are three parks located within two miles of the Project site: Greenbelt Park (1.37 miles northeast of the site), Cabrillo Park (1.40 miles southeast of the site), and Baldy View Park (1.91 miles southeast of the site). It is not possible to determine with any reasonable certainty, the location, frequency, or intensity of use a specific population may have on public park/recreation facilities. Through payment of in lieu fees in accordance with the Quimby Act in conjunction with development of the proposed on-site recreational facilities, the Project would offset any increased demand on public parks and recreational facilities in Claremont. In lieu fees would be used in part to maintain existing park facilities and/or construct new park facilities at a time and place determined appropriate by the City. The maintenance of existing parks or construction of new park and recreation facilities would be actions independent of the proposed Project. Development of the Project would not result in substantial adverse physical impacts to existing parks within the City; therefore, no mitigation is warranted. No further discussion of this issue in the EIR is required.

2.7.8 Utilities and Service Systems

The approval of drainage features/improvements would occur through the building plan check process. As part of this process, all Project-related drainage features would be required to meet the City of Claremont's Public Works Department and Santa Ana Regional Water Quality Control Board (RWQCB) standards. On-site Project-related drainage features would be designed, installed, and maintained per Public Works Department standards and the requirements identified in the Final Water Quality Management Plan.

The utility purveyors, Southern California Edison (electricity) and Southern California Gas Company (natural gas), establish standard measures dictating how a site would connect to existing facilities on-line or in adjacent streets. As established in Section 4.5, the Project would not result in the use of a significant amount of energy, nor would it require the installation of new storage, transmission, or distribution facilities.

Water would be provided to the Project site by Golden State Water Company (GSWC). GSWC provides drinking water to customers in its Claremont Customer Service Area (CSA), which includes Claremont and portions of Montclair, Pomona, and Upland. The GSWC obtains its water supply for the CSA from purchased water from Three Valleys Municipal Water District (TVMWD) and the City of Upland, and local groundwater from the Six Basins Area and the Chino Basin. TVMWD and the City of Upland both obtain imported water supply from the Metropolitan Water District of Southern California and pump local groundwater. GSWC operates several groundwater wells within the Claremont System, mostly in the Six Basins Area, and has adjudicated groundwater rights in both the Six Basins Area and Chino Basin. In addition to adjudicated groundwater pumping rights, GSWC also has long-term leased groundwater rights from the City of Claremont and Pomona College, and is a shareholder in the West End Consolidated Water Company.

Reasonably available water supplies in the CSA range from 12,061 to 12,894 acre-feet[28] from 2020 to 2040.[29] The projected water demand per capita within the Claremont System is 328 gallons per day

[28] Acre-foot: a unit of volume equal to the volume of a sheet of water one acre in area and one foot 43,560 cubic feet or 325,851 gallons.

[29] Urban Water Management Plan, Claremont Service Area, Golden State Water District, 2015.

(gpd), which equates to a daily water demand of 80,360 gallons. The 2015 Urban Water Management Plan for the CSA demonstrates the reliability of water supplies to meet projected annual water demands for the CSA during a normal, a single dry year, and multiple dry years through 2040.[30] Sufficient water supplies would be available to the Project, and GSWC does not require new water supply sources or resources to provide water to the Project. Therefore, the Project would have a less than significant impact related to water supplies and the construction of new or expansion of existing water supply or treatment facilities is required. The Project would be conditioned to adhere to applicable service requirements established by the GSWC; therefore, no mitigation is required and further discussion of this issue in the EIR is not warranted.

The City of Claremont operates the wastewater collection system that serves the Project site. Wastewater flows originating from the site would discharge to the local sewer line for conveyance to either (or both) the Sanitation Districts of Los Angeles County (Districts) San Antonio or Claremont Outfall trunk sewers. The District's San Antonio 12-inch truck has capacity of 3.1 million gallons per day (mgd) and conveyed a peak flow of 1.8 mgd when last measured in 2014. The District's 12-inch Claremont Outfall truck has a capacity of 3.7 mgs and conveyed a peak flow of 1.0 mgd when last measured in 2014. Wastewater from the site would be treated at either the Joint Water Pollution Control Plant located in the City of Carson—this facility has a capacity of 400 mgd and currently processes 261.1 mgd—or the Pomona Reclamation Plant, which has a capacity of 15 mgd and currently processes 8.6 mgd.[31]

Based on District loading factors for various land uses, the expected increase in wastewater flow from the proposed mixed-use project totals 23,785 gallons per day. The maximum anticipated wastewater flows from the site account for approximately 0.02 and 0.37 percent of the current daily surplus capacity at the Joint Water Pollution Control Plant and Pomona Reclamation Plant, respectively. As adequate capacity exists to service the site, the construction of new or expansion of existing wastewater treatment facilities to service the site is not required.

The Districts' wastewater treatment capacities are based on regional growth forecast adopted by the Southern California Association of Governments (SCAG). The District typically provides wastewater services up to the permitted level. Development of the site would result in fewer people on site under the proposed General Plan Amendment and conversion of the land use from commercial to mixed-use; therefore, growth beyond that previously forecast by SCAG would not occur. The Districts are empowered to charge a fee for connection into the Districts' sewage system. The fee is imposed prior to connection to sufficiently accommodate a project. The Project would be conditioned to adhere to applicable service requirements established by the City of Claremont and the Districts (including payment of fees); therefore, no mitigation is required and further discussion of this issue in the EIR is not warranted.

[30] Tables, 7-2 through 7-4, Urban Water Management Plan, Claremont Service Area, Golden State Water District, 2015.
[31] NOP Response for The Commons Specific Plan, Sanitation Districts of Los Angeles County, December 19, 2019.

2.8 MITIGATION MONITORING AND REPORTING PROGRAM

When mitigation measures are required to avoid or reduce the severity of significant impacts, State law requires the adoption of an MMRP. The monitoring program is intended to ensure compliance during implementation of the program. An MMRP will be prepared for this EIR to comply with the requirements of State law[32] and considered by the City Council concurrent with certification of the Final EIR for the proposed Project.

2.9 CUMULATIVE IMPACTS

This EIR includes a discussion of the potential cumulative impacts of the proposed Project. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the development when added to the impacts of other closely related past, present, and reasonably foreseeable or probable future developments. Cumulative impacts can result from individually minor, but collectively significant, developments taking place over a period of time. CEQA[33] requires the following analysis with respect to cumulative impacts:

(a) Cumulative impacts shall be discussed when the project's incremental effect is cumulatively considerable.

(b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.

CEQA defines cumulative impacts as "… two or more individual effects that, when considered together, are considerable or which compound or increase other environmental impacts."[34] Under CEQA, the assessment of cumulative impacts contained in EIRs is typically based on either a list of past, present, and probable future projects, which are either approved or being considered for approval by the City or other municipalities (or anticipated to be submitted for consideration, including projects in the design phase or under construction); or a summary of growth projections set forth in regional plans, including regional modeling plans.[35]

Impacts resulting from increases in population, employment, or changed environmental conditions (change in land use, removal of native vegetation, increases in traffic, etc.) could result from the combined development of the Project and other projects in the City and surrounding region. Table 2.A summarizes data provided by the City Planning Department pertaining to potential development projects that could contribute to cumulative environmental impacts. Figure 2.1, at the end of this chapter, identifies the location of projects used in the cumulative analysis.

32 Public Resources Code §21081.6.
33 *CEQA Guidelines* §15130(a) & (b)
34 *CEQA Guidelines* §15355.
35 *CEQA Guidelines* §15130(b)(1)(A) & (B).

Table 2.A: Cumulative Projects List

Map #[1]	Name	Land Use[2]	Size
1	Claremont Colleges East Campus	Sports Complex	
2	Meadow Park	Multifamily	48 units
3	Gable Crossing (TTM 68052)	Multifamily	60 units
4	TTM 62814	Multifamily	14 units
5	Doubletree Hotel/Old School House Specific Plan	Residential	126 units
6	Harvey Mudd College Master Plan Amendment	Institutional	100 students
7	Pomona College 2015 Master Plan	Institutional	50 students, 60 staff
8	Claremont Graduate University Master Plan	Institutional	475 students
9	Peppertree Square	Shopping Center	5,750 square feet
10	Keck Graduate School	Institutional	292 units, 300 students
11	Knight's Inn Renovation	Hotel	38 rooms
12	Keck Science Center Expansion	Institutional	70,000 square feet
13	Harvest and Arbor Square	Single-family	127 units
14	Enclave Specific Plan	Single-family	350 units
15	Arrow Vista Village	Multifamily	40 units
16	760 Mesa Court	Multifamily	60 units
17	Monte Vista/Arrow Highway Residential	Multifamily	211 units
18	Lazy Dog Restaurant	Restaurant	326 seats
19	Claremont-McKenna Master Plan	Institutional	250 students
20	The Magnolias	Multifamily	37 units
21	Arrow Station	Single-family Multifamily	2 units 5 units
22	Montclair Expansion	Shopping Center	15,000 square feet
23	5566 Arrow Highway	Light Industrial	95,540 square feet
24	ECI Fuel Systems	Light Industrial	156,000 square feet
25	Mt. San Antonio Gardens Master Plan	Senior Housing/Assisted Living	63 units/7 beds
26	Metro Gold Line Station and Parking	Public Facility	—
27	North Montclair Downtown Specific Plan	—	—
28	Future Warehouse	Warehouse	276,000 square feet
29	SB35 Multi-Family Housing Development City of Upland	Affordable Housing	48 units

Source: *The Commons Project Traffic Impact Analysis, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California,* LSA, October 2019.

[1] See Figure 2.1.

Because effects of multiple projects occurring at the same time may be additive, the significance of a cumulative impact may be greater than the effects resulting from the individual actions. It is expected that the cumulative impact analysis set forth in this EIR would be conservative and would tend to overstate cumulative impacts.

Because of the nature of individual environmental factors, the cumulative area for each issue addressed in this EIR may not be identical. For example, the cumulative area for air quality impacts is reasonably assumed to be the entire South Coast Air Basin, which is much larger than the cumulative area for transportation impacts (i.e., the area foreseeably affected by project traffic). The criteria for evaluating the significance of the Project's impacts are identified for each environmental issue in Section 4.0. These criteria, which are based on resource sensitivity, quality, and quantity, are also instructive when evaluating whether the environmental effect resulting from implementation of a particular project is cumulatively considerable. The timing and duration of each activity is also an important consideration for evaluating the potential cumulative effects of activities that may occur only for a limited period. In such cases, a cumulative effect may occur only when two or more of the activities are occurring simultaneously.

Mitigation measures identified in this EIR may result in reducing the Project's cumulative impact to a less than significant level. The analyses in Sections 4.1 through 4.12 indicate to what degree the Project makes a significant contribution to cumulatively considerable impacts for each environmental issue (air quality, noise, traffic, etc.). It should be noted that the Project Traffic Impact Analysis (TIA) used this same list of cumulative projects to estimate potential traffic impacts on local roadways and intersections (see Section 4.10 Transportation). The traffic data, in turn, were used as a basis for modeling air quality and greenhouse gas emissions (see Sections 4.1, Air Quality, and 4.5 Greenhouse Gas and Global Climate Change), Energy (see Section 4.4), and Noise (see Section 4.9).

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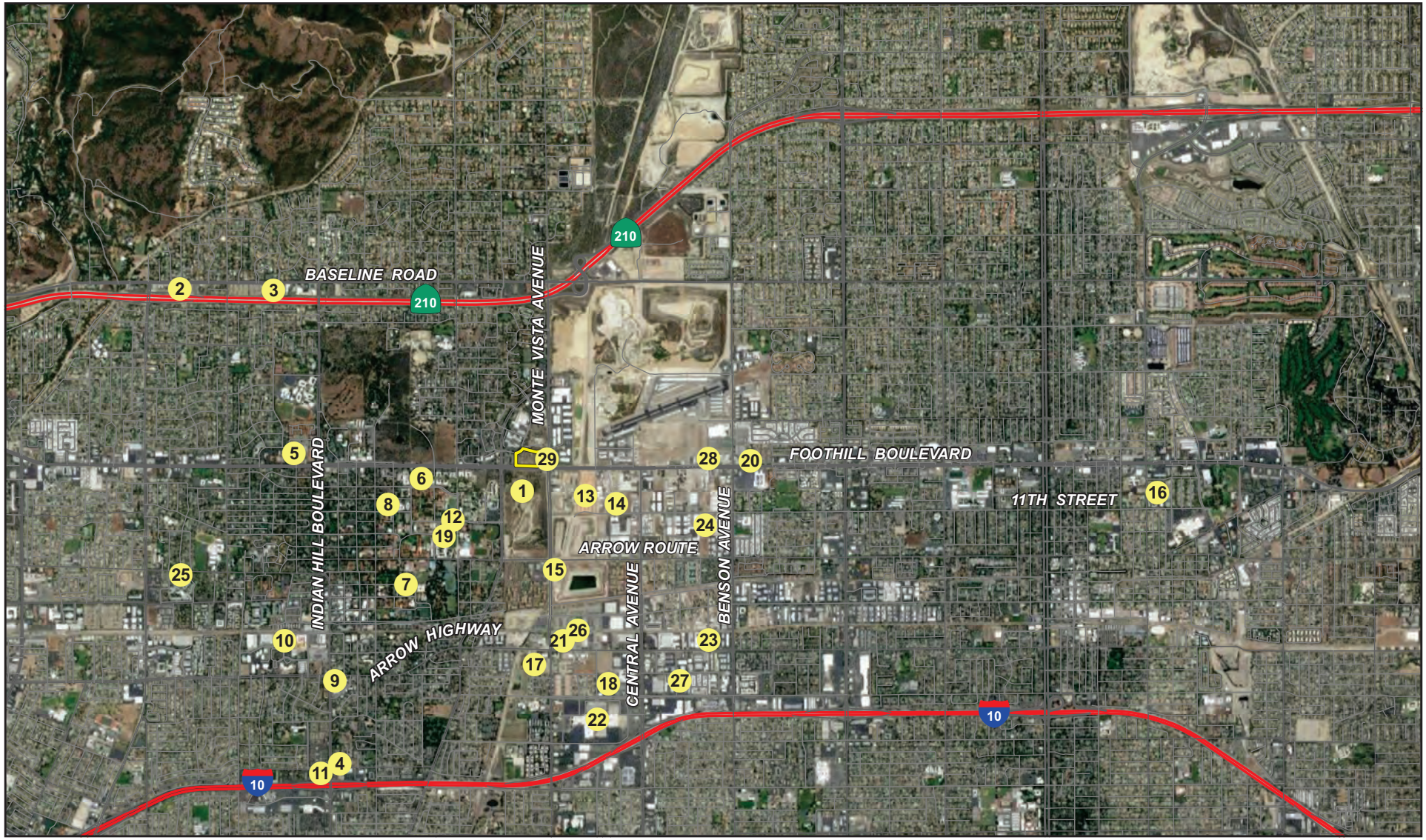

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Project Site

1 Cumulative Projects

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SOURCE: ESRI Streetmap, 2013, Google Earth, 2018.

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FIGURE 2.1

The Commons

Cumulative Project Locations

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3.0 PROJECT DESCRIPTION

A description of the proposed Project is provided in this section of the EIR in conformance with *CEQA Guidelines.*[1] It discusses the geographic setting, Project location, Project setting, relevant General Plan and zoning designations, Project characteristics, Project objectives, and discretionary actions required to implement the proposed Project. The Project Description is used as the basis for analyzing the proposed Project's impacts on the existing physical environment in Section 4.0 of the EIR.

3.1 OVERVIEW

The Commons Project (Project) is a proposed planned residential/mixed-use development located on Foothill Boulevard, just west of Monte Vista Avenue in the City of Claremont. The applicant owns a total of 9.5 acres in this area which straddles the boundary between the Cities of Claremont and Upland. In the Notice of Preparation (NOP), the Project was described as including all 9.5 acres. However, since the release of the NOP, the applicant has separately applied to the City of Upland for approval of a development project on the 3.0 acres it owns in the City of Upland pursuant to SB 35. Pursuant to Government Code Section 65913.4, if that development project is within the scope of SB 35, it is not subject to CEQA review. The applicant represents that the currently proposed development within Upland will either be approved pursuant to SB 35, without CEQA review, or it will not be constructed. For this reason, and for purposes of this EIR, the Project comprises the 6.5 acres of land within Claremont, together with off-site improvements necessary to provide access and utilities to the Project. The potential development of the 3.0 acres of property owned by the applicant which is located on the northwest corner of Foothill Boulevard and Monte Vista Avenue, will be treated as an adjacent cumulative project. The City of Claremont has no jurisdiction over that 3.0 acres.

The Project includes a Tentative Tract Map (TTM 82315), which proposes to subdivide Assessor's Identification Number (AIN) 8307-003-066 into lots for the Armstrong Garden Center and for the proposed single-family residential uses, residential flats, townhome uses, and streets within The Commons Specific Plan (Specific Plan). The Specific Plan area encompasses approximately 6.5 acres of the proposed subdivided parcel. The proposed lot of 1.42 acres containing the Armstrong Garden Center is not included in the Specific Plan. The Project does not propose any change in use or operation of the Armstrong Garden Center; therefore, no further discussion of this use is provided in this section of EIR. As appropriate, impacts to this use resulting from the construction and/or operation of the Project are addressed in Sections 4.1 through 4.11.

3.2 PROJECT LOCATION

The Project site encompasses approximately 6.5 acres located on Foothill Boulevard, west of Monte Vista Avenue.[2] The irregular-shaped site is located in the City of Claremont (Figure 3.1), within the Los Angeles County. As detailed in Figure 3.2a, the parcel comprising the Project site (AIN 8307-003-066

1 *CEQA Guidelines*, § 15124.

2 Within Township 1 South, Range 8 West, Section 3, San Bernardino Baseline and Meridian, as depicted on the United States Geological Survey (USGS) *Ontario*, California 7.5-minute topographic quadrangle map.

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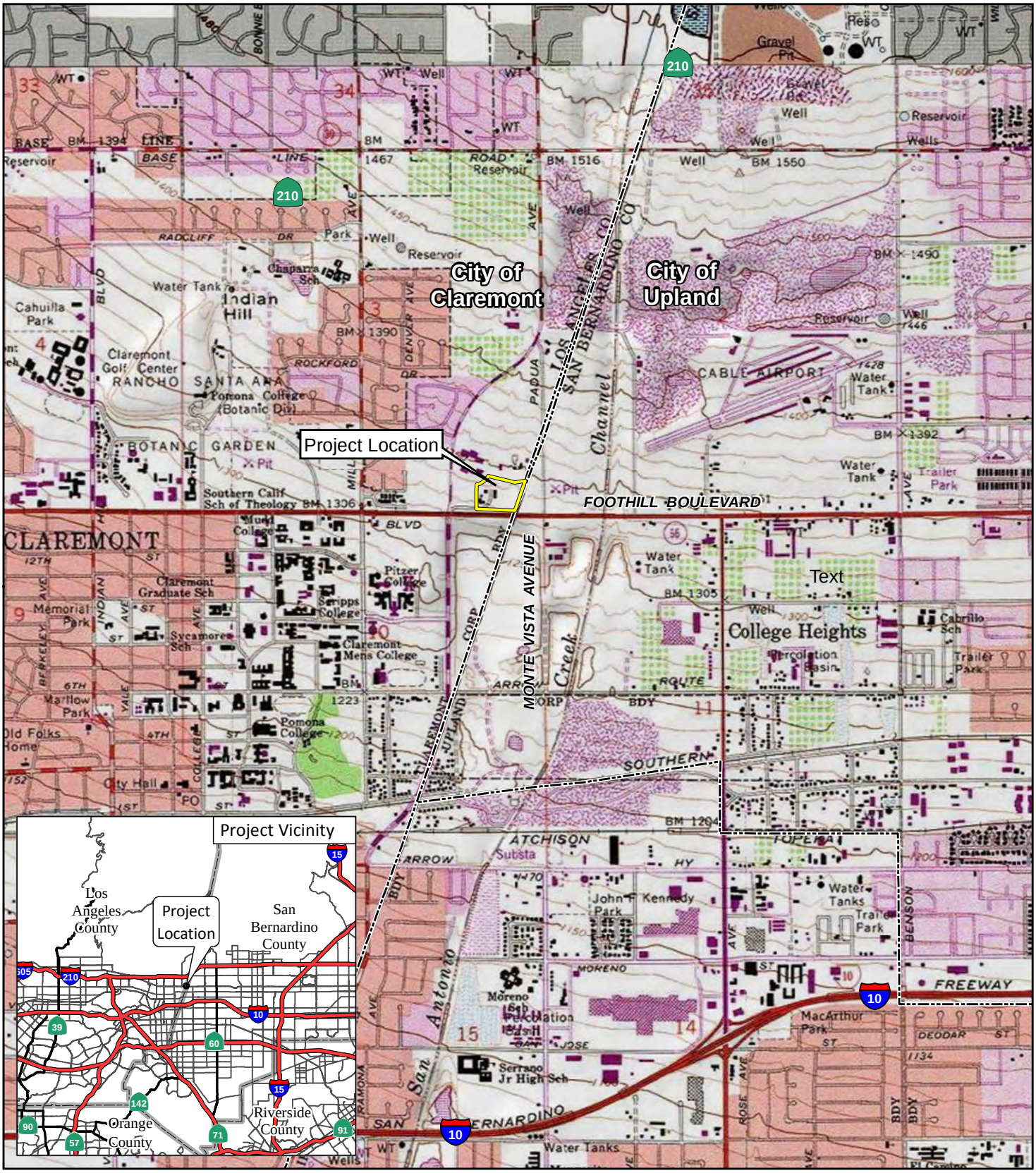

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FIGURE 3.1

The Commons

Regional and Project Location

SOURCE: USGS 7.5' Quads: Ontario, 1981, Mt. Baldy, 1988, CA; ESRI Streetmap, 2013.

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Project Site

Photograph Locations

City Boundary

*City of Claremont is Los Angeles County
**City of Upland is San Bernardino County

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SOURCE: Google (2018)

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FIGURE 3.2a

The Commons

Project Site

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in Los Angeles County) is currently undeveloped with the exception of an Armstrong Garden Center. Portions of the property are used for equipment and material staging related to improvements on Foothill Boulevard. The topography of the site is generally uneven, and gently sloping at about three percent from 1,350 feet above mean sea level (amsl) at the north portion of the site to 1,330 feet amsl at the southwesterly portion of the site.

3.3 EXISTING LAND USE, GENERAL PLAN, AND ZONING

The following discussion summarizes existing and adjacent land uses on site and in the Project area and identifies the existing General Plan and zoning designations in the Project area.

3.3.1 Existing Land Use

3.3.1.1 On-site Land Use

The Project site is currently an undeveloped, vacant lot. See Figure 3.2b. Historically, the site supported lumber yard activities and several outbuildings in the mid-to-late 1940s (refer to Section 4.3). Concrete foundations from at least three former buildings are in the western portion of the site. Land use within the Project area includes vacant land with areas of unlawful [refuse] dumping. Concrete rubble and building (cinderblock and brick) and asphalt debris along with modern refuse were noted on the surface throughout the site. As of 2019, an approximately 2-acre area within the southwest corner of the site was being utilized as a construction staging and laydown yard for the unrelated Foothill Boulevard (Route 66) Rehabilitation Project.

Soils consist of an alluvial fan, which descends from the southern flanks of the San Gabriel Mountains located to the north. Vegetation consists of a moderate growth of native grasses, cactus and shrubs up to six feet in height. Ruderal vegetation was observed intermixed within the Riversidean alluvial fan sage scrub (RAFSS) habitat, likely a result of decades of disturbance related to human activity on site.

Previous On-site Project Approval. The Project site was entitled in July 2009 for development as a commercial use with 70,800 square feet of office uses in four two-story buildings and 14,000 square feet of retail in two single-story buildings in Claremont.[3]

3.3.1.2 Off-site Land Use

In the City of Claremont, adjacent uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses is adjacent to the northwest, and multifamily[4] residential uses are located farther northwest of the site to the north of Claremont Boulevard. The property located due north of the site is partially vacant, with a portion occupied by Holy Infant Home Care administrative offices. The site of a proposed 70-acre sports park is located south of the site, across Foothill

[3] *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* City of Claremont. July 20, 2009.

[4] Multifamily residential uses include townhomes, apartments, and condominiums between 15.1 dwelling units (du) per acre (ac) and 22 du/ac (Residential 22).

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Overview facing south.



Overview facing west.



Overview facing north.

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FIGURE 3.2b

The Commons
Site Photographs

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Project site facing southeast.



Equipment staging area and improvements to Foothill Boulevard facing west.



Construction staging facing northeast.

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FIGURE 3.2b
Page 2 of 2

The Commons
Site Photographs

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Boulevard. The Claremont Colleges and the College Park [mixed-use] Specific Plan are located approximately 0.33 and 0.50 mile south and southwest from the site, respectively.

In the City of Upland, adjacent land across Monte Vista Avenue consists of Commercial/Industrial Mixed-Use to the east and Highway Commercial and Specific Plan (Harvest at Upland) to the southeast. The end of Cable Airport Runway 6/24 is located approximately 0.4 mile (2,100 feet) east of the approximate center of the Project site.[5] The existing on-site and adjacent land uses are summarized in Table 3.A and are identified in Figure 3.3. As stated above, the project applicant is also proposing to develop its adjacent property (approximately 3.0 acres) located in the City of Upland as 48 townhomes.

Table 3.A: Existing On-site and Adjacent Off-site Land Uses, Land Use Designations, and Zoning

	Claremont			Upland		
	Current Use	**General Plan**	**Zoning**	**Current Use**	**General Plan**	**Zoning**
On site	Vacant and Construction Staging	Commercial	Commercial Highway (CH)	—	—	—
East	—	—	—	Vacant	Business/ Residential Mixed-Use (B/R-MU)	Business/ Residential Mixed-Use (B/R-MU)
North	Vacant and Office	Business Park	Business/ Industrial Park (B/IP)	College Business Park*	Light Industrial Business Park (LI-BP)	Light Industrial (LI)
South	Vacant (approved Sports Park)	Institutional	Institutional Education (IE)	Vacant	Institutional (I)	Public (PB)
West	Armstrong Garden Center	Commercial	Commercial Highway (CH)	Project Site (City of Claremont)		

*This land use is northeast of the Project site, on the east side of Monte Vista Avenue.
Sources: City of Claremont General Plan Land Use Plan. Figure 2-3. Last updated February 11, 2014
City of Claremont Zoning Map. Adopted February 25, 2014.
City of Upland General Plan Land Use. Figure LU-1. September 14, 2015.
City of Upland Zoning Code Update Map. September 14, 2015.

3.3.2. General Plan Designations

The General Plan is a City's blueprint for future growth and development. A General Plan identifies that City's goals with respect to both built and natural environments, and establishes the policies and implementation measures to achieve the stated goals. Existing and proposed General Plan designations are depicted in Figure 3.4.

[5] *Letter dated December 16, 2019 in Response to the Notice of Preparation for The Commons, SCH# 2019110341.* California Department of Transportation, Division of Aeronautics – M.S. #40. (Appendix A2).

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Project Site

FIGURE 3.3

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SOURCE: Google (2018)

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The Commons

Surrounding Land Uses

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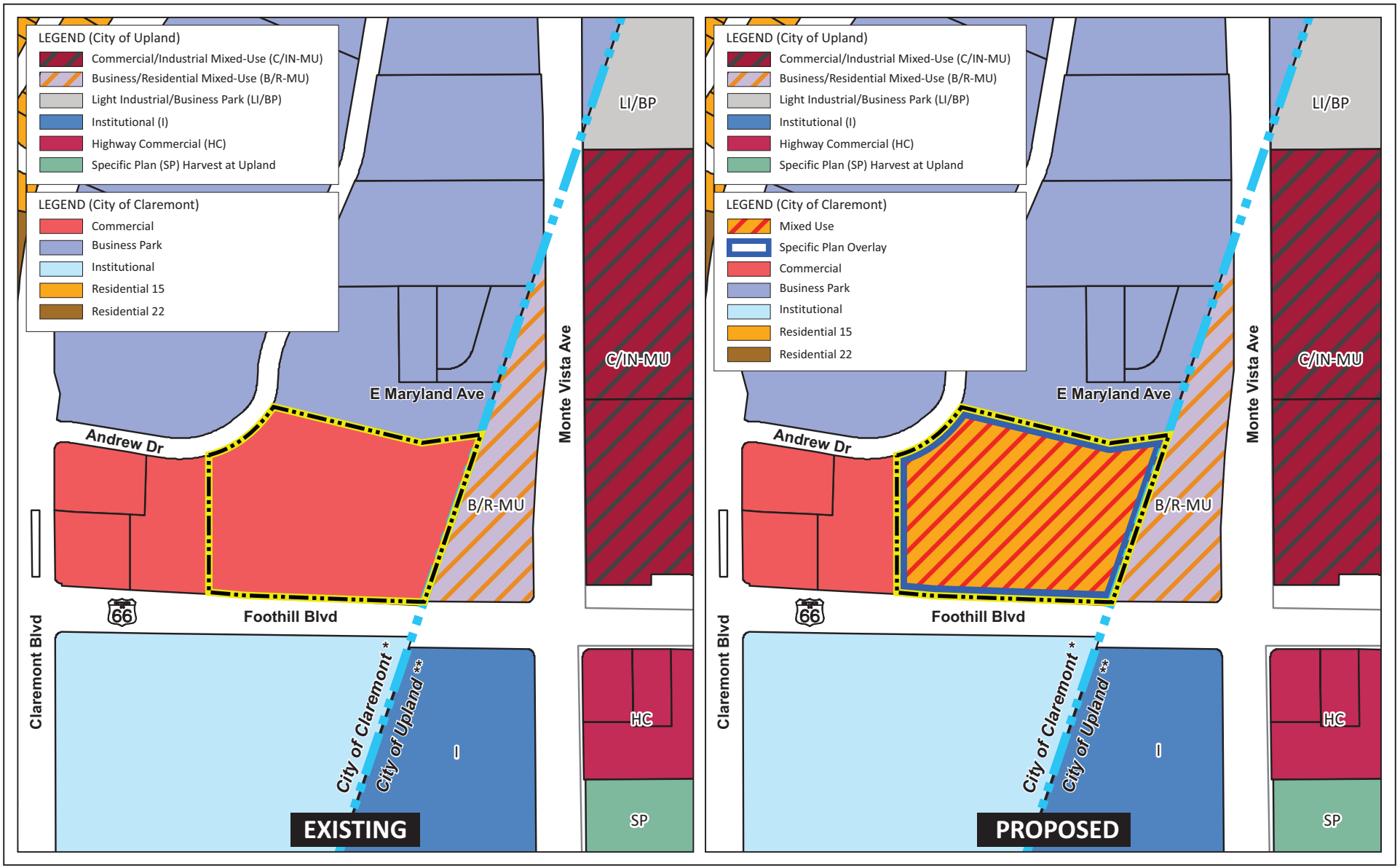

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Project Site

City Boundary

*City of Claremont is Los Angeles County

**City of Upland is San Bernardino County

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SOURCE: Claremont General Plan & Upland General Plan Update

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FIGURE 3.4

The Commons

Existing and Proposed General Plan Land Use Designations

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3.3.2.1 Existing General Plan Designations

As detailed in Table 3.A, the Project site is currently designated 'Commercial' in the City's General Plan. The 'Commercial' land use designation "… provides opportunities for a broad range of retail, professional office and service-oriented businesses, including supermarkets, theaters, restaurants, and specialty retail stores. Drive-through businesses are prohibited. The Commercial category accommodates uses that typically attract vehicular traffic. This designation applies to properties along Foothill Boulevard, Indian Hill Boulevard, and the east end of Base Line Road."[6]

3.3.3 Existing Zoning Districts

Whereas the General Plan is a policy document that sets forth direction for development decisions, the Zoning Code is a regulatory document that establishes specific standards for the use and development of all properties in the City. Zoning Codes typically regulate development intensity using a variety of methods, such as setting limits on building setbacks, yard landscaping standards, and building heights. Zoning Codes also indicate which land uses are permitted in the various zones. The Claremont Municipal Code establishes detailed zoning districts and regulations based on the General Plan. The Claremont Zoning and Development Code (Title 16) serves as the primary implementation tool for the General Plan. Claremont's zoning designations generally follow its General Plan land use designations for the site.

The Claremont Municipal Code includes all of the City's zoning ordinance provisions and have been supplemented over time to include other related procedures such as subdivision regulations, environmental review procedures, and advertising and sign codes. Municipal Code regulations and maps must be consistent with respective General Plan land uses, policies, and implementation programs. Existing and proposed Zoning Districts are detailed in Figure 3.5.

3.3.3.1 On-site Zoning Districts

The Project is currently zoned Commercial Highway (CH) and fronts Foothill Boulevard. Foothill Boulevard is a key commercial corridor for the City.[7]

3.3.4 Avigation Easement

On June 19, 1997, the former owner (Columbia Group Ltd.) of the Project site dedicated an avigation easement to Cable Airport. The purpose was to help ensure the continued safe operation of Cable Airport by granting a right unobstructed passage for aircraft above an altitude of 400 feet at the Project Site. The following are some, but not all, of the terms and conditions of the Avigation Easement that is currently recorded on the site:

- Aircraft, of any and all kinds now known or hereinafter invented, used or designated for navigation or flight in the air, of the class, size and category operationally compatible with Cable Airport shall have the right to use the airspace above a physical plane located 400 feet above the Parcel.

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6 *City of Claremont General Plan*. Land Use, Community Character, and Heritage Preservation Element. Page 2-13. November 2006, Last updated October 2009.

7 *City of Claremont General Plan*. Land Use, Community Character, and Heritage Preservation Element. Page 2-67. November 2006, last updated October 2009.

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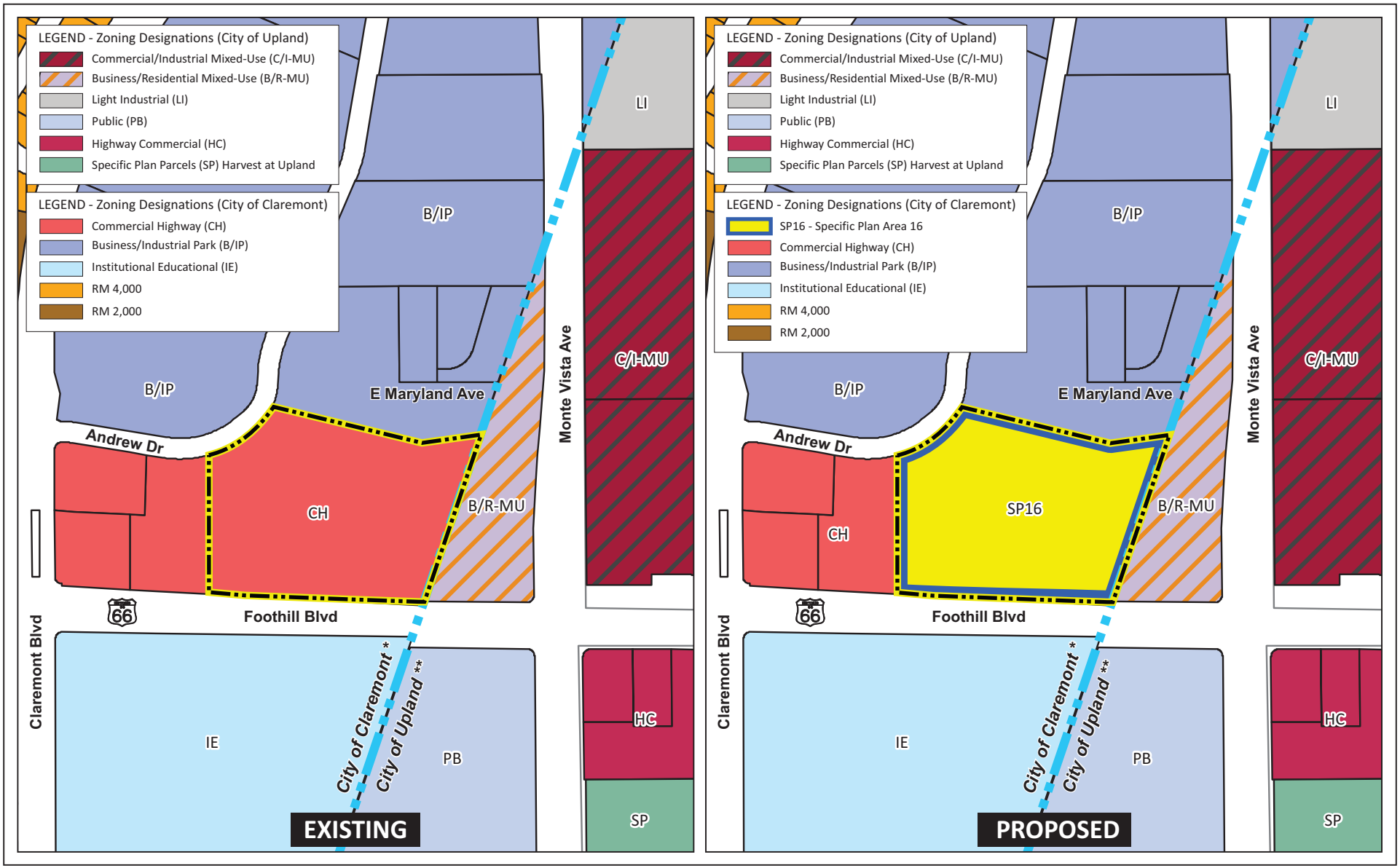

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Project Site

City Boundary

*City of Claremont is Los Angeles County

**City of Upland is San Bernardino County

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SOURCE: City of Claremont Zoning Map & City of Upland Zoning Code Update

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FIGURE 3.5

The Commons

Existing and Proposed Zoning Districts

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- The right of unobstructed passage in flight granted herein shall include the right to allow, make, and emit such noise, light, vibrations, fumes, exhaust, smoke, air currents, dust, fuel particles, radio, television, and other electromagnetic interferences, and all other incidents inherent in the operation of aircraft for navigation or flight in the air, or reasonable pre- or post-flight operations, not otherwise in violation of law or regulation.
- The avigation easement shall continue in effect only while Cable Airport remains in operation and shall cease to be effective for all purposes if Cable Airport ceases to be used as an airport open for public use. The avigation easement can be amended or canceled with written consent of the City of Claremont.
- The avigation easement is expressly conditioned on the non-enforceability of the Cable Airport Plan by Claremont. The limitations imposed by the avigation easement are intended to be the only limitations, enforceable by Claremont, on the use and development of the site.

3.4 PROJECT CHARACTERISTICS

3.4.1 Overall Development Concept

The applicant is processing a Specific Plan for the Project. The proposed Project would result in the total site development of 27 single-family homes, 20 townhomes, 15 residential flats, 5,000 square feet of retail space below the residential flats, and over an acre of park/open space (includes the Central Park and Park Plaza). See Table 3.B.

Table 3.B: Project Development Concept

Use	Planning Area*	Gross Acres	Units
Single-family residential	PA1	3.29	27
Townhomes	PA2	0.91	20
Flats	PA3	0.90	15
Retail			5,000 square feet
Park/Open Space	PA4	over 1 acre	—

Within the Specific Plan area (Figure 3.6), four distinct Planning Areas (PAs) within Claremont have been identified:

- Planning Area 1 (PA1) is planned for single-family residential development comprising 27 detached, single-family homes on 3.29 acres located in the northwest portion of the site. Each two-story home provides two garage spaces and at least one parking space on a driveway. Two plan types are provided (Table 3.C). Access to these units would be via private streets.
- Planning Area 2 (PA2) is planned for multifamily residential development comprising 20 townhome units on 0.91 acre. The townhomes in the Specific Plan are located in four three-story buildings north of Foothill Boulevard. The breakdown of townhome units is provided in Table 3.D.
- Planning Area 3 (PA3) is planned for a mixed-use development comprising 15 flats located above 5,000 square feet of retail/commercial uses within one building. PA3 is located adjacent to Foothill Boulevard. See Table 3.E.

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FIGURE 3.6

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SOURCE: KTGY Group, Inc. (1/2020)

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The Commons

Planning Areas of the Project Site

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Table 3.C: Single-Family Detached

Plan Type	Unit Count	Square Footage (gross)	Rooms
S-A	12	2,584 square feet	4 beds/3 baths + Den
S-B	15	2,277 square feet	3 beds/2.5 baths + Den
TOTAL	**27**		

Square footages are approximate.
Source: *Conceptual Development Plan Set.* KTGY Architecture + Planning. Sheet A0.02. September 9, 2019.

Table 3.D: Townhomes

Building No.	Plan Type	Unit Count	Square Footage (gross)	Rooms
2	TH-2a	2	1,771	3 beds/2.5 baths
	TH-2c	4	1,874	4 beds/3.5 baths
3	TH-2a	2	1,771	3 beds/2.5 baths
	TH-2c	5	1,874	4 beds/3.5 baths
4	TH-1b	1	1,632	2 beds/2.5 baths
	TH-2a	3	1,771	3 beds/2.5 baths
	TH-2c	1	1,874	4 beds/3.5 baths
7	TH-1a	1	1,393	2 beds/2.5 baths
	TH-2c	1	1,874	4 beds/3.5 baths
TOTAL		**20**		

Square footages are approximate.
Source: *Conceptual Development Plan Set.* KTGY Architecture + Planning. Sheet A0.02. September 9, 2019.

Table 3.E: Mixed Use Building

Building No.	Use	Plan Type	Unit Count	Square Footage (gross)	Rooms
1	Retail	—	—	5,000	First floor retail, 2,000 square feet outdoor dining space
	Flats	P1	6	1,194	2 beds/2 baths
		P2	3	1,361	2 beds/2 baths
		P3	3	1,363	2 beds/2 baths
		P4	3	1,414	2 beds/2 baths
TOTAL			**15**		

Square footages are approximate.
Source: *Conceptual Development Plan Set.* KTGY Architecture + Planning. Sheet A0.02. September 9, 2019

- Planning Area 4 (PA4) is planned for approximately 1.38 gross acres parks/open space (includes the Central Park and Park Plaza). PA4 is located in the center of the Project and is comprises an open space spine that includes parks, common area landscaping, pedestrian paths, picnic areas, public seating, and parking. PA4 would serve as the heart and soul of the Project. The circulation system has been designed to loop around PA4 to connect and provide pedestrian and vehicular connections to each planning area.

3.4.2 Land Use Changes

The Project includes the following actions to accommodate a Specific Plan area within Claremont with a mix of residential types, retail opportunity, and public amenities.

3.4.2.1 General Plan Amendments

General Plan Map Amendment. The Project includes a General Plan Amendment (GPA) to change the designation of the site to 'Mixed Use' with 'Specific Plan Overlay.' This designation allows for a mix of residential and compatible office and retail/service uses integrated as a cohesive development, or such uses developed side-by-side in a manner that encourages sharing and interaction between uses. The density and intensity of use designated as such may vary by area.

General Plan Text Amendment. The City's Public Safety and Noise Element identifies noise sources in the City, metrics for evaluating noise, and Noise and Land Use Compatibility Guidelines. Specifically, Table 6-5 (Claremont Land Use/Noise Guideline) states, "Regarding aircraft related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL."[8]

The Project occurs within the influence area of Cable Airport and includes a varied selection of residential options. As currently drafted, the General Plan would prohibit development of the proposed residential uses of the site. To encourage the development of housing stock for all segments of the community, the Project proposes an amendment to Footnote 3 of Table 6-5 as follows (<u>double underline</u> text represents the proposed General Plan Amendment):

> Regarding aircraft related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL. <u>However, in order to promote the development of housing urgently needed during the current California housing crisis and to meet the City's Regional Housing Needs Assessment RHNA, residential uses located in a mixed-use developments where there is a mix of residential housing types including multi-family housing, are allowed maximum noise level exposures up to 70 dB CNEL. (SB 330, Skinner. Housing Crisis Act of 2019, signed into law October 9, 2019).</u>

3.4.2.2 Zoning District Change

The Project proposes to change the zoning of the Project site from Commercial Highway (CH) to 'SP16 - Specific Plan Area 16.' It is the intent of the City's Specific Plan district to provide greater specificity and flexibility in carrying out the General Plan of the City that would be possible in other districts. This district is for areas that are subject to a Specific Plan adopted under Article 8 of Chapter 3 of Title 7 of the Government Code (Section 65450 and following) and Chapter 16.318 of the City's Municipal Code.

3.4.2.3 The Commons Specific Plan[9]

The Specific Plan has been prepared and established under the authority granted to the City of Claremont.[10] The Specific Plan proposes to implement the City of Claremont objectives and policies

8 Footnote 3, Table 6-5, City of Claremont General Plan, Public Safety and Noise Element.
9 *The Commons Specific Plan*. City of Claremont. February 2020.
10 California Government Code, Title 7, Division 1, Chapter 3, Article 8, and Section 65450, and pursuant to Chapter 16.081 of the Claremont Municipal Code.

by presenting detailed direction for future development, and to establish development regulations and implementation mechanisms applicable to the properties located within the Specific Plan area. The Specific Plan identifies the standards, procedures, and guidelines necessary for the orderly and efficient development within the Specific Plan area. The Specific Plan has been prepared in accordance with the provisions of the California Government Code Section 65451, which stipulate that a specific plan contain text and diagrams detailing: land use, public facilities, development standards, implementation mechanism(s), and General Plan consistency. Additionally, the Specific Plan details design elements to be implemented during development.

The Specific Plan is provided as Appendix I to this EIR.

3.4.2.4 Tentative Tract 82315

The Project includes a Tentative Tract Map (TTM 82315) that proposes to subdivide AIN 8307-003-066 into lots for the Armstrong Garden Center, and for the proposed single-family residential uses, condominium uses, and public streets within the Specific Plan.

The Specific Plan area encompasses approximately 6.5 acres of the proposed subdivided parcel. The proposed lot of approximately 1.44 acres hosting the Armstrong Garden Center is not included in the Specific Plan, nor is it part of the environmental analysis presented in the EIR because it is an existing use that will not be subject to any construction or operational changes from the baseline condition.

3.4.3 Circulation and Parking

The Specific Plan's circulation plan is detailed in Figure 3.7. The Project includes two unsignalized, right-in/right-out access entries along on Foothill Boulevard (City of Claremont). Access from Monte Vista Avenue would be provided via a primary two-lane private driveway across the applicant's property in the City of Upland. This driveway would have a divided right-in/right-out access entry from Monte Vista Avenue. If the City of Upland approves the applicant's SB 35 application, that driveway would be integrated with the 48 townhouse units. If the City of Upland disapproves that proposal, the driveway would be constructed across the otherwise vacant portion of applicant's property in the City of Upland.

Internal roadways and circulation drives provide connections among each planning area and ensure adequate emergency access for fire and other services. The private streets would minimize potential conflicts between pedestrians and vehicles and encourage a safe and enjoyable pedestrian experience within the Project. Proposed circulation private street cross-sections are identified in Section 3.4, Circulation Plan, of the Specific Plan (Appendix I).

Foothill Boulevard fronting the southern border of the Project site is currently subject to major renovations implemented through the City of Claremont Public Works Department to incorporate a *Complete Streets* schema in accordance with Claremont's Foothill Boulevard Master Plan. Complete Streets are streets designed and operated to enable safe use and support mobility for all users, including people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists, or public transportation riders. Improvements include protected bicycle lanes, center medians, shorter curb corner radii, elimination of free-flow right-turn lanes, angled face-out parking, street trees, planter strips and groundcover, and improved pedestrian and public transit accommodations.

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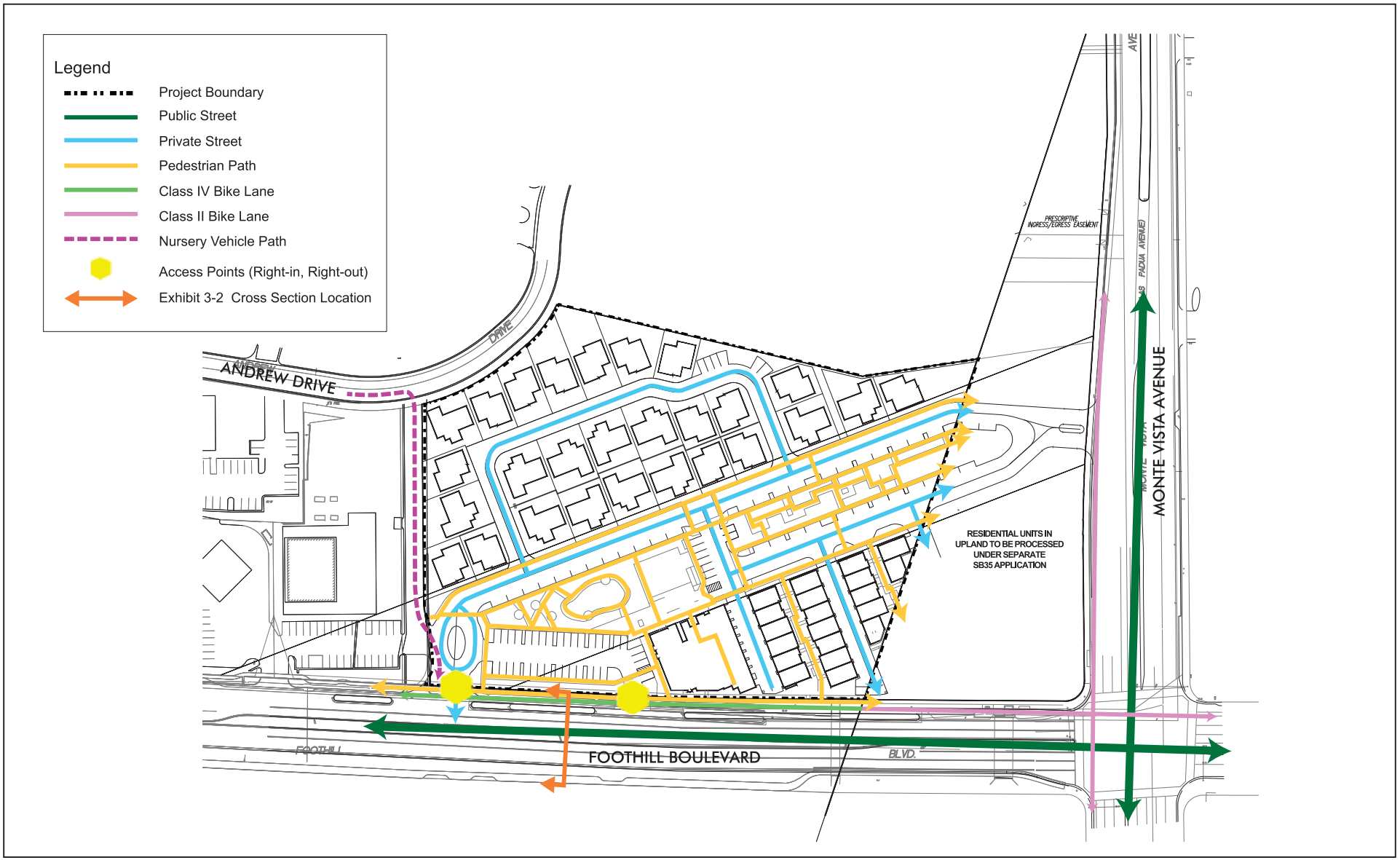

LSA

FIGURE 3.7

NO SCALE

SOURCE: Studio PAD Landscape Architecture

I:\CCT1801.01\G\Circulation Plan.cdr (4/21/2020)

The Commons

Circulation Plan

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The Class IV Bike Lane within the City of Claremont, which transitions to a Class II Bike Lane after exiting the Project site to the east, would require modification as part of the Project-specific roadway and streetscaping improvements to accommodate ingress and egress to/from the Project site. All improvements within the public right-of-way would require the appropriate permits from the Claremont Public Works Department for the roadway capital improvements.

As indicated in Table 3.F, the parks and open space portion of the Project would be distributed throughout the Project, with the recreation components in PA4 and a portion of PA1. The Central Park and Park Plaza park areas total approximately 0.8 acre and whole project is designed to create a pleasant, safe, and inviting environment for pedestrians and bicyclists. Common area landscaping, pedestrian paths, public art features, picnic areas, and public seating would be enhanced with surrounding street furnishings, lighting, and paving, as well as enhanced gathering spaces.

Table 3.F: Open Space and Landscaping

Park Type	Planning Area (PA)	Net Acres	Net Square Feet*
Central Park	PA4	0.35	15,268
Park Plaza	PA4	0.44	19,059
Single-Family Landscape	PA1	0.08	3,650
Mixed-Use Plaza	PA3	0.04	1,800
Townhome Paseos	PA2	0.90	4,000

Within the 100-foot minimum width avigation easement, permanent structures are not permitted, but amenities such as passive open turf area, bocce ball court, fire pits, decorative paving, bike racks, benches, umbrellas and chairs, dog bag stations, and an underground water quality facility (beneath the Park Plaza) are proposed. Together, the Central Park and Park Plaza comprise the avigation easement corridor through the center of the Project site.

The Park Plaza is located next to the Mixed-Use District and includes bike racks, benches, umbrellas, a water retention basin, and chairs for outdoor seating and dining. The design includes enhanced paving and colored concrete to differentiate this area from the sidewalk. A low fencing may also be included within this area to designate an area specifically for a tenant.

3.4.5 Landscaping, Open Space and Walls/Fences

3.4.5.1 Landscaping and Open Space

The overall intent of the landscape design concept (Figure 3.8) is to create a pedestrian-friendly atmosphere that invites residents to walk and enjoy the open spaces and have connectivity within the community. The planting concept for the Project is intended to provide a rich landscape that compliments the style and architectural feel of the Project, as well as take into consideration the applicable water conservation programs.

Throughout the Project area, plazas, parks, and outdoor open space have been incorporated to establish a sense of place and identity and provide spaces for outdoor dining, play, and entertainment. The landscape program would help identify the Project, as well as convey a welcoming feeling for both

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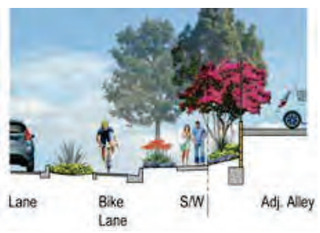
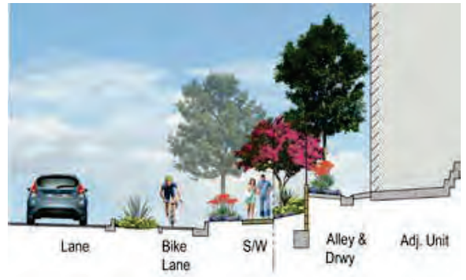
*Conceptual images (provided herein are all subject to change)



Street Section 'F1' - Foothill Blvd.



Street Section 'F2' - Foothill Blvd.

Scale: 1" = 10'





*Conceptual images (provided herein are all subject to change)

LEGEND

1. Community vehicular entry, with enhanced paving, pedestrian sidewalk and specimen trees. Refer to Entry Enlargements on L-2.
2. Community retail plaza and natural park with picnic areas, table seating and trails. Refer to Plan Enlargement on L-3.
3. Central community park, with high quality amenities and various programmed areas for local residents and visitors. Refer to Plan Enlargement on L-4.
4. Neighborhood pocket park, Refer to Plan Enlargement on L-5.
5. Community cluster mailboxes, per USPS review and approval.
6. Proposed wall, pilaster, gate, fence, per Wall & Fence Plan.
7. Proposed tree, per Planting Plan.
8. 5' wide community natural colored concrete sidewalk, with light top-cast finish and saw-cut joints.
9. 4' wide unit entry natural colored concrete walk, with light top-cast finish and saw-cut joints.
10. Accessible parking stall and striping, per Civil plans.
11. Guest parking stall.
12. Natural colored concrete driveway, with light broom finish and tooled joints.
13. Private patio / yard area, homeowner maintained.
14. Common area landscape, with drought tolerant, colorful planting; builder installed and HOA maintained.
15. Steps down to Foothill Blvd.
16. Public street improvements, per Civil plans.
17. Proposed public street sidewalk, per Civil plans.
18. Transformer to be screened with landscape, quantity and final locations to be determined.
19. Short term bike parking - metal "loop" bike ring (14"x36"x31" size, 2 bike stalls per rack ring in bronze color).
20. Water quality basin area, per Civil plans.
21. Adjacent existing nursery facility.

LSA

FIGURE 3.8

N

0 75 150

FEET

SOURCE: The Commons Specific Plan

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The Commons

Conceptual Landscape Plan

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vehicular and pedestrian traffic. Landscape materials for the community entries include enhanced paving, accent trees, sidewalks, and accessible paths of travel.

All landscape and irrigation plans would be prepared by a licensed California Landscape Architect and would be submitted to the City of Claremont for review and approval prior to starting construction.

3.4.5.2 Community Entry

The Project's primary community entry occurs on Foothill Boulevard and is designed to convey a sense of place by implementing entry features that establish the driveway as a gateway into the development. The character of this entry is mirrored in the Project's secondary entry on Monte Vista Avenue in the City of Upland. The Project's architectural character and the mixed-use nature of development are intended to create a unique sense of place in an area surrounded by more conventional residential and commercial developments.

3.4.5.3 Fencing and Walls

Walls and fences are designed to help establish and reinforce the landscape theme. They provide for views in and out of a site, attenuate sound, provide security, delineate boundaries, and offer visual and physical privacy. The perimeter walls and fences facing public streets are designed to appear consistent in style, material, and height, serving as a unifying element throughout the community and maintaining a common theme.

Perimeter Project masonry walls are designed not to exceed 6 feet in height. This is not a gated community and the parks are open to the public. Patio walls may be used in areas where privacy is desired but also must not exceed 6 feet in height. Additionally, interior side-yard fencing would not exceed 6 feet in height. Wood or vinyl fencing for interior side yard conditions is encouraged, and tubular steel fencing may be used in combination with masonry walls where low level screening is desired to maintain views. The height of the combination walls would not exceed 6 feet.

3.4.6 Lighting and Signage

A cohesive and unified lighting design would be implemented to ensure energy savings, reduced sky-glow, and improved quality of life. Proper lighting design promotes safety, limits light trespass onto adjacent properties, minimizes the impact to nocturnal animals, and minimizes disruption to human's circadian rhythms to promote better sleep and healthier communities.

All new parking lot and other security lighting would be directed away from surrounding land uses and toward the specific location intended for illumination. State-of-the art fixtures would be used, and all lighting would be designed to minimize the production of glare and light spill onto surrounding uses. If light shields are necessary, they would be painted to match the surface to which they are attached.

Up- and back-lighted canopies or awnings, searchlights, flashing lights (except as used in conjunction with a security alarm system), roof-mounted lights, and any light that imitates or causes visual interference with a traffic signal or other necessary safety or emergency light are prohibited.

To create and preserve the design character of the community, controlled wayfinding and identity signage would be implemented in accordance with general guidelines for signage detailed in the Specific Plan. For example, signs generally would be limited to a maximum of three colors unless the use of corporate color schemes or logos dictates the use of more than three colors. All sign structure shall be consistent with the architectural style of the building on or near which it is placed and be incorporated into the overall design while concealing conduits, junction boxes, and other support features.

3.4.7 Utilities

The Project site is located in an urbanized area, and utilities are available for interconnection generally adjacent to or in close proximity to the site.

Water service is provided by Golden State Water Company through connections to the existing lines on-site or the surrounding streets. Other than the abutting improvements, there are no off-site improvements to water lines. The Project has received a "will serve" letter from Golden State Water Company.

The Project site would be serviced by connecting to the existing sewers within Foothill Boulevard. Other than the abutting improvements to provide connections to main sewer lines, no off-site improvements to sanitary sewers are required.

The Project site would be serviced by connecting to the existing pipes or infrastructure within Foothill Boulevard. Other than the abutting improvements to provide connections to existing storm water infrastructure, no off-site improvements to storm water drainage are required.

Electrical service for the Project site is provided by Southern California Edison Company (SCE) through connections to the existing lines on-site or the surrounding streets, and natural gas service for the Project site is provided by Southern California Gas Company (SCG) through connections to the existing lines on-site or the surrounding streets.

Cable, telephone, and internet services for the Project site are currently provided by Frontier and/or Spectrum.

Police services for the site are provided by City of Claremont Police Department.

Fire services in Claremont are provided by the Los Angeles County Fire Department. Three fire stations are within the Claremont city limits, with the closest station located at 606 W. Bonita Avenue, approximately 2.2 miles southwest of the Project site. The City of Claremont Community Services Department provides trash collection and recycling services to all residents and businesses in Claremont.

3.4.8 Sustainability

The Project embraces a smart growth planning paradigm by applying smart growth principles throughout the Specific Plan area to create a compact, vibrant, walkable, and mixed-use community. These principals include thoughtful and sustainable development patterns to avoid urban sprawl,

conserve resources, reduce impacts, promote alternatives to single occupancy vehicle use, support livability, offer opportunities for social engagement, and achieve fiscal sustainability. New development on site would be sustainably designed to conform to the State of California's goals for greenhouse gas reduction pursuant to Senate Bill 32, conserving water and energy, and providing sustainable buildings, which in turn would reduce impacts on the environment, enhance the quality of life, and encourage a healthy lifestyle for Project residents.

The Project requires "Green" building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials. Title 24 sets forth building standard requirements including, but not limited to, planning and site design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, waste reduction, indoor air quality and pollutant control, thermal comfort, and provisions for bicycle and electric vehicle parking. With each three-year cycle, the regulations are updated with the goal of reaching zero net energy in new residential construction by 2022 (effective Jan 1, 2023) and zero net energy in new commercial construction by 2030. The proposed Project is required to meet the rigorous standards of Title 24. Each new building would be inspected for compliance and would include an operation manual to help end-users maintain and effectively use the sustainable building features provided.

Because the concept of sustainability is still evolving, it is anticipated that new sustainable strategies would be continually developed during the build-out period of the Project. Construction and operation of the Project shall comply with the California Title 24 standards. The project would comply with the City of Claremont's General Plan, Municipal Code and Sustainable City Plan, and the sustainability requirements found in Section 4.4.7 of the Specific Plan, whichever is more stringent.

3.4.9 Site Preparation and Grading

Currently, the Project site slopes southeast to northwest with elevations ranging from approximately 1,324 feet above mean sea level (amsl) to slightly higher than 1,367 feet amsl. The on-site rubble and existing concrete pads would be cleared, and the site would be mass graded. Finished floor elevations for the single-family homes would range from approximately 1,333 to 1,343 feet amsl, and the finished floor for the multifamily residences would range from approximately 1,335 to 1,355 feet amsl.

Final engineering may result in modifications to the overall grading concept, but the modifications should conform to the general intent of the conceptual and final grading plans, as reviewed and approved by the Cities of Claremont and Upland, respectively.

3.4.10 Phasing

Development of the site is expected to be built out in two phases, with development and model dwellings being built first around the Open Space Spine and then progressing outwards. Phase 1 includes the western portion of PA 4 (open space spine) where the park plaza is located, portions of PA 1 (single-family residential) and PA 2 (multi-family residential) near the park plaza, and the entire PA 3 (mixed-use). Phase 2 will include the development of the eastern portion of PA 4 where the Central Park is located, and the remaining portions of PA 1 and PA 2.

It is anticipated that the entire Project site would be graded at one time. Finished lot work and internal streets/drives would be installed concurrent with the construction of residential units. All off-site utility connections would occur during initial grading activities. Grading activities would take approximately four to six weeks. Construction of the dwellings would take approximately three to twelve months per development phase. The single-family residences would generally be constructed in groups of four to six units, and the townhomes would be constructed one to two buildings at a time.

The project applicant has indicated that its adjacent cumulative project in the City of Upland, if approved, would be constructed in a single phase that would occur concurrent with this project, or at a different time to be determined. As explained in the analysis below, this potential for simultaneous construction is analyzed and accounted for within the relevant analysis in this DEIR.

3.5 PROJECT OBJECTIVES

As the Lead Agency, the City of Claremont's primary project objective is the development of the site with uses that are consistent with the policies and development guidelines established by the City General Plan. The following Project Objectives implement the goals of the Claremont General Plan. The General Plan Goals that the project objectives refer to are in parenthesis at the end of each objective.

- Promote and encourage sustainable development, incorporating green practices, on vacant sites within a built-up area. (LU Goal 2-1)
- Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes. Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community. (LU Goal 2-2, H Goal 8-3)
- Promote high quality architecture for new development. (LU Goal 2-5)
- Provide a variety of park facilities that meet the diverse needs and interests of the community. (OS Goal 5-9)
- Continue to require public art as part of new development projects and encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City. (LU Goal 2-5, 2-7)
- Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses. Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development. (LU Goal 2-15)
- Create distinctive gateways at all entry points into Claremont. (LU Goal 2-7)
- Encourage development that increases the City's economic base. (ED Goal 3-1)
- Encourage a high-quality project at what is now a long-term vacant site at the entry to the City.
- Establish a cohesive, contemporary, and innovative design character for the Project site that would be unique to the City of Claremont.

In order to promote primary objectives of ensuring a cohesive, attractive, and unique development, the proposed Specific Plan identifies the following "Guiding Principles" to provide a broad framework and direction for the site plan and building design:

- Provide a community that meets current and future housing demands on a highly accessible site located near major roads.
- Ensure compatibility with neighboring existing commercial areas, and with future institutional, and residential uses.
- Create a walkable environment and a definable sense of place.
- Create special places such as a large open space spine and central plaza.
- Provide for infill residential development on a vacant property.
- Emphasize distinct features of site and surroundings to create a unique, mixed-use neighborhood.
- Provide diversity in product mix design to target a variety of age groups.

3.6 REQUIRED ACTIONS

3.6.1 City of Claremont Actions

As established in *CEQA Guidelines* Section 15124(d)(2), "If a public agency must make more than one decision on a project, all its decisions subject to CEQA should be listed." In order to develop the site as proposed, the following actions are required:

- Certification of the EIR.
- Adoption of *The Commons Specific Plan* #16 (18-SP01)
- Approval of a General Plan (Map) Amendment to change Land Use Designations from the existing "Commercial" to "Mixed Use" with "Specific Plan Overlay (18-GPA02).'
- Approval of a General Plan Text Amendment related to Table 6-5 of the City's Public Safety and Noise Element.
- Approval of a Zone Map change and text amendment to change the Zoning District from "Commercial Highway (CH)" to "SP16 - Specific Plan Area 16" (18-CA02).
- Approval of Tentative Tract Map (TTM 82135).
- Design Review to approve the site plan, site improvements, landscaping plans, and architectural elevations for the project (18-AR08).

3.6.2 City of Upland Actions

All access into the Project from Upland will be accomplished by ministerial approval.

3.6.3 Other Required Actions

CEQA Guidelines Section 15124(d)(1) further requires the Lead Agency, to the extent the information is known, to include a list of the agencies that are expected to use the EIR in their decision-making

processes, a list of permits and other approvals required to implement the Project, and a list of related environmental review/consultation requirements established by federal, State, or local law, regulation and/or policy. In addition, the project may require review by the following:

- Los Angeles County Airport Land Use Commission (ALUC) for the Project (California Public Utilities Code Section 21676).

Prior to the adoption of amendment of a General Plan, Specific Plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the Los Angeles ALUC, the City of Claremont may be required to refer the Project to the Los Angeles ALUC.

In addition to the discretionary actions identified above, the Project would require the approval of construction, grading, drainage, and related permits to allow for the development of Project features and facilities.

The following additional agencies may require review, approval, and/or issuance of permits as referenced below:

- South Coast Air Quality Control District (Authority to Construct).
- Santa Ana Regional Water Quality Control Board (National Pollutant Discharge Elimination System authorization).
- Requisite approval from utility providers (connection permits/work permits).

4.0 ENVIRONMENTAL IMPACT EVALUATION

As identified in the Project Initial Study (Appendix A-1) and in response to public comments to the Notice of Preparation (NOP) distributed for the Project, this EIR focuses on the issues determined to result in potentially significant environmental impacts. The following 12 environmental issues are addressed in Sections 4.1 through 4.12 of this EIR:

1. Air Quality (Section 4.1);
2. Biological Resources (Section 4.2);
3. Cultural Resources (Section 4.3);
4. Energy (Section 4.4);
5. Greenhouse Gas Emissions (Section 4.5);
6. Hazards and Hazardous Materials (Section 4.6)
7. Hydrology/Water Quality (Section 4.7)
8. Land Use/Planning (Section 4.8);
9. Noise (Section 4.9);
10. Transportation (Section 4.10);
11. Tribal Cultural Resources (Section 4.11); and
12. Wildfire (Section 4.12).

The discussion and analysis of each of the 12 issues is presented in the following manner:

- Description of the existing setting as it relates to the specific environmental issue;
- A summary of the regulatory framework relevant to the specific environmental issue;
- Identification of the thresholds of significance;
- Evaluation of project-specific impacts resulting from the construction and occupation of the proposed residential, infrastructure, and community amenity uses;
- Identification of mitigation measures (as appropriate);
- A determination of the level of significance after mitigation measures are implemented; and
- Cumulative impacts.

The *CEQA Guidelines* requires that the EIR define the environmental setting for each of the potential effects for the proposed Project. The environmental setting is defined as "… the physical environmental conditions in the vicinity of the project, as they exist at the time the Notice of Preparation is published, or if no Notice of Preparation is published, at the time the environmental analysis is commenced."[1] The environmental analysis provided in Sections 4.1 through 4.12 focuses on changes in the existing physical environment at the time the NOP was issued on November 20, 2019, and identifies direct and indirect significant impacts associated with the proposed Project. The potential cumulative impacts of the Project are addressed in the environmental analysis provided in Sections 4.1 through 4.12.

[1] *CEQA Guidelines* §15125(a).

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4.1 AIR QUALITY

This section analyzes the proposed Project's potential air quality impacts based on the following technical studies contained in Appendix B of this EIR.

- *Air Quality and Greenhouse Gas Analysis, The Commons Project*, *City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California* LSA, January 2020 (Appendix B).

The air quality analysis evaluates potential air quality impacts and mitigation measures by examining the short-term construction and long-term operational impacts associated with the Project and by evaluating the effectiveness of mitigation measures incorporated as part of the Project design. Additionally, the analysis provides a discussion of the proposed Project, the physical setting of the Project area, and the air quality regulatory framework. The evaluation was prepared in accordance with appropriate standards, utilizing procedures and methodologies in the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook*[1] using the latest California Emissions Estimator Model (CalEEMod) computer program developed and maintained by the SCAQMD. Air quality data from the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) web sites were used to characterize the local air quality environment.

4.1.1 Existing Setting

The Project site is located in the City of Claremont within Los Angeles County, California, which is a part of the South Coast Air Basin (Basin) and under the jurisdiction of the SCAQMD. The Basin is defined as a geographic area that encompasses the coastal plain and connecting broad inland valleys and low hills. The Pacific Ocean forms the southwestern border of the Basin, with mountain ranges forming the remainder of the border. The Basin includes Orange County and the non-desert portions of Los Angeles County, Riverside County, and San Bernardino County.

4.1.1.1 Sensitive Receptors

In the City of Claremont, adjacent land uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses, is located to the northwest. Multifamily residential uses are located approximately 475 feet northwest of the site. The site of a recently approved 70-acre sport park is located south of the Project site, across Foothill Boulevard. The Claremont Colleges dormitories and the College Park apartment residential development and are located approximately 0.33 and 0.50 mile southwest and south from the site, respectively.

In the City of Upland, adjacent land across Monte Vista Avenue consists of the College Business Park and low-density multifamily uses (Harvest Avenue at Upland). The closest residences in Upland are located approximately 500 feet southeast of the Project.

[1] South Coast Air Quality Management District (SCAQMD). 1993 *CEQA Air Quality Handbook*. April.

4.1.1.2 Climate and Meteorology

Air quality in the Project area is not only affected by various emissions sources (such as vehicle emissions and stationary industry sources), but also by atmospheric conditions such as wind speed, wind direction, temperature, rainfall, and amount of sunshine. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States combine to give the Basin the worst air pollution problem in the nation. The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High, a large subtropical high pressure system, which holds air contaminants relatively near the ground.

Winds in the Basin are predominantly of relatively low velocities, averaging about 4.0 miles per hour (mph). These low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants, and these conditions tend to last for several days at a time. Local winds at the Project site blow predominantly from the south and southwest with an average annual wind speed of about 10 mph. Summer average wind speeds are slightly higher than winter wind speeds.

During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into eastern Los Angeles, Riverside, and San Bernardino Counties. In the winter, the greatest pollution problems are carbon monoxide (CO) and oxides of nitrogen (NOx), because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NOx to form photochemical smog.

4.1.1.3 Regional Air Quality

Both the State of California and the federal government have established health-based Ambient Air Quality Standards (AAQS) for seven air pollutants. As detailed in Table 4.1.A, these pollutants include ozone (O_3), CO, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead (Pb). In addition, the State has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Table 4.1.B summarizes the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these health effects would not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than federal AAQS. Among the pollutants, O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) are considered pollutants with regional effects, while the others have more localized effects.

The California Clean Air Act (CCAA) provides the SCAQMD and other air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, or installation, or combination thereof, that attracts or generates mobile source

Table 4.1.A: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1-Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM_{10})[9]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter ($PM_{2.5}$)[9]	24-Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas)[11]	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m³)	
	1-Hour	0.25 ppm (655 µg/m³)		75 ppb (196 µg/m³)	—	
Lead[12,13]	30-Day Average	1.5 µg/m³	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[13]	Same as Primary Standard	
	Rolling 3-Month Average[11]	—		0.15 µg/m³		
Visibility-Reducing Particles[14]	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Source: California Air Resources Board (ARB). 2016. Ambient Air Quality Standards. May 4. Website: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed July 2019.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[14] In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
CARB = California Air Resources Board
EPA = United States Environmental Protection Agency
µg/m³ = micrograms per cubic meter
mg/m³ = milligrams per cubic meter
ppm = parts per million
ppb = parts per billion

Table 4.3.B: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate Matter ($PM_{2.5}$ and PM_{10}: less than or equal to 2.5 or 10 microns, respectively)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	• Cars and trucks (especially diesels) • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	• Precursor sources[1]: motor vehicles, industrial emissions, and consumer products
Carbon Monoxide (CO)	• Chest pain in heart patients[2] • Headaches, nausea[2] • Reduced mental alertness[2] • Death at very high levels[2]	• Any source that burns fuel, such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO_2)	• Increased response to allergens	• See carbon monoxide sources
Toxic Air Contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks (especially diesels) • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: California Air Resources Board (CARB). ARB Fact Sheet: Air Pollution and Health. Webpage last reviewed by CARB on December 2, 2009. Website: http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm, accessed July 2019.

[1] Ozone is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.

[2] Health effects from CO exposures occur at levels considerably higher than ambient.

activity that results in emissions of any pollutant. In addition, area source emissions that are generated when minor sources collectively emit a substantial amount of pollution are also managed by the local air districts. Examples of this would be motor vehicles at an intersection, a mall, and on highways. The SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the CARB.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. Episodes are defined as unacceptable air quality levels where everyone in the Basin may experience more serious health effects. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert would be declared when any one of the pollutant alert levels is reached at any monitoring site and when meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase; or, in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken.

Pollutant alert levels:

- **O_3:** 392 micrograms per cubic meter (µg/m^3) (0.20 parts per million [ppm]), 1-hour average.
- **CO:** 17 milligrams per cubic meter (mg/m^3) (15 ppm), 8-hour average.
- **NO_2**: 1,130 µg/m^3 (0.6 ppm), 1-hour average; 282 µg/m^3 (0.15 ppm), 24-hour average.
- **SO_2:** 800 µg/m^3 (0.3 ppm), 24-hour average.
- **Particulates measured as PM_{10}:** 350 µg/m^3, 24-hour average.

4.1.1.4 Local Air Quality

The SCAQMD, together with the CARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Pomona Station, 924 N. Garey Avenue, Pomona, which monitors O_3. Upland Station 1350 San Bernardino Road in Upland monitors CO, PM_{10}, $PM_{2.5}$, and NO_2. The Riverside-Rubidoux Station at 5888 Mission Boulevard in Riverside monitors SO_2. The air quality trends from these stations are used to represent the ambient air quality in the Project area.[2,3] The ambient air quality data in Table 4.1.C show that NO_2, SO_2, and CO levels are within the applicable State and federal standards. As detailed in Table 4.1.C, the State 1-hour O_3 standard was exceeded 22 to 47 times per year in the past three years.

[2] United States Environmental Protection Agency. Air Quality Data. Website: https://www.epa.gov/outdoor-air-quality-data (accessed October 2019).

[3] California Air Resources Board (ARB). iADAM: Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed October 2019).

Table 4.1.C: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Ozone (O_3) – taken from Pomona Station				
Maximum 1-hour concentration (ppm)		0.127	0.147	0.112
Number of days exceeded:	State: > 0.09 ppm	20	18	7
Maximum 8-hour concentration (ppm)		0.092	0.114	0.092
Number of days exceeded:	State: > 0.070 ppm	29	38	11
	Federal: > 0.070 ppm	26	35	10
Coarse Particulates (PM_{10}) – taken from Upland Station				
Maximum 24-hour concentration (µg/m^3)		184.0	106.5	156.6
Number of days exceeded:	State: > 50 µg/m^3	6	9	7
	Federal: > 150 µg/m^3	1	0	1
Annual arithmetic average concentration (µg/m^3)		26.3	32.8	33.4
Exceeded for the year:	State: > 20 µg/m^3	Yes	Yes	Yes
Fine Particulates ($PM_{2.5}$) – taken from Upland Station				
Maximum 24-hour concentration (µg/m^3)		44.9	53.2	47.9
Number of days exceeded:	Federal: > 35 µg/m^3	5	7	3
Annual arithmetic average concentration (µg/m^3)		17.6	14.5	12.6
Exceeded for the year:	State: > 12 µg/m^3	Yes	Yes	Yes
	Federal: > 15 µg/m^3	Yes	No	No
Nitrogen Dioxide (NO_2) – taken from Upland Station				
Maximum 1-hour concentration (ppm)		0.071	0.064	0.059
Number of days exceeded:	State: > 0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.016	0.015	0.014
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Carbon Monoxide (CO) – taken from Upland Station				
Maximum 1-hour concentration (ppm)		1.7	1.9	1.7
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.3	1.4	1.2
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9 ppm	0	0	0
Sulfur Dioxide (SO_2) – taken from Riverside-Rubidoux Station				
Maximum 24-hour concentration (ppm)		0.001	0.001	0.001
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.0002	0.0002	0.0002
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Note: All monitored data were recorded at the Pomona, Upland, and Riverside-Rubidoux Monitoring Stations.
Source 1: U.S. Environmental Protection Agency. Air Quality Data. Website: https://www.epa.gov/outdoor-air-quality-data (accessed October 2019).
Source 2: California Air Resources Board. iADAM Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed October 2019).

µg/m^3 = micrograms per cubic meter
O_3 = ozone
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ND = no data available
PM_{10} = particulate matter less than 10 microns in size
ppm = parts per million

The federal 8-hour O_3 standard was exceeded 10 to 35 days per year in the past three years, and the State 8-hour O_3 standard was exceeded 11 to 38 times per year in the past three years. The federal 24-hour PM_{10} standard was not exceeded in the past three years, but the State 24-hour PM_{10} standard was exceeded 6 to 9 days per year in the past three years. The State's annual PM_{10} standard was exceeded in each of the years from 2016 to 2018. The federal 24-hour $PM_{2.5}$ standard was exceeded 5 to 9 days per year in the past three years and the State's annual $PM_{2.5}$ standard was exceeded in 2016 and 2018.

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "nonattainment," depending on whether the regions met the requirements stated in the primary National Ambient Air Quality Standards (NAAQS). Nonattainment areas are imposed with additional restrictions as required by the EPA. Table 4.1.D identifies the attainment status of the Basin.

Table 4.1.D: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1-hour	Nonattainment	N/A
O_3 8-hour	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment
Lead	Attainment[1]	Attainment[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: Air Quality Standards and Area Designations. Website: http://www.arb.ca.gov/desig/desig.htm (accessed October 2019).

[1] Except in Los Angeles County.

CO = carbon monoxide
N/A = not applicable
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SO_2 = sulfur dioxide

4.1.1.5 Health Risk Assessment Existing Setting

Toxic Air Contaminants. The public's exposure to Toxic Air Contaminants (TACs) is a significant environmental health issue in the State of California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Act (42 United States Code Section 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through the CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). AB 1807 sets forth a formal procedure for the CARB to designate substances as TACs. Once a TAC is identified, the CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate Toxics Best Available Control Technology (T-BACT) to minimize emissions.

TACs from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a Health Risk Assessment (HRA) and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

To date, the CARB has designated nearly 200 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter (PM) from diesel-fueled engines (Diesel Particulate Matter [DPM]).

The CARB is working to reduce DPM through regulations, financial incentives, and enforcement programs. In 2004, the CARB adopted two airborne toxic control measures to reduce DPM emissions associated with distribution centers. The first limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than five minutes at any one location. The elimination of unnecessary idling reduces the localized impacts caused by DPM and other TACs in diesel vehicle exhaust.

Ambient Toxic Air Contaminants Inventory for the Basin. The SCAQMD has conducted an in-depth analysis of the toxic air contaminants and their resulting health risks for all of Southern California. This study, the "Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV," shows that cancer risk has decreased more than 50 percent between MATES III and MATES IV.

MATES IV is the most comprehensive dataset documenting the ambient TAC levels and health risks associated with Basin emissions. Therefore, the MATES IV study represents the baseline health risk for a cumulative analysis. These model estimates were based on monitoring data collected at 10 fixed sites in the Basin. None of the fixed monitoring sites is in the local area of the Project site. However, MATES IV has extrapolated the excess cancer risk levels throughout the Basin by modeling the specific grids. MATES IV modeling predicted an excess cancer risk of 777 in 1 million for the region in the proposed Project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68 percent of the total risk shown in MATES IV.

4.1.1.6 NOP/Scoping Comments

The SCAQMD sent a letter (Appendix A1) outlining its recommendations for the air quality study to be prepared for the proposed Project. The SCAQMD's comment letter includes a reference to several

sources to consider for purposes of mitigating significant air quality impacts (*SCAQMD CEQA Air Quality Handbook* [SCAQMD 1993] and subsequent SCAQMD Updates).

As appropriate, these recommendations were followed in the preparation of the air quality analysis in this EIR, as explained in the methodology discussions in each of those sections.

General Notes on SCAQMD Recommended Mitigation Measures. Table 4.1.E presents an evaluation of the applicability of the SCAQMD measures related to residential development.

Table 4.1.E: Applicability of SCAQMD-Recommended Mitigation Measures

Mitigation Measure	Applicability
Chapter 11 of the SCAQMD *CEQA Air Quality Handbook* (Construction)	
The applicable mitigation measures listed in Chapter 11 (11-4) of the SCAQMD *CEQA Air Quality Handbook* have been reviewed. Applicable portions of these measures have already been incorporated into the Project mitigation measures (MMs) as outlined below. For example, MM Air-1 controls dust per SCAQMD Rule 403, and restricts dust on unpaved roads per SCAQMD Rule 1186. MM Air-2 requires the Project applicants to implement, by contract specifications, that all heavy-duty, diesel-powered construction equipment used at the Project site during the following phases be powered by CARB-certified Tier 2 engines or higher and install a minimum of level 1 diesel particulate filter on all equipment exhaust system. Table 4.3.I: This table does not address NO_2 emissions but includes a number of SCAQMD standard measures for dust control that would yield the most reduction in PM_{10} emissions (e.g., soil stabilizers, daily watering, covering dirt haul trucks, sweeping streets, and washing off dirt trucks leaving the site. None of the other SCAQMD mitigation measures would reduce the significant NO_2 impacts during construction activity. It should be noted the SCAQMD *CEQA Air Quality Handbook* has not been updated since 2003. The measures below are also discussed with respect to their feasibility and applicability, and whether or not they are already required as part of the Project.	
Develop a trip reduction plan to achieve a 1.5 AVR for construction employees.	Infeasible. It is not known, and cannot reasonably be known, from where construction employees would come. Therefore, implementation of this measure is infeasible.
Implement a shuttle service to and from retail services and food establishments during lunch hours.	Applicable. The Project would include onsite food truck service, which would eliminate the need for construction workers to travel offsite during lunch hours.
Methanol-fueled pile drivers.	Inapplicable. The Project does not require the use of pile drivers.
Use electricity from power poles rather than temporary diesel power generators.	Part of Project. The construction of the Project would utilize electricity from power poles and provided by Southern California Edison, to the extent feasible, and limited gasoline and diesel generators as necessary.
Use of methanol or natural gas onsite mobile equipment instead of diesel.	Feasible.[1] Though cleaner natural gas-burning vehicles are favored, depending on the type of required equipment and construction schedule, heavy construction equipment that utilizes natural gas or methanol, as opposed to diesel, may not be available. Smaller construction equipment may access natural gas fueling stations located in the City. The contractor shall utilize CARB Tier 4 certified equipment or equivalent for all off-road diesel-powered construction equipment greater than 50 horsepower.
Use of propane- or butane-powered onsite mobile equipment instead of gasoline.	Infeasible. Construction equipment that utilizes propane or butane, as opposed to gasoline, may not be readily available. The contractor shall utilize CARB Tier 4 certified equipment or equivalent for all off-road diesel-powered construction equipment greater than 50 horsepower.

Table 4.1.E: Applicability of SCAQMD-Recommended Mitigation Measures

Mitigation Measure	Applicability
Chapter 11 of the SCAQMD *CEQA Air Quality Handbook* (Operations)	
The applicable mitigation measures listed in Chapter 11 (Tables 11-6c and 11-7c) of the SCAQMD *CEQA Air Quality Handbook* have been reviewed. Some of the mitigation measures recommended here are already included in the Project. Table 11-6c: Recommends a number of actions to reduce PM_{10} emissions including carpooling and using low-emission engines. MM Air-1 limits truck and equipment engine idling, restricts queuing to further reduce idling emissions, and requires CARB-certified engines meeting year 2010 standards or better. Additionally, several of the measures listed provide a negligible emission reduction, with a number of them designated by SCAQMD as having no quantified benefit or negligible benefit. Those measures are not specifically identified. Implementation of the measures included in the *Air Quality Handbook*, as identified below, would not avoid or substantially lessen mobile source emissions attributable to the Project. The measures below are also discussed with respect to their feasibility and applicability, and whether or not they are already required as part of the Project.	
Provide preferential parking spaces for carpools and vanpools and provide 7' 2" minimum vertical clearance in parking facilities for vanpool access.	Inapplicable. The Project is a predominantly residential development and preferential parking for carpools and vanpools is not typically required for this land use.
Implement home dispatching system where employees receive routing schedule by phone instead of driving to work.	Infeasible. The residents of the Project and their employment policies, standards, and procedures are not known. However, it is expected that employers would communicate with all future employees regarding scheduling.
Require employers not subject to Regulation XV to provide commuter information areas.	Inapplicable. The Project is a predominantly residential development and this Project is not required to comply with Chapter 30, Article XIV (Transportation Demand Management and Trip Reduction Requirements) of the Claremont Municipal Code, which promotes the use of alternative transportation modes other than single-occupant vehicles, thereby reducing air pollution and improving the quality of life.
Reduce employee parking spaces for those businesses subject to Regulation XV.	Inapplicable. As discussed above, the Project is not required to comply with Chapter 30, Article XIV of the Claremont Municipal Code, which imposes trip reduction requirements. Also, significant portions of Regulation XV were previously repealed by the SCAQMD.
Implement compressed work-week schedules where weekly work hours are compressed into fewer than five days.	Inapplicable: The Project is a predominantly residential development, and thus is not conducive to providing telecommuting services.
Develop a trip reduction plan to achieve 1.5 AVR for businesses with less than 100 employees or multi-tenant worksites.	Inapplicable: The Project would generate approximately 10 jobs through development of 5,000 square feet of retail uses. Two bus stops served by Foothill Transit Route 292 are located less than 500 feet to the southwest of the site, and the Montclair and Claremont Metrolink Stations are located approximately 1 mile and 1.5 miles, respectively, south and southwest of the site. Though employment at the site is extremely limited, the use of these transit opportunities could reduce average vehicle ridership, though not to levels that would meaningfully affect the emission of pollutants.
Provide onsite child care and afterschool facilities or contribute to development within walking distance.	Inapplicable. The residents of the Project and the nature of their ownership and whether or not they would utilize onsite childcare, or whether future employees provide such service is not known at this time. Tenants, however, would be able to provide such services.
Provide onsite employee services such as cafeterias, banks, etc.	Inapplicable. The Project is a predominantly residential development that does not provide such services.

Table 4.1.E: Applicability of SCAQMD-Recommended Mitigation Measures

Mitigation Measure	Applicability
Establish a shuttle service from residential core areas to the worksite.	Infeasible: The applicant is not able to predict from where future residents would be employed. It is likely that residents would commute to and from a wide range of areas throughout the region, as the area is significantly developed and served by multiple sources of transportation that make accessibility easy.
Construction of onsite or offsite bus turnouts, passenger benches, or shelters.	Infeasible: The applicant is not able to predict from where future residents would commute to and from work.
Implement a pricing structure for single-occupancy employee parking and/or provide discounts to ride sharers.	Inapplicable. The Project is a predominantly residential development which provides free parking for residents. A pricing structure could entice tenants to park elsewhere is inconsistent with City parking policies.
Utilize parking in excess of code requirements as onsite park-n-ride lots or contribute to construction of offsite lots.	Infeasible. The Project is a predominantly residential development which provides parking for residents. The provision of park-n-ride lots is not a component of the Project and it is not reasonable for the City to ask the developer to install park-and-ride lots on site or contribute to the construction of off-site lots.
Any two of the following: -Construct off-site bicycle facility improvements, such as bicycle trails linking the facility to designated bicycle commuting routes, or onsite improvements, such as bicycle paths. -Include bicycle parking facilities, such as bicycle lockers and racks. -include showers for bicycling employees use.	Part of Project: The City of Claremont Municipal Code Section 16.040.080 Design Guidelines for Mixed-Use require that facilities for bicycle parking be provided. The Specific Plan identifies short-term bicycle parking within public areas and long-term as well as a 'bike storage' room for the residential flats.
Any two of the following: -Construct offsite pedestrian facility improvements, such as overpasses, wider sidewalks. -Construct onsite pedestrian facility improvements, such as building access that is physically separated from street and parking lot traffic and walk paths. -Include showers for pedestrian employee's use.	Part of Project: As required by the Claremont Municipal Code, the Project would include onsite pedestrian walkways between adjoining non-residential buildings, and connecting as necessary to public streets and sidewalks.
Provide shuttles to major rail transit stations and multi-modal centers.	Inapplicable. It is not currently known where future residents would commute to and from places of employment and whether such service would be utilized. Also, the Project site is not proximately located to a major transit station or multi-modal center such that a shuttle service is likely to be highly utilized.
Synchronize traffic lights on streets affected by development.	Inapplicable. The synchronization of traffic lights is not within the Project applicant's jurisdiction. To the extent traffic lights are operated by the City, the City has the authority to control the timing of traffic lights depending upon the flow of traffic.
Implement a lunch shuttle from a worksite(s) to food establishments.	Infeasible. The Project is a predominantly residential development, not a place of employment.

Table 4.1.E: Applicability of SCAQMD-Recommended Mitigation Measures

Mitigation Measure	Applicability
Use double-glass paned windows.	Part of Project. Title 24 of the CBC requires the installation of high-efficiency windows (CBC Section 110.6).
Use energy efficient low-sodium parking lot lights.	Part of Project. The Project includes the installation of high-efficiency lighting, such as light emitting diode (LED) lighting, in all parking areas as required under California Building Code.
Use lighting controls and energy-efficient lighting.	Part of Project. Title 24 of the CBC includes mandates the energy efficient lighting be installed.
Increase walls and attic insulation beyond Title 24 requirements.	Inapplicable. The SCAQMD Air Quality Handbook has not been updated since 2003, and does not reflect the significant advances in energy efficiency building as required by Title 24 of the 2016 CBC. The Project is required to comply with the Title 24, including with respect to insulation.
Modify manufacturing processes (e.g., reduce process stages, closed-loop systems, materials recycling).	Inapplicable. The Project does not include any manufacturing uses or processes.
Resource recovery systems that redirect chemicals to new production processes.	Inapplicable. The Project does not include any resource recovery systems.
SCAQMD CEQA Web Pages (Fugitive Dust)	
Standard SCAQMD fugitive dust control measures (Rule 403) reduce PM_{10} or $PM_{2.5}$ emissions sufficiently to below established thresholds. These standard measures are required for all development activity within the Basin; therefore, no additional mitigation measures are required to reduce fugitive dust emissions.	
SCAQMD CEQA Web Pages (Off-Road Engines)	
Implementation of these measures would substantially lower PM_{10} emissions attributable to the Project. Additionally, the Project applicant as part of its Project design would require onsite cargo handling equipment to be CARB Tier 3 compliant or non-diesel. The measures are specifically related to the types of engines used in off-road construction equipment, and provide that the use of higher tier engines (Tier 3 and Tier 4) would reduce emissions. The construction contractor must utilize Tier 3 certified equipment or better for all off-road diesel-powered construction equipment greater than 50 horsepower. The EIR's air quality analysis assumed such usage and concluded that the Project would not have a significant construction air quality impact. Therefore, no additional mitigation is required. Nevertheless, mandating the use of Tier 4 off-road equipment is infeasible, as such off-road construction equipment from now through buildout year 2022 has not been thoroughly phased in and is still subject to limited availability. Additionally, the Project applicant as part of its Project design would require onsite grading equipment to be CARB Tier 4 compliant or non-diesel.	
SCAQMD CEQA Web Pages (On-Road Engines)	
The SCAQMD measures identified in the SCAQMD *Overview – On-Road Engines Mitigation Measure Table* focus on possible on-road engine emissions control technologies (i.e., retrofits) to achieve emissions reductions. The CARB has worked closely with the EPA, engine and vehicle manufacturers, and other interested parties to reduce emissions from heavy-duty diesel vehicles in California, through a combination of measures including regulations requiring the use of ultra-low sulfur diesel fuel, new emission standards, restrictions on idling, addition of post-combustion filter and catalyst equipment, and retrofits for diesel truck fleets. These programs are expected to result in significant reductions in particulate matter (PM), nitrous oxides (NOx), volatile organic compounds (VOC), and carbon monoxide (CO) emissions as they are fully implemented. Under the Truck and Bus Regulation, adopted by the CARB in 2008, all diesel truck fleets operating in California are required to adhere to an aggressive schedule for upgrading and replacing heavy-duty truck engines. Pursuant to such regulation, older, heavier trucks, i.e., those with pre-2000 year engines and a gross vehicle weight rating (GVWR) greater than 26,000 pounds are already required to have installed a PM filter and must be replaced with a 2010 engine between 2015 and 2020, depending on the model year. By 2015, all heavier pre-1994 trucks must be upgraded to 2010 engines and newer trucks are thereafter required to be replaced over the next eight years. Older, more polluting trucks are required to be replaced first, while trucks that already have relatively clean 2007–2009 engines are not required to be	

Table 4.1.E: Applicability of SCAQMD-Recommended Mitigation Measures

Mitigation Measure	Applicability
replaced until 2023. Lighter trucks (those with a GVWR of 14,001 to 26,000 pounds) must adhere to a similar schedule, and would all be replaced by 2020. Nearly all trucks that were not required under the Truck and Bus Regulation to be replaced by 2015 are required to be upgraded with a PM filter by that date. Therefore, most heavy-duty trucks entering the Project site would meet or exceed U.S. EPA 2007 and 2010 emission standards within a relatively short period of time after the Project becomes operational in 2021, and all such trucks entering the property would meet or exceed such standards by 2023. Federal and State agencies regulate and enforce vehicle emission standards. It is not feasible for the City staff to effectively enforce a prohibition on trucks from entering the property that are otherwise permitted to operate in California and access other properties in the County, region, and State.	
SCAQMD Rule 403	
As stated in Section 4.3.5.2, the Project would comply with applicable SCAQMD Rules including, but not limited to Rule 403.	
SCAQMD's Guidance Document for addressing Air Quality Issues in General Plans and Local Planning	
These measures are not applicable to the proposed Project because the measures listed are aimed toward local governments as a guidance to reduce community exposure to source-specific air pollution impacts.	

Source: 1. U.S. Department of Energy, Alternative Fuels Data Center, https://www.afdc.energy.gov/locator/stations/results?fuel=CNG&location=Fontana%2C+CA, site accessed March 6, 2017.

4.1.2 Existing Policies and Regulations

4.1.2.1 Federal Regulations

Clean Air Act. Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established NAAQS. The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the Federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health. In April 2003, the EPA was cleared by the White House Office of Management and Budget (OMB) to implement the eight-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the eight-hour O_3 standard in April 2003. The EPA completed final eight-hour nonattainment status on April 15, 2004. The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA issued final designations on December 15, 2004.

4.1.2.2 State Regulations

Mulford-Carrell Act. The State first set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Originally, there were no attainment deadlines for CAAQS; however, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been

implemented. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring various air quality and transportation stakeholders in Southern California comply with the requirements of the CAA for the Basin.

California Code of Regulations Title 24, Part 6. Enacted in 1978, this part of the California Code of Regulations established energy efficiency standards for residential and nonresidential buildings in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and incorporation of new energy efficiency technologies and methods.

4.1.2.3 Regional Regulations

Lewis-Presley Air Quality Management Act. The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the State. The Federal Clean Air Act Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of that state. The CARB is responsible for incorporating air quality management plans for local air basins into a State Implementation Plan (SIP) for EPA approval. Significant authority for air quality control within air quality basins has been given to local air districts (e.g., the SCAQMD) that regulate stationary source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan (AQMP). The SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. Every three years, the SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon. The SCAQMD adopted the 2016 AQMP in March 3, 2017.[4] The CARB approved the plan on March 10, 2017, and forwarded the AQMP to the EPA.

The Final 2016 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. The Final 2016 AQMP included the new and changing federal requirements, implementation of new technology measures, and continued development of economically sound, flexible compliance approaches.

Key elements of the 2016 AQMP include:

- Calculating and taking credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation).
- A strategy with fair-share emission reductions at the federal, State, and local levels.
- Investment in strategies and technologies meeting multiple air quality objectives.

[4] South Coast Air Quality Management District, Final 2016 Air Quality Management Plan, March 2017. Website: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/cover-and-opening.pdf?sfvrsn=6 (accessed October 30, 2019).

- Seeking new partnerships and significant funding for incentives to accelerate deployment of zero and near-zero technologies.
- Enhanced socioeconomic assessment, including an expanded environmental justice analysis.
- Attainment of the 24-hour $PM_{2.5}$ standard in 2019 with no additional measures.
- Attainment of the annual $PM_{2.5}$ standard by 2025 with implementation of a portion of the ozone strategy.
- Attainment of the 1-hour ozone standard by 2022 with no reliance on "black box" future technology (CAA Section 182(e)(5) measures).

The Final 2016 AQMP proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of sulfur oxides (SOx), directly-emitted $PM_{2.5}$, and NOx. The Final 2016 AQMP proposes policies and measures currently contemplated by responsible agencies to achieve federal standards for healthful air quality in the Basin and those portions of the Salton Sea Air Basin that are under SCAQMD jurisdiction. This Final Plan also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools.

Regional Transportation Plan. Southern California Association of Governments is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and State air quality requirements, including the Transportation Conformity Rule and other applicable federal, State, and air district laws and regulations. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and State air quality plans to attain NAAQS. In addition, SCAG is a co-producer with the SCAQMD of the transportation strategy and transportation control measure sections of the AQMP for the Basin. With regard to future growth, SCAG adopted the 2016 RTP/SCS in April 2016, which provides population, housing, and employment projections for cities under its jurisdiction. The growth projections in the 2016 RTP/SCS are based in part on projections originating under County and City General Plans. These growth projections were utilized in the preparation of the air quality forecasts and consistency analysis included in the 2016 AQMP.

4.1.2.4 City of Claremont General Plan

Local jurisdictions have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air pollutant emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation for significant air quality impacts by conditioning discretionary permits and monitors and enforces implementation of such mitigation. In accordance with CEQA requirements, the City does not, however, have the expertise to develop plans,

programs, procedures, and methodologies to ensure that air quality within the City and region would meet federal and State standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the CEQA *Air Quality Handbook* as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

Table 4.1.G in Section 4.1.5 evaluates the consistency of the proposed project with applicable Claremont General Plan Policies to determine consistency with the General Plan pertaining to air quality.

4.1.3 Thresholds of Significance

A number of modeling tools are available to assess air quality impacts of projects. In addition, certain air districts (e.g., SCAQMD) have created guidelines and requirements to conduct air quality analyses. SCAQMD's current guidelines, the *CEQA Air Quality Handbook* (SCAQMD 1993) with associated updates and the City guidelines were adhered to in the assessment of air quality impacts for the proposed Project.

The City of Claremont has not established local CEQA significance thresholds; therefore, this Draft EIR incorporates the air quality questions included in Appendix G ("CEQA Checklist") of the State *CEQA Guidelines*. Per the CEQA Checklist, a significant air quality impact would occur if the Project was determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

4.1.3.1 Regional Thresholds for Construction and Operational Emissions

The City of Claremont utilize the SCAQMD *CEQA Air Quality Handbook* to identify potentially significant impacts on air quality. For the purposes of this analysis, an impact is considered significant if a project:

- Generates total emissions (direct and indirect) in excess of the thresholds given in Table 4.1.F;
- Generates a violation of any ambient air quality standard when added to the local background;
- Does not conform with the applicable attainment or maintenance plan(s); or

- Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to ten in a million, and/or a health index (non-cancerous) greater than or equal to one.

Projects in the Basin with operational emissions that exceed any of these emission thresholds are considered to be significant under SCAQMD guidelines. These thresholds, which apply throughout the Basin and were developed by the SCAQMD, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

Table 4.1.F: SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
VOCs	75 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
NOx	100 lbs/day	55 lbs/day
Sox	150 lbs/day	150 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day

Source: South Coast Air Quality Management District (2016).

CO = carbon monoxide
lbs = pounds
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
VOCs = volatile organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

4.1.3.2 Local Microscale Concentration Standards

The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm.
- California State 8-hour CO standard of 9.0 ppm.

4.1.3.3 Thresholds for Localized Impact Analysis

The SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003 and updated it in July 2008,[5] recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Board's

[5] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, June 2003. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed October 30, 2019).

Environmental Justice Enhancement Initiative. The LST methodology was adopted by the SCAQMD Governing Board in October 2003.[6] LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LSTs, which are voluntary, only apply to CO, NO_2, PM_{10}, and $PM_{2.5}$ emissions during construction and operation at the discretion of the lead agency. LSTs are based on the CAAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and Source Receptor Area. Receptors proximate to the Project site are the residences 475 feet to the northwest and 500 feet to the southeast.

The proposed Project would disturb up to 6.5 acres during construction. As previously described, the SCAQMD has produced look-up tables for projects that disturb less than 5 acres daily. The SCAQMD has also issued a methodology[7] on applying the CalEEMod emissions software to LSTs for projects greater than five acres. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment. Based on the SCAQMD recommendations and the construction equipment planned, no more than 2 acres[8] would be disturbed on any one day; thus, the 2-acre LSTs have been used for construction emissions.

On-site operational emissions would occur from stationary and mobile sources. On-site vehicle emissions are the largest source of emissions and it is assumed that the on-site travel routes for the proposed project would occupy up to 5 acres of the surface area. Therefore, the 5-acre thresholds would apply during project operations.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. The nearest residential land use is 475 feet (145 meters) to the northeast of the Project site. Therefore, the following emissions thresholds apply during Project construction and operation:

- Construction LSTs:
  - 275 lbs/day of NOx;
  - 3,558 lbs/day of CO;
  - 47 lbs/day of PM_{10}; and

[6] Ibid.

[7] SCAQMD. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website: www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf (accessed April 2018).

[8] A maximum disturbance of 1.5 acres would occur during the grading phase from the use of one rubber-tired dozer, one excavator, and one grader for 8 hours per day.

- 15 lbs/day of $PM_{2.5}$.

- Operation LSTs:
  - 373 lbs/day of NOx;
  - 5,185 lbs/day of CO;
  - 16.2 lbs/day of PM_{10}; and
  - 5.4 lbs/day of $PM_{2.5}$.

4.1.4 Methodology Used for the Impact Analysis

The evaluation of air quality impacts associated with the proposed project includes the following:

- Determine the short-term construction air quality impacts based on SCAQMD emissions thresholds;
- Determine the long-term air quality impacts, including vehicular traffic, on both onsite and offsite air quality sensitive uses based on SCAQMD emissions thresholds; and
- Determine the required mitigation measures to reduce short-term and long-term on-site air quality impacts from all sources.

The latest version of CalEEMod (v2016.3.2) was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with air districts in California. The Project's land use, construction characteristics (e.g., duration, equipment usage), anticipated daily trips, energy consumption and other variables were entered into CalEEMod. Emission outputs for each criteria pollutant were compared to the daily short-term (construction) and long-term (operational) significance thresholds identified in Table 4.1.F. The CalEEMod outputs from the model runs for both construction and operational activity are provided in Air Quality/Greenhouse Gas Analysis (Appendix B.)

Estimates of fuel consumption (diesel fuel and gasoline) from construction trucks and construction worker vehicles was based on trip estimates from the CalEEMod in Air Quality and Greenhouse Gas Analysis and fuel efficiencies from the CARB EMFA2017 model. Fuel consumption (diesel fuel and gasoline) from vehicle trips during operation was estimated for the opening year (2021) of the proposed Project based on trip estimates from the CalEEMod fuel efficiencies from the CARB EMFAC2017 model.

4.1.5 Impact Analysis

Table 4.1.G evaluates the consistency of the proposed project with applicable Claremont General Plan Policies to determine consistency with the City's General Plan pertaining to air quality.

Table 4.1.G: General Plan Consistency Analysis, Air Quality

General Plan Goals and Targets	General Plan Consistency Analysis
Open Space, Parkland, Conservation and Air Quality Element	
Goal 5-18: Reduce the amount of air pollution emissions from mobile and stationary sources and enhance the airshed.	
Policy 5-18.1: Enhance pedestrian and bike facilities within the City and encourage alternative modes of transportation.	**Consistent:** The proposed Project includes pedestrian areas, specifically within the parks in the center of the Project site. Additionally, the proposed Project includes bike rack areas for residents and patrons to the retail uses onsite. The Project would enhance non-vehicular mobility through these features.
Policy 5-18.2: Encourage the use of clean fuel vehicles.	**Consistent:** The Project would include parking areas for electric vehicles and every dwelling unit would be EV charger ready; as such, the project would encourage residents, patrons to the retail uses, and central and linear park to use clean fuel vehicles.
Policy 5-18.3: Promote the use of fuel-efficient heating and cooling equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.	**Consistent:** The proposed Project would be designed to be compliant with CalGreen standards and Title 20 California Code of Regulations. This would mandate that low-energy appliances and fuel-efficient HVAC systems are installed as part of the proposed Project.
Policy 5-18.4: Promote the use of clean air technologies such as fuel cell technologies, renewable energy sources. UV coatings, and alternative, non-fossil fuels.	**Consistent:** The proposed Project would be designed with features that are consistent with CALGreen standards and Title 20 California Code of Regulations. The project would include solar technology for residential units as required by January 1, 2020 per California Solar Mandate. The Project would also promote residents and patrons of the retail uses and parks to use alternative modes of transportation such as bicycles, electric vehicles, rideshare, or walking.
Policy 5-18.5: Continue to require the planting of street trees along City streets and inclusion of trees and landscaping for all development projects to help improve airshed and minimize urban heat island effects.	**Consistent:** The Project must meet the requirements of the Foothill Boulevard Master Plan which includes street tree planting. The site plans of the proposed Project include a Schematic Planting Plan that includes a pallet of landscaping consisting of street trees along Foothill Boulevard and internal trees to provide shade. The landscaping plan would be reviewed and approved by the City prior to final site plan approval and during Design Review.
Policy 5-18.6: Encourage small businesses to utilize clean, innovative technologies to reduce air pollution.	**Consistent:** The proposed Project includes 5,000 square feet of commercial/retail use that would be occupied by small businesses. Businesses occupying the retail space would be encouraged (by the City of Claremont) to participate in green principles that are consistent with the objectives of the proposed Project.
Policy 5-18.7: Implement principles of green building.	**Consistent:** This project requires "Green" building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials. Title 24 sets forth building standard requirements including, but not limited to, planning and site design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, waste reduction, indoor air quality and pollutant control, thermal comfort, and provisions for bicycle and electric vehicle parking. With each three-year cycle, the regulations are updated with the goal of reaching zero net energy in new residential construction by 2022 (effective January 1, 2023) and zero net energy in new commercial construction by 2030. All new development within the Project site is

Table 4.1.G: General Plan Consistency Analysis, Air Quality

General Plan Goals and Targets	General Plan Consistency Analysis
	required to meet the rigorous standards of Title 24. Each new building would be inspected for compliance and would include an operation manual to help end-users maintain and effectively use the sustainable building features provided.
Policy 5-18.8: Support jobs/housing balance within the community so more people can both live and work within the community. To reduce vehicle trips, encourage people to telecommute or work out of home or in local satellite offices.	**Consistent:** An objective of the proposed Project is to help meet the high market demand for high quality housing in eastern Los Angeles County and to meet the City's housing needs to support forecast population growth. The project would include a variety of residential units including single-family residential, townhomes, and residential flats. The Project would also include 5,000 square feet of retail/commercial space. The project would be located in an area where adjacent parcels are occupied by office uses, businesses, the Claremont College Complex, and nearby retail use. This mixed-use project would allow residents and patrons to shop, work, and reside locally in an urban setting with sufficient amenities available. The location of the site would also reduce the amount of vehicle miles traveled (See Transportation Section 4.10) and would also reduce air quality emissions that are prevalent with uses generated large amount of vehicle trips.
Goal 5-19: Reduce the amount of fugitive dust released into the atmosphere.	
Policy 5-19.1: Support programs and policies of the South Coast Air Quality Management District regarding restrictions on grading operations at construction projects.	**Consistent:** As described in the analysis below, the proposed Project would comply with programs, policies and air quality emissions threshold limits of the South Coast Air Quality Management District. Best Management Practices and standard conditions would be implemented during construction site grading operations to ensure activities are compliant with the South Coast Air Quality Management District.
Policy 5-19.2: Cooperate with local, regional, state, and federal jurisdictions to control fugitive dust from stationary, mobile, and area sources.	**Consistent:** The proposed Project would be required to comply with SCAQMD Rule 403 to control fugitive dust, which is anticipated to reduce peak daily fugitive dust and particulate matter emissions to 7.96 lbs/day, which is below the SCAQMD threshold of 150 lbs/day.
Policy 5-19.3: Enforce regulations that do not allow vehicles to transport aggregate or similar material upon a roadway unless the material is stabilized or covered, in accordance with state law and South Coast Air Quality Management District regulations.	**Consistent:** Construction best management practices would be implemented during Project construction activities. A standard BMP requires all vehicles transporting aggregate materials to and from the Project site to be covered. The construction contractor would be required to post such conditions and would be on site during Project construction to make sure such rules are followed.

Source: Claremont General Plan Open Space, Parkland, Conservation and Air Quality Element (2009).

4.1.5.1 Air Quality Management Plan Consistency

Threshold	Would the proposed Project conflict with or obstruct implementation of the applicable air quality plan?

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. It also provides the local agency with ongoing information as to whether they are contributing to the

clean air goals of the AQMP. The regional emissions inventory for the Basin is compiled by SCAQMD and SCAG. Regional population, housing, and employment projections developed by SCAG are based, in part, on the local jurisdictions' General Plan Land Use designations. These projections form the foundation for the emissions inventory of the AQMP. These demographic trends are incorporated into the 2016–2040 RTP/SCS, compiled by SCAG to determine priority transportation projects and vehicle miles traveled (VMT) within the SCAG region. Projects that are consistent with the local general plan are considered consistent with the air quality-related regional plan. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The Final 2016 AQMP was adopted by the SCAQMD Governing Board on March 10, 2017, and incorporated the latest scientific and technological information and planning assumptions, including the RTP/SCS and updated emission inventory methodologies for various source categories. Similar to the 2012 AQMP, the 2016 AQMP was based on assumptions provided by both CARB and SCAG in the latest available Emission FACtor (EMFAC) model for the most recent motor vehicle and demographics information, respectively. The air quality levels projected in the 2016 AQMP are based on several assumptions. For example, the 2016 AQMP has assumed that development associated with general plans, specific plans, residential projects, and wastewater facilities would be constructed in accordance with population growth projections identified by SCAG in its RTP. The 2016 AQMP also assumed that such development projects would implement strategies to reduce emissions generated during the construction and operational phases of development. The Project's consistency with the 2016 AQMP is discussed in the following sections. Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's *CEQA Air Quality Handbook* (1993). These indicators are discussed below.

The AQMP is based on regional growth projections developed by SCAG. The proposed Project is a residential development of 27 single-family dwellings, 20 townhomes, 15 flats, and 5,000 square feet of retail uses and would therefore be defined as a not regionally significant project under CEQA Section 15206[9] and does not meet SCAG's Intergovernmental Review criteria.

Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD *CEQA Air Quality Handbook*, consistency with the Basin 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. While the project with mitigation measures would result in short-term construction pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, operational pollutant emissions would be less than SCAQMD significant thresholds; therefore, the project would not result in an increase in the frequency or severity of an air quality standards violation and would not cause a new air quality standard violation.
2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects.

[9] *CEQA Guidelines* Section 15206 defines a significant project as a proposed residential development of more than 500 dwelling units and/or a proposed shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space.

Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities; therefore, the proposed Project is not defined as significant.

With respect to the first criterion, criteria pollutants during construction and operation of the proposed Project would not have the potential to cause or affect a violation of the ambient air quality standards. Because the proposed Project would not introduce any substantial stationary sources of emissions, CO is the preferred benchmark pollutant for assessing local area pollutant impacts from post-construction motor vehicle operations. No intersections would require a CO hot spot analysis and impacts would be less than significant. Therefore, the proposed Project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations.

With respect to the second criterion for determining consistency with AQMP Growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2016 RTP/SCS regarding population, housing, and growth trends. According to the 2016 RTP/SCS, the forecast population for the County of Los Angeles in 2040 is approximately 11,513,435. In 2015, the County of Los Angeles had a population of approximately 10,158,776 persons. Therefore, the forecast population for the County of Los Angeles subregion would grow by approximately 1,354,659 persons between 2015 and 2040. The proposed Project's residential units[10] and 5,000 square feet of retail uses would introduce an estimated net residential population of approximately 162 persons, based on the household size of 2.61 persons per housing unit for Claremont. Thus, Project residents would account for less than 0.00012 percent of the population growth forecast by SCAG in the County of Los Angeles subregion between 2015 and 2040. Because similar projections form the basis of the 2016 AQMP, it can be concluded that the proposed Project would be consistent with projections in the AQMP.

Impact Conclusion. The City of Claremont General Plan is consistent with, and after the amendment would continue to be consistent with, the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD 2016 AQMP. Furthermore, as discussed in Impact 4.1.5.2, operation of the proposed Project would not generate long-term regional emissions that would exceed the SCAQMD regional significance thresholds. Therefore, no inconsistency with or obstruction of the AQMP would occur. As the Project would have a **less than significant impact** related to AQMP consistency, no mitigation is required.

4.1.5.2 Increase in Criteria Pollutants (Regional Construction and Operation)

Threshold	Would the proposed Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in non-attainment under an applicable federal or State ambient air quality standard? For construction operations, the applicable daily thresholds are: • 75 pounds of ROC/VOC; • 100 pounds of NOx; • 550 pounds of CO; • 150 pounds of PM_{10};

[10] The Project proposes 27 single-family dwellings, 20 townhomes, 15 flats, and 5,000 square feet of retail uses. The CalEEMod was based on these assumptions.

- 55 pounds of $PM_{2.5}$; and
- 150 pounds of SO_2.

For Project operation, the applicable daily thresholds are:

- 55 pounds of ROC/VOC;
- 55 pounds of NOx;
- 550 pounds of CO;
- 150 pounds of PM_{10};
- 55 pounds of $PM_{2.5}$; and
- 150 pounds of SO_2.

Construction-related Emissions. Construction activities produce combustion emissions from various sources, such as demolition, grading, site preparation, utility engines, tenant improvements, and motor vehicles transporting construction crews. Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Air pollutant emission sources during Project construction would include:

- Exhaust and particulate emissions generated from construction equipment;
- Fugitive dust from soil disturbance during site preparation, grading, and excavation activities; and
- Volatile compounds that evaporate during site paving and painting of the structures.

This analysis provides the peak-day construction emissions. The construction analysis includes estimating the construction equipment that would be used during each construction activity, the hours of use for that construction equipment, the quantities of earth and debris to be moved, and on-road vehicle trips (worker, soils hauling, and vendor trips). The proposed earthwork for the Project assumes balanced cut and fill. CalEEMod modeling and defaults are assumed for the construction activities, off-road equipment, on-road construction fleet mix and trip lengths. Table 4.1.H identifies the tentative construction schedule for the proposed Project based on a probable start date in 2020 and a planned opening in late 2021. Table 4.1.I lists the potential construction equipment to be used during construction under each Project phase.

Table 4.1.H: Tentative Project Construction Schedule

Phase Number	Phase Name	Number of Days
1	Site Preparation	10
2	Grading	20
3	Building Construction	230
4	Paving	20
5	Architectural Coating	20

Source: Estimated by LSA from the site plan (assuming a 2021 opening year) (January 2020).
Notes: The number of construction days is a worst-case scenario and assume For conservative analytical purposes, the number of construction days from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project construction days since that Project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

Table 4.1.I: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Rubber-Tired Dozers	3	8	247	0.40
	Tractors/Loaders/ Backhoes	4	8	97	0.37
Grading	Excavators	1	8	158	0.38
	Graders	1	8	187	0.41
	Rubber-Tired Dozers	1	8	247	0.40
	Tractors/Loaders/ Backhoes	3	8	97	0.37
Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/ Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38

Source: Compiled by LSA using CalEEMod 2016.3.2 (California Emission Estimator Model) defaults (January 2020).

For purposes of air quality analysis, it is assumed that construction would occur in phases. Each individual phase of Project development would include the following construction activities:

- Site preparation;
- Grading;
- Building construction;
- Paving and surface improvement; and
- Architectural coating (painting).

The application of paving and architectural coating starts after building construction and is assumed to continue throughout the construction process.

The construction calculations prepared for the Project assumed that dust control measures (watering a minimum of three times daily) would be employed to reduce emissions of fugitive dust during site grading. Further, all construction would need to comply with SCAQMD Rule 403 regarding the emission of fugitive dust. The most recent version of CalEEMod (Version 2016.3.2) was used to calculate the construction emissions. Table 4.1.J presents the maximum daily construction emissions.

Table 4.1.J: Estimated Construction Emissions

Construction Phase	Total Regional Pollutant Emissions (lbs/day) [1]							
	VOC	NOx	CO	Sox	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Site Preparation	4.17	42.48	22.25	0.04	7.25	2.20	3.93	2.02
Grading	2.50	26.44	16.66	0.03	2.72	1.27	1.36	1.17
Building Construction	2.63	21.59	21.03	0.04	1.13	1.14	0.30	1.07
Paving	1.45	12.96	15.22	0.02	0.17	0.68	0.04	0.62
Architectural Coating	44.40	1.58	2.49	0.00	0.20	0.10	0.05	0.10
Peak Daily	**44.40**	**42.48**	**22.25**	**0.04**	**9.45**		**5.95**	
SCAQMD Thresholds (lbs/day)	75.00	100.00	550.00	150.00	150.00		55.00	
Significant Emissions?	No	No	No	No	No		No	

Source: Compiled by LSA (January 2020).

Notes: For conservative analytical purposes, estimated construction emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project estimated construction emissions since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

CO = carbon monoxide
NOx = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
SOx = sulfur oxides
lbs/day = pounds per day
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
VOC = volatile organic compounds

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The proposed Project would be required to comply with SCAQMD Rule 403 to control fugitive dust, which is anticipated to reduce peak daily fugitive dust and particulate matter emissions to 9.45 lbs/day, which is below the SCAQMD threshold of 150 lbs/day. Architectural coatings contain VOCs that are part of the O_3 precursors. Based on the proposed Project, it is estimated that application of the architectural coatings for the proposed peak construction day would result in a peak of 44.40 lbs/day of VOC. Therefore, VOC emissions from architectural coating application would not exceed the SCAQMD VOC threshold of 75 lbs/day.

Standard Control Measures. The Project is required to comply with regional rules that assist in reducing short-term air pollutant emissions. Adherence to the standard control measures is required for all development activity with the Basin. These measures include, but are not limited to the following:

SCAQMD Rule 403: Rule 403 requires that fugitive dust be controlled with best-available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust

suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus, the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors.[11] The applicable Rule 403 measures include:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least twice daily (locations where grading is to occur would be thoroughly watered prior to earthmoving).
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meter (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.
- Pave construction access roads at least 30 meters (100 feet) onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.

SCAQMD Rule 431.2: Rule 431.2 limits the release of SO_2 into the atmosphere from the burning of fuel.

SCAQMD Rule 1113: Rule 1113 limits the release of VOCs into the atmosphere during painting and application of other surface coatings.

SCAQMD Rules 1186 and 1186.1: Rules 1186 and 186.1 relate to PM_{10} emissions reductions from paved/unpaved roads and use of lower polluting street sweepers, respectively, to reduce the release of criteria pollutant emissions into the atmosphere during construction

CARB In-Use Off-Road Diesel Vehicle Regulation: The CARB has adopted a regulation to reduce DPM and NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The appropriate standard measures are as follows:

- The project construction contractor is required to implement, by construction equipment specifications, that all heavy-duty, diesel-powered construction equipment used at the project site during the following phases be powered by CARB-certified Tier 2 engines or higher and install a minimum of Level 1 diesel particulate filter on all equipment exhaust system. Construction equipment specifications shall be included in project construction documents, which shall be reviewed by the City of Claremont prior to issuance of a grading permit. This measure applies to all construction phases.
- The project construction contractor is required to implement, by contract specifications, that construction equipment engines be maintained in good condition and in proper tune per the manufacturer's specification for the duration of construction. Contract specifications shall be

[11] South Coast Air Quality Management District (SCAQMD). Rule 403. Website: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf (accessed October 2019).

included in project construction documents, which shall be reviewed by the City of Claremont prior to issuance of a grading permit.

California Code of Regulations, Title 13, Division 3, Chapter 1, Article 4.5, Section 2025: The purpose of this regulation is to reduce emissions of DPM, NOx, and other criteria pollutants from in-use diesel-fueled vehicles. It applies to any person, business, federal government agency, school district, or school transportation provider that owns or operates, leases, or rents affected vehicles that operate in California.

The construction calculations prepared for the Project assumed that dust control measures (watering a minimum of three times daily) would be employed to reduce emissions of fugitive dust during site grading. Further, all construction would comply with SCAQMD Rule 403 regarding the emission of fugitive dust. All construction equipment operating on the Project site would meet a minimum of EPA Certified Tier 2 (or equivalent) emissions standards and would be outfitted with a minimum of Level 1 diesel particulate emission device. Low-VOC (50 grams of VOC per liter or less) coatings would also be used.

CalEEMod emission modeling output files for construction are provided in Air Quality Assessment (included as Appendix B to this EIR).

The application of standard SCAQMD, CARB and other established rules/regulations would ensure peak day construction-related emissions do not exceed established SCAQMD daily thresholds for any criteria pollutant. Construction impacts would therefore be **less than significant** and no mitigation measures are required.

Operational Emissions. Long-term air pollutant emissions impacts are those associated with stationary sources and mobile sources involving project-related changes. The proposed Project would result in net increases in both stationary- and mobile-source emissions. The stationary-source emissions would come from many sources, including the use of consumer products, landscaping equipment, general energy, and solid waste.

Based on the Traffic Impact Analysis (November 2019), the proposed Project would generate approximately 1,089 trips per day.[12] The Project's average daily trips were entered in the CalEEMod. Area sources include architectural coatings, consumer products, hearth, and landscaping. Energy sources include natural gas consumption for heating and cooking. As provided in Table 4.1.K, none of the criteria pollutants would exceed SCAQMD emission thresholds during operation/occupation of the Project; therefore, Project-related long-term air quality impacts would be **less than significant** and no mitigation is required.

[12] For conservative analytical purposes, estimated emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project estimated emissions since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project. The regional operational emissions of the proposed Project are below the regional air quality emissions thresholds and no mitigation is required.

Table 4.1.K: Regional Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NOx	CO	Sox	PM_{10}	$PM_{2.5}$
Area	3.42	1.66	9.77	0.01	0.18	0.18
Energy	0.06	0.55	0.23	<0.01	0.04	0.04
Mobile	1.98	9.61	25.14	0.09	7.18	1.97
Total Project Emissions	**5.47**	**11.81**	**35.14**	**0.10**	**7.40**	**2.19**
SCAQMD Thresholds (lbs/day)	**55.00**	**55.000**	**550.00**	**150.00**	**150.00**	**55.00**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).
Notes: For conservative analytical purposes, estimated emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project estimated emissions since that project is expected to come on line at or near the same time as the Project and is adjacent to the Project.

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
VOC = volatile organic compounds

Mitigation Measures. No exceedance of established SCAQMD thresholds would occur during construction or operation/occupation of the Project; therefore, no mitigation is warranted.

Impact Conclusion. Adherence to standard SCAQMD, CARB, and other rules/regulations would maintain the current non-exceedance of established SCAQMD thresholds during construction activities; therefore, a **less than significant impact** would occur during construction.

During operation/occupation of the Project, the emissions of regional pollutants would not exceed established SCAQMD daily thresholds; therefore, the Project would have a **less than significant impact** on regional air quality during operation.

4.1.5.3 Sensitive Receptor Exposure to Pollutants (Local Construction and Operation)

Threshold	Would the proposed Project expose sensitive receptors to substantial pollutant concentrations?

The nearest sensitive receptors to the proposed Project are located approximately 475 feet to the northwest in Claremont and 500 feet southeast of the Project site in the City of Upland.

Construction Source Emission LST Analysis. Local pollutant concentrations are initially addressed using SCAQMD LST look-up table methodology. In order to determine the applicability of the SCAQMD's LST look-up tables for the minor amount of construction activities and the small amount of equipment utilized, it was assumed that the 2-acre LST threshold would be sufficient for the proposed Project. The closest sensitive receptors to the Project site are the existing residences located 475 feet to the northwest in Claremont and 500 feet to the southeast in Upland of the Project site. Table 4.1.L shows the emissions thresholds for local pollutants with receptors at a distance of less than 475 feet (145 meters) for a 2-acre construction site and the anticipated emissions from Project construction activities.

Table 4.1.L: Construction Localized Impacts Analysis

Emissions Sources	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum On-site Emissions	42	22	9.2	5.9
LST Thresholds – grading at max. 2-acre per day	**275**	**3,558**	**47.0**	**15.0**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).

Notes: Source Receptor Area 10 – Pomona/Walnut Valley, 2 acres, receptors at 145 meters (475 feet).
For conservative analytical purposes, estimated emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project estimated emissions since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

CO = carbon monoxide
LST = local significance threshold
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Emissions shown in Table 4.1.L are less than those shown in Table 4.1.H because the sources of local concentration include only on-site emission sources. The emissions of each of the pollutants analyzed would be less than the LST threshold shown in Table 4.1.L and would therefore **be less than significant**.

Construction Impacts to Off-site Residents. The greatest potential for TAC emissions during construction activities would be related to emissions of DPM associated with heavy equipment operations during demolition, grading, and trenching activities. In addition, while incidental amounts of substances containing TACs, such as oils, solvents, and paints, could be used, these products would comply with all applicable SCAQMD rules for their manufacture and use and would not contribute substantially to overall health risks from TACs. According to SCAQMD methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime would contract cancer, based on the use of standard risk-assessment methodology. The SCAQMD *CEQA Air Quality Handbook* recommends that sensitive receptors located within one-quarter mile of a facility that emits TACs be considered in an evaluation of TAC-related health impacts. Sensitive receptors located beyond the one-quarter mile distance are generally not required to be evaluated due to atmospheric mixing and dispersion of pollutants.

Construction-related activities would result in short-term emissions of DPM from the off-road heavy-duty diesel equipment exhaust. The greatest potential for DPM emissions associated with construction would be during grading activities. Because the construction schedule estimates that the phases that require the most heavy-duty diesel vehicle usage, such as grading, would last for a much shorter duration (e.g., approximately 2 months), construction of the proposed Project would not result in a substantial, long-term (i.e., 30-year residential life) source of TAC emissions. Additionally, the SCAQMD guidance does not require an HRA for short-term construction emissions. It is, therefore, not necessary to evaluate long-term cancer impacts from construction activities that occur over a relatively short duration. In addition, there would be no residual emissions or corresponding individual cancer risk after construction. As a result, construction TAC emissions would have a **less than significant impact** on nearby sensitive receptors and no mitigation measures are required.

Operational Localized Impacts Analysis. CalEEMod was used to calculate localized NO_2, CO, PM_{10}, and $PM_{2.5}$ pollutant concentrations for operational activities. Table 4.1.M shows the modeled emissions for the proposed operational activities compared with the appropriate LSTs. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. Motor vehicle emissions are estimated based on the average trip length for residential land uses. The average trip length used in the CalEEMod does not break down the portion of the motor vehicle emissions generated on site. For a worst-case scenario vehicle emission assessment of the mobile source, the emissions shown in Table 4.1.M include all on-site Project-related area sources and 5 percent of the Project-related new mobile sources, which is an estimate of the amount of Project-related new vehicle traffic that would occur on site. A total of 5 percent is considered conservative because the average round trip lengths assumed are 14.70 miles for home-work, 5.90 miles for home-shop, and 8.70 miles for home-other types of trips. It is unlikely that the average on-site distance driven would be even 1,000 feet, which is approximately 5 percent of the total miles traveled. Considering the total trip length included in the CalEEMod, the 5 percent assumption is conservative.

Table 4.1.M: Operational Localized Impacts Analysis

Emissions Sources	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum On-site Emissions	2.14	11.02	0.53	0.27
LST Thresholds	**373**	**5,185**	**16.2**	**5.4**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).

Note: Source Receptor Area 10 – Pomona/Walnut Valley, 5 acres, receptors at 145 meters.

CO = carbon monoxide
LST = local significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Table 4.1.M shows that the operational emission rates would not exceed the LSTs for residents and sensitive receptors in the Project area. Therefore, the proposed operational activity would not result in a locally significant air quality impact. Impacts would be **less than significant** and no mitigation measures are required.

Long-term microscale (CO Hot Spot) Analysis. Vehicular trips associated with the proposed Project would contribute to congestion at intersections and along roadway segments in the Project vicinity. Localized air quality impacts to nearby sensitive receptors would occur when emissions from vehicular traffic increase as a result of the proposed Project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, CO disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

At the time of the publishing of the *1993 Handbook*, the Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Basin and in California have steadily declined. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of congestion at specific intersections. A CO hot spot analysis was conducted at four busy intersections in Los Angeles County at the peak morning and afternoon periods and did not predict a violation of CO standards.[13] Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.[14] One of the top four worst intersections in the Basin (i.e., Sunset Boulevard/Highland Avenue)[15] is located in the City of Los Angeles, approximately 66 miles west of the proposed Project. Since the SCAQMD modeled intersections do not exceed the CO standards, intersections within the Project study area with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Buildout of the proposed Project would not produce the volume of traffic, as described above, required to generate a CO hot spot that would affect nearby sensitive receptors. Therefore, implementation of the proposed Project would not be expected to result in CO hot spots, and impacts would be **less than significant**. No mitigation is required.

Mitigation Measures. No exceedance of established thresholds would occur during construction or operation/occupation of the Project that would expose sensitive receptors to substantial pollutant concentrations; therefore, no mitigation is warranted.

Impact Conclusion. Adherence to standard SCAQMD, CARB, and other rules/regulations would ensure that sensitive receptors are not exposed to substantial pollutants during construction activities; therefore, a **less than significant impact** would occur during construction.

During operation/occupation of the Project, the emissions of regional pollutants would not exceed established daily thresholds and would not expose sensitive receptors to substantial pollutants; therefore, the Project would have a **less than significant impact** on nearby sensitive receptors during operation.

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13 The four intersections were Long Beach Boulevard/Imperial Highway; Wilshire Boulevard/Veteran Avenue; Sunset Boulevard/Highland Avenue; and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and LOS E in the morning peak hour and LOS F in the evening peak hour.

14 Bay Area Air Quality Management District (BAAQMD), 2017. *Air Quality CEQA Guidelines*. May.

15 The intersection of Sunset Boulevard/Highland Avenue is within the City of Los Angeles and is used to represent a condition where there is a high volume of traffic during the a.m. and p.m. peak hours to demonstrate that intersections that are below the volume of traffic at this particular intersection, under less severe atmospheric conditions (i.e., where vertical and horizontal air does not mix), would not result in a CO hot spot.

4.1.5.4 Odors

Threshold	Would the proposed Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include odors from construction activities and odors from operational activities.

Odors from Construction Activities. Heavy-duty equipment in the Project area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after individual construction is completed. No other sources of objectionable odors have been identified for the proposed Project and no mitigation measures are required.

SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk or nuisance to potential on-site and existing off-site uses would not occur as a result of the proposed Project.

Odors from Operational Activities. Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project may generate odors from garbage and green waste collections. However, the odors would cease to occur after garbage and green waste collection trucks remove the wastes from the individual homes each week. As such, proposed residential and retail uses would not generate objectionable odors off site. No other sources of objectionable odors have been identified for the proposed Project; therefore, the impacts associated with odors would be less than significant and no mitigation measures are required.

Mitigation Measures. Mitigation measures are not required.

Impact Conclusion. Odors generated from the site during construction and operation/occupation of the proposed uses would be temporary and typical of a mixed-use residential area and would have a **less than significant impact.**

4.1.6 Cumulative Impacts

The cumulative area for the discussion of air quality impacts is the central area of the South Coast Air Basin. Due to the nonattainment status of the Basin, the primary air pollutants of concern would be NOx and VOCs, which are ozone precursors, and PM_{10} and $PM_{2.5}$. Project-related NOx and VOCs are primarily emitted from motor vehicles and construction equipment, while PM_{10} and $PM_{2.5}$ are emitted primarily as fugitive dust during construction. Because of the nature of ozone as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum ozone impacts generally occur downwind of the area in which

the ozone precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, would tend to occur locally; thus, projects occurring in the same general area and in the same time period would tend to create cumulative air quality impacts. The proposed Project would have a cumulatively considerable impact if Project-generated emissions would exceed thresholds for NOx, VOC, PM_{10}, and/or $PM_{2.5}$. If the proposed Project does not exceed thresholds and is determined to have less than significant Project-specific impacts, it may still have a cumulatively considerable impact on air quality and GHG if the emissions from the Project, in combination with emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the proposed Project would be considered to have a cumulative impact only if its contribution accounts for a significant portion of the cumulative total emissions.

The Project would contribute criteria pollutants to the area during construction. A number of individual projects in the area may be under construction simultaneously with the proposed Project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. The proposed Project's short-term construction CO, NO_2, PM_{10} and $PM_{2.5}$ emissions would not exceed the LSTs. Therefore, construction of the proposed Project would have a less than significant impact with regard to regional and localized emissions and impacts would **not be cumulatively considerable**.

The 2016 AQMP describes and evaluated regional/area-wide conditions within the Basin and sets regional emission significance thresholds for both construction and operation of development projects. The SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project-specific impacts. If a project does not exceed the SCAQMD recommended daily regional emission thresholds, the project-specific impacts would also not result in a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. While the proposed Project would contribute emissions to the cumulative condition, its long-term operational emissions would not exceed the SCAQMD's criteria pollutant threshold; therefore, the Project's contribution to the long-term condition would **not be cumulatively considerable**.

4.2 BIOLOGICAL RESOURCES

This section addresses the potential impacts development of the Project may have on biological resources. The analysis contained in this section is based on the following Project-specific technical reports and existing resource documents:

- *Biological Resources Assessment for The Commons, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California*. LSA Associates, Inc. March 2020 (Appendix C-1).
- *California Gnatcatcher Protocol Surveys for The Commons,* Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California. LSA Associates, Inc. April 2020 (Appendix C-2).
- *Drainage Report for The Commons at NW Corner Foothill Blvd & Monte Vista Ave. City of Claremont and City of Upland* Andreasen Engineering, Inc. October 16, 2018. (Appendix F-1).
- *Standard Urban Stormwater Mitigation Plan (SUSMP), Claremont Commons.* Everest Environmental, Inc. June 27, 2018, revised January 28, 2020. (Appendix F-2)
- *Hydrology Work Maps.* On-site Map prepared by Andreasen Engineering, Inc. on October 16, 2018. Off-site Map prepared by Arrow Engineering on October 16, 2018.

4.2.1 Existing Setting

Land use within the Project site includes vacant land and disturbed areas. Disturbed areas consist of 3.31 acres and include areas of unlawful dumping of building debris (e.g., concrete, cinderblock and asphalt) and other refuse, such as landscape waste. At the time of the October 2019 field survey, the construction of the Foothill Boulevard Rehabilitation Project was underway along the southerly site boundary. The southwest portion of the Project site was being utilized as a construction staging and laydown yard for the Foothill Boulevard Rehabilitation Project and construction-related activities.

4.2.1.1 Vegetation Communities

Vegetation occupying the majority of the Project site is best described as Riversidean Alluvial Fan Sage Scrub (RAFSS) (R.F. Holland 1986), a designated California Department of Fish and Wildlife (CDFW) Natural Community of Concern. The RAFSS is of low quality and intermixed with ruderal vegetation occupying 3.01 acres of the Project site. Dominant native RAFSS species identified include California buckwheat (*Eriogonum fasciculatum*), scalebroom (*Lepidospartum squamatum*), and laurel sumac (*Malosma laurina*). Other species observed include California sagebrush (*Artemisia californica*), California cholla (*Cylindropuntia californica*), sapphire woollystar (*Eriastrum sapphirinum*), and chaparral yucca (*Hesperoyucca whipplei*). Vegetation communities identified during the field survey are identified in Figure 4.2.1 with accompanying site photographs provided in Figures 4.2a and 4.2b.

As a result of land use practices, ruderal vegetation was observed intermixed with RAFSS habitat within the Project site. Dominant ruderal species identified include shortpod mustard (*Hirschfeldia incana*), tree tobacco (*Nicotiana glauca*), fiddleneck (*Amsinckia menziesii*), and red brome (*Bromus madritensis* ssp. *rubens*). Other ruderal species observed on site include tree of heaven (*Ailanthus altissima*) and Peruvian pepper trees (*Schinus molle*). Ornamental trees (0.14 acre) were also noted within the Project site and include several red gum trees (*Eucalyptus camaldulensis*) planted along

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LEGEND

Project Site

Photograph Locations

Box Culverts

Land Use

Developed/Disturbed (3.31 ac)

Ornamental (0.14 ac)

Riversidean Alluvial Fan Sage Scrub (Disturbed) (3.01 ac)

0 75 150
FEET

SOURCE: Google (2019)

I:\CCT1801.01\GIS\MXD\EIR\Veg_LU_PhotoLocs.mxd (4/16/2020)

FIGURE 4.2.1

The Commons

Vegetation, Land Use, and Photograph Locations

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Photo 1: View of disturbed Riversidean alluvial fan sage scrub.



Photo 2: View of construction activities along Foothill Boulevard.



Photo 3: View of Riversidean alluvial fan sage scrub along remnant drainage feature.



Photo 4: View of general site conditions.

LSA

FIGURE 4.2.2a

The Commons
Site Photographs

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Photo 5: View of equipment staging area for the Foothill Boulevard rehabilitation project.



Photo 6: View of disturbed Riversidean alluvial fan sage scrub.



Photo 7: View of general site conditions.

LSA

FIGURE 4.2.2b

The Commons
Site Photographs

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Foothill Boulevard. A complete list of plant species identified during the field survey is provided as Table 4.2.A.

4.2.1.2 Wildlife

Due to the disturbed and generally isolated nature of the site, wildlife observed during the on-site field survey was limited to yellow-rumped warbler (*Setophaga coronata*), mourning dove (*Zenaida macroura*), common side-blotched lizard (*Uta stansburiana*), and desert cottontail (*Sylvilagus audubonii*). A complete list of wildlife species identified on site is provided as Table 4.2.A.

Table 4.2.A: Plant and Animal Species Observed

Scientific Name	Common Name
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Agavaceae	**Century Plant Family**
Hesperoyucca whipplei	chaparral yucca
Poaceae	**Grass Family**
Bromus diandrus (non-native species)	Ripgut grass
Bromus madritensis ssp. *rubens* (non-native species)	Red brome
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Anacardiaceae	**Sumac Family**
Malosma laurina	Laurel sumac
Rhus ovata	Sugar bush
Schinus molle (non-native species)	Peruvian peppertree
Asteraceae	**Sunflower Family**
Ambrosia acanthicarpa	Annual bur-sage
Artemisia californica	California sagebrush
Cirsium sp.	Thistle
Lepidospartum squamatum	Scalebroom
Boraginaceae	**Forget-me-not Family**
Amsinckia menziesii	Menzies' fiddleneck
Brassicaceae	**Mustard Family**
Hirschfeldia incana (non-native species)	Shortpod mustard
Cactaceae	**Cactus Family**
Cylindropuntia californica	California cholla
Opuntia oricola	Chaparral pricklypear
Euphorbiaceae	**Spurge Family**
Ricinus communis (non-native species)	Castor bean
Lamiaceae	**Mint family**
Marrubium vulgare (non-native species)	Horehound
Myrtaceae	**Myrtle Family**
Eucalyptus camaldulensis (non-native species)	Red gum
Polemoniaceae	**Phlox Family**
Eriastrum sapphirinum	Sapphire woollystar

Table 4.2.A: Plant and Animal Species Observed

Scientific Name	Common Name
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
Rhamnaceae	**Buckthorn Family**
Rhamnus crocea	Redberry buckthorn
Simaroubaceae	**Quassia Family**
Ailanthus altissima (non-native species)	Tree of heaven
Solanaceae	**Nightshade Family**
Datura wrightii	Sacred thorn-apple
Nicotiana glauca (non-native species)	Tree tobacco
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Agavaceae	**Century Plant Family**
Hesperoyucca whipplei	chaparral yucca
Poaceae	**Grass Family**
Bromus diandrus (non-native species)	Ripgut grass
Bromus madritensis ssp. *rubens* (non-native species)	Red brome
REPTILIA	**REPTILES**
Crotaphytidae	**Collared and Leopard Lizards**
Uta stansburiana	Common side-blotched lizard
AVES	**BIRDS**
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Parulidae	**New World Warbler**
Setophaga coronata	Yellow-rumped warbler
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	Desert cottontail

4.2.1.3 Topography and Soils

Topography within the Project site is generally flat with a slight north-to-south slope. Elevations range from approximately 1,330 to 1,370 feet above mean sea level. The highest elevation occurs in the northeastern portion of the Project site, while the lowest elevation occurs in the southwestern portion of the Project site.

Soils on the site are mapped by the *Natural Resource Conservation Service* as Soboba stony loamy sand, 2 to 9 percent slopes (WebSoil Survey). Soils observed on the site appeared consistent with this designation and consist of coarse sand, gravel, cobble, and rock.

4.2.1.4 Special-Status Species

Legal protection for special-status species varies widely, from the comprehensive protection extended to listed threatened/endangered species, to no legal status at present. The CDFW, U.S. Fish and Wildlife Service (USFWS), local agencies, and special-status groups such as the California Native Plant Society (CNPS), publish watch lists of declining species. Species on watch lists can be included as part of the special-status species assessment. Species that are candidates for State and/or federal listing and species on watch lists are included in the special-status species list. Inclusion of species described in the special-status species analysis is based on the following criteria:

- Direct observation of the species or its sign in the survey area or immediate vicinity during previous biological studies;
- Sighting by other qualified observers;
- Record reported by the California Natural Diversity Data Base (CNDDB), published by the CDFW;
- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Survey area lies within known distribution of a given species and contains appropriate habitat.

The special-status species analysis revealed 14 special-status species reported within a 1.5-mile radius of the Project vicinity, of which the following four species are State and/or federally **listed** as endangered or threatened:

- **Coastal California gnatcatcher** (*Polioptila californica californica*; federally listed as threatened; California Species of Special Concern[1][CSC])

  The RAFSS habitat consisting of 3.01 acres in the Project site provides low quality habitat for the coastal California gnatcatcher. Focused surveys for the California gnatcatcher would be required to determine its presence or absence and any potential Project effects. According to currently accepted survey protocol for the coastal California gnatcatcher, the breeding season survey period is from March 15 through June 30 with a minimum of six site visits, and the nonbreeding season survey period from July 1 through March 14, with a minimum of nine site visits.

- **San Bernardino kangaroo rat** (*Dipodomys merriami parvus*; federally listed as endangered).

  Although the Project site contains some of the primary habitat elements (e.g., sandy soils and alluvial fan sage scrub habitat), it is considered unsuitable habitat for the San Bernardino kangaroo rat. The Project site is no longer subject to geomorphological and hydrological processes typical of fluvial systems, and is not proximal to active floodplains with suitable habitat. Active floodplain processes have been cut off by the channelization of San Antonio Creek and adjacent surrounding development. In addition, the Project site is not within USFWS-designated critical habitat for the San Bernardino kangaroo rat (USFWS 2002), which occurs approximately 8.5 miles to the northeast of the Project site and is separated from the Project site by State Route 210.

- **California black rail** (*Laterallus jamaicensis coturniculus*; State listed as threatened).

[1] Refers to species with vulnerable or seriously declining populations.

California black rail habitat consists of shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. California black rail habitat is absent from the Project site.

- **Nevin's barberry** (*Berberis nevinii*; State and federally listed as endangered, and CNPS California Rare Plant Rank [CRPR] of 1B[2]).

  Nevin's barberry is found within varying topographical conditions, ranging from flat sandy washes, terraces, and canyon floors to rocky ridges and summits. Nevin's barberry is also associated with mesic habitats such as alluvial scrub, chamise chaparral, coastal sage scrub, oak woodland, and riparian scrub or woodland from 220 to 2,700 feet in elevation. The species is widely available in the nursery trade, and cultivated Nevin's barberry plants have been introduced outside of the species' native range. Marginally suitable habitat, Riversidean alluvial fan scrub, is present within the Project site for this species.

The site provides low to moderately suitable habitat for six of the 10 non-listed special-status species: mesa horkelia (*Horkelia cuneata* var. *puberula*), crotch bumble bee (*Bombus crotchii*), California glossy snake (*Arizona elegans occidentalis*), coast horned lizard (*Phrynosoma blainvillii*), San Diego desert woodrat (*Neotoma lepida intermedia*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*). These special-status species have no official State or federal protection status and legal protection varies widely; however, they do require consideration under CEQA. No suitable habitat is present on the site for the four remaining non-listed species: Salt spring checkerbloom (*Sidalcea neomexicana*), rigid fringepod (*Thysanocarpus rigidus*), California diplectronan caddisfly (*Diplectronana californica*), and Southern California legless lizard (*Anniella stebbinisi*).

4.2.1.5 Critical Habitat

Critical habitat is a term defined and used in the Federal Endangered Species Act (FESA). It is the specific geographic areas that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat may also include areas that are not currently occupied by a species but would be needed for its recovery.

No federally designated critical habitat established by the USFWS is present on or in the immediate vicinity of the Project site.

4.2.1.6 Jurisdictional Waters/Wetlands

One remnant drainage feature is present on the Project site and are associated with an existing concrete box culvert under Foothill Boulevard. No evidence of flows (e.g., Ordinary High Water Mark [OHWM]), riparian habitat, or wetlands was observed within these two features during the October 2019 field survey. Based on historic aerial photograph review, the San Antonio Creek floodplain drained through the Project site, but was channelized in the late 1940s and 1950s. San Antonio Creek now drains within a concrete-lined channel about 0.2 mile east of the Project site. Historic aerial photographs indicate that water has been diverted through the site and/or being drained onto the Project site from adjacent industrial practices from as early as 1948. Conveyance of flows into these two drainage features may have occurred before property in the Project area, especially to the north,

[2] CRPR Status 1B Plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

became more densely developed. However, this drainage feature shows no upstream connectivity to any water conveyance features or systems.

4.2.1.7 NOP/Scoping Comments

During the September 24, 2018, scoping meeting, a question was raised regarding the assessment of impacts to Riversidean Alluvial Sage Scrub habitat in the context of California Endangered Species Act (CESA) and FESA. This issue is addressed in Section 4.2.5.

An NOP for the Project was distributed for a 30-day public comment period from November 19 through December 20, 2019. Table 1.A in the Executive Summary and Appendix A2 detail all the comments received during the NOP review period. Comments related to biological resources are as follows:

- The CDFW provided specific comments and recommendations regarding:
  - Regional setting;
  - Project landscaping recommendations (California native species); and
  - Tree replacement ratios.
- The CDFW requested a complete assessment of on-site flora and fauna including:
  - Information on the regional setting;
  - Assessment of special-status plants and natural communities;
  - Mapping recommendations (as applicable);
  - An assessment of on-site habitat and biological resources; and
  - An assessment of rare, threatened, endangered, and sensitive species.
- The CDFW Observed the presence of a "bridge" over Foothill Boulevard at the site's southeastern corner (near the intersection with Monte Vista Avenue) and questions the status of areas "that may convey flow during rain events." Specific issues raised include:
  - Whether the site supports aquatic, riparian, or wetland habitats;
  - Protection of ephemeral streams;
  - Changes in upstream and downstream drainage patterns; and
  - Evaluation of 100, 50, 25, 10, 5 and 2-year frequency storm for the existing and proposed condition.
- The CDFW requested consideration of a reasonable range of Project alternatives to avoid any potential biological resource impact.
- The CDFW requested consideration of impacts to species protected under the California Endangered Species Act, including any required take authorization and necessary mitigation.
- The CDFW requested direct, indirect, and cumulative impacts be fully considered and appropriately mitigated.

- The CDFW requested appropriate measures be undertaken to avoid Project impacts to nesting birds.
- The CDFW indicated it does not generally support the translocation/salvage of plant/animal species.
- The CDFW recommended an on-site monitor to avoid direct mortality during ground- and habitat-disturbing activities.

4.2.2 Existing Policies and Regulations

4.2.2.1 Federal Regulations

Federal Endangered Species Act. The FESA was enacted to protect any species of plant or animal that is endangered or threatened with extinction. Section 9 of the FESA prohibits "take" of federally threatened or endangered wildlife. Take, as defined under the FESA, means to harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct (16 USC 1532[19]). Section 9 also prohibits the removal and reduction of endangered plants from lands under federal jurisdiction, and the removal, cutting, digging, damage, or destruction of endangered plants on any other area in "knowing violation of State law or regulation."

Clean Water Act. The U.S. Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in the USACE regulations). The USACE typically regulates as non-wetland waters of the U.S. any body of water displaying an OHWM. In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met.

In 2006, the United States Supreme Court in the consolidated cases *Rapanos v. United States* and *Caravell v. United States*, Nos. 04-1034 and 04-1384 (*Rapanos*: June 19, 2006) addressed CWA jurisdiction over wetlands adjacent or abutting navigable, non-navigable and ephemeral tributaries and jurisdiction over permanent and relatively permanent non-navigable tributaries. According to the United Sates Supreme Court, the CWA does not assert jurisdiction over upland erosional features, gullies, and roadside ditches that have infrequent, low volume, and short duration of water flow. The USACE uses a significant nexus analysis. A water body is considered to have a "significant nexus" with a traditional navigable water (TNW)[3] if its flow characteristics and functions in combination with the ecologic and hydrologic functions performed by all wetlands adjacent to such a tributary, affect the chemical, physical, and biological integrity of a downstream traditional navigable water. Additional information is provided in the Environmental Protection Agency (EPA) memorandum titled "Clean

[3] A "traditional navigable water" includes all of the "navigable waters of the United States," defined in 33 C.F.R. § 329 and by numerous decisions of the federal courts, plus all other waters that are navigable-in-fact.

Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* & *Caravell v. United States*,"[4] and also the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook.*[5]

The RWQCB is responsible for the administration of Section 401 of the CWA through water quality certification of any activity that may result in a discharge to jurisdictional waters of the U.S. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) implements conventions between the United States and four countries (Canada, Mexico, Japan, and Russia) for the protection of migratory birds. The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, or barter any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. However, the USFWS has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and would not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

The MBTA applies to the individual nests of these species, but it does not regulate impacts to the species' habitats. The USFWS has statutory authority and responsibility for enforcing the MBTA.

4.2.2.2 State Regulations

California Endangered Species Act. The CESA was developed to protect species of fish, wildlife, and plants that are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors.

"Take" as defined under the CESA means hunt, pursue, capture, or kill, or attempt to hunt, pursue, capture, or kill. Under certain conditions, the CESA has provisions for take through a 2081 Permit or a Section 2081 Memorandum of Understanding. The impacts of the authorized take must be minimized and fully mitigated. No permit may be issued if the issuance of the permit would jeopardize the continued existence of the species.

California Environmental Quality Act. Section 15380(b) of the *CEQA Guidelines* provides that a species not listed on the Federal or State lists of protected species may be considered rare or endangered if the species can be shown to meet specified criteria. These criteria have been modeled after the definitions in FESA and CESA and § 2780–2781 of Article 1 of the California Fish and Game Code dealing with the California Wildlife Protection Act of 1990. This section was included in the guidelines

[4] Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* & *Caravell v. United States.* June 6, 2007 and revised December 2, 2008. https://www.epa.gov/sites/production/files/2016-02/documents/cwa_jurisdiction_following_rapanos120208.pdf. Website accessed February 21, 2017.

[5] *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook.* http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/jd_guidebook_051207final.pdf. Website accessed February 21, 2017.

primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFW.

California Fish and Game Code. Various sections of the California Fish and Game Code provide protection to nesting birds, birds of prey, and species protected under the MBTA. Section 3503 of the California Fish and Game Code prohibits the destruction of the nest or eggs of any bird as otherwise provided for in the Fish and Game Code. Section 3503.5 specifically extends this protection to the nests or eggs of any bird of prey (species of the Orders *Falconiformes* [falcons, hawks, eagles, ospreys] *or Strigiformes* [owls]). The unlawful take, sale, or purchase (whole or in part) of any aigrette or egret, osprey, bird of paradise, goura, or numidi is prohibited under Section 3505. Section 3513 prohibits the unlawful to take or possession of any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Streambed Alteration Agreements. Sections 1600 et seq. of the California Fish and Game Code define the responsibilities of the CDFW and require public and private applicants to obtain an agreement for projects that would "… divert, obstruct, or change the natural flow or bed, channel, or bank of any river, stream, or lake designated by the CDFW in which there is at any time an existing fish or wildlife resource or from which those resources derive benefit, or would use material from the streambed designated by the department." CDFW wardens and/or unit biologists typically have the responsibility for formulating and issuing Streambed Alteration Agreements. The CDFW, through provisions of the Code (Sections 1601–1603), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. The CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFW.

Native Plant Protection Act (NPPA). Sections 1900–1913 of the California Fish and Game Code (Native Plant Protection Act) direct the CDFW to carry out the Legislature's intent to "… preserve, protect and enhance endangered or rare native plants of this state." The NPPA gives the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take.

4.2.3 Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, biological resource impacts would occur if the proposed Project would:

- Have a substantial adverse effect, either directly or indirectly or through habitat modification, on any species identified as a candidate, sensitive, or special- status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or the USFWS;

- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native or resident migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

4.2.4 Methodology Used for the Impact Analysis

The Project site was surveyed for the presence of biological resources, and the results of the survey are contained in the Biological Resources Assessment[6] (Appendix C-1). The Biological Resources Assessment was based on information compiled from databases, reference materials, field reconnaissance, general biological survey, and vegetation mapping. Plant species were evaluated based on the following factors: 1) species identified by the CNNDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Project site, and 2) any other special-status plants that are known to occur within the vicinity of the Project site, or for which potentially suitable habitat occurs at the Project site.

4.2.4.1 Literature Search

A literature review was conducted to assist in determining the existence or potential occurrence of special-status plant and animal species on or in the vicinity of the Project. Database records for the *Ontario, California* USGS 7.5-minute quadrangle and surrounding quadrangles within a one-mile radius of the Project were searched using the following databases:

- California Department of Fish and Wildlife's Natural Diversity Data Base (CNDDB) application Rarefind 5 online edition (CDFW CNDDB, v 5.2.14, https://www.wildlife.ca.gov/Data/CNDDB/)
- California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS online edition v8-03 0.39, http://www.cnps.org/inventory).

Plant species were evaluated based on the following factors: 1) species identified by the CNDDB and CNPS as occurring (either currently or historically) on or in the vicinity of the Project site, and 2) any other special-status plants that are known to occur within the vicinity of the Project site, or for which potentially suitable habitat occurs at the Project site.

Current and historic aerial photographs (Google Earth 2019 and NETRonline Historic Aerials 2018) were reviewed, and USFWS listed species and designated critical habitat information was used to

[6] *Biological Resources Assessment for The Commons, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties*, California. LSA Associates, Inc. December 2019.

determine the locations of any listed species sightings and critical habitat boundaries on and in the vicinity of the Project. Soil types were determined using the WebSoil Survey.[7]

4.2.4.2 Field Surveys

A general reconnaissance-level field survey was conducted on October 25, 2019, by LSA Biologist Denise Woodard between the hours of 1150 and 1330. Weather conditions consisted of clear, sunny skies, temperatures ranging from 86 to 90 degrees Fahrenheit, and winds ranging from five to eight miles per hour. Notes were taken on general site conditions, vegetation, and suitability of habitat for various special-status elements. The results of the field survey are contained in the Biological Resources Assessment.

California gnatcatcher protocol surveys on the Project site were conducted by Stanley Spencer under LSA Federal 10(a)(1)(A) Permit TE 777965 and California Department of Fish and Wildlife attachments to Scientific Collecting Permit SC-000777 providing Conditions for Research on Listed Birds (February 14, 2018–February 14, 2021). The survey was conducted following the cross season survey methods and in accordance with the 1997 U.S. Fish and Wildlife Service California gnatcatcher survey guidelines for breeding and nonbreeding season surveys. The survey included 4 nonbreeding and 4 breeding season surveys. It was conducted by walking throughout the survey area listening and watching for coastal California gnatcatchers. Taped vocalizations were played at intervals of about 15 minutes during the surveys until California gnatcatcher was detected. No gnatcatchers were observed. The results of the field survey are contained in Appendix C-2.

4.2.5 Impact Analysis

4.2.5.1 Candidate, Non-listed Sensitive, or Special-Status Plant and Wildlife Species

Threshold	Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Special-Status Plant Species. Sensitive plants or special-status plants are those that are listed by the USFWS, CDFW, and CNPS. The CNPS considers sensitive plant species to be those that are:

- Extirpated in California and either rare or extinct elsewhere;
- Rare or endangered in California and elsewhere;
- Presumed extirpated in California but are more common elsewhere; or
- Rare or endangered in California but are more common elsewhere.

Sensitive wildlife species are species listed as endangered or threatened under FESA or CESA, candidates for listing by the USFWS or CDFW, and Species of Special Concern to the CDFW. A CDFW California Species of Special Concern (CSC) is a species, subspecies, or distinct population of an animal

[7] United States Department of Agriculture, Natural Resources Conservation Service, WebSoil Survey. http://websoilsurvey.sc.egov.usda.gov.

native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- Is Extirpated in California or, in the case of birds, in its primary seasonal or breeding role;
- Is listed as federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- Is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; or
- Has naturally small populations exhibiting high susceptibility to risk from any factor(s), which if realized, could lead to declines that would qualify it for State threatened or endangered status.

Land use within the Project site includes vacant land and disturbed areas. Disturbed areas consist of 4.27 acres and include areas of unlawful dumping of building debris (e.g., concrete, cinderblock and asphalt) and other refuse, such as landscape waste. At the time of the field survey, portions of the site were being utilized for the staging of construction equipment and materials related to the Foothill Boulevard Rehabilitation Project, which is now complete. Development of the Project would result in the modification of the site and the removal of existing vegetation.

Based on a literature search and as detailed in Section 4.2.1.4, 14 special-status species have been reported within 1.5-miles[8] of the site. Table 4.2.B identifies these species and their probability of occurrence to occur on the site.

Table 4.2.B: Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Plants				
Berberis nevinii **Nevin's barberry**	US: FE CA: SE/1B	Gravelly wash margins in alluvial scrub or coarse soils and rocky slopes in chaparral at 70 to 825 meters (220 to 2,700 feet) elevation. Known occurrences at higher elevations are planted (not natural). Known only from Los Angeles, San Bernardino, Riverside, and San Diego Counties, California.	Blooms March through June (evergreen shrub, survey year-round)	**Absent.** This perennial species was not observed during the October 2019 field survey.
Horkelia cuneata ssp. *puberula* **Mesa horkelia**	US: – CA: 1B	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 to 825 meters (200 to 2,700 feet) elevation. Known only from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Bernardino Counties, California. Believed extirpated from Riverside and San Diego Counties.	Blooms February through July (sometimes to September) (perennial herb)	**Low.** Marginally suitable habitat is present in the form of sandy soils and coastal scrub.

[8] The 1.5-mile radius was used based on the biologist's professional judgment considering areas of similar habitat to the Project site.

Table 4.2.B: Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Sidalcea neomexicana **Salt Spring checkerbloom**	US: – CA: 2B	Alkaline springs and brackish marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Kern, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Believed extirpated from Los Angeles County. Also known from Arizona, New Mexico, Nevada, Utah, and Mexico.	Blooms March through June (perennial herb)	**Absent.** No suitable habitat (alkaline springs and brackish marshes) is present.
Thysanocarpus rigidus **Rigid fringepod**	US: – CA: 1B	Dry rocky slopes, in oak, pine, or juniper woodland at 600 to 2,200 meters (2,000 to 7,200 feet) elevation. In California, known from Los Angeles, Riverside, San Bernardino, and San Diego Counties. Also occurs in Mexico.	Blooms February through May (annual herb)	**Absent.** No suitable habitat (rocky slopes, in oak, pine, or juniper woodland) is present.
Invertebrates				
Bombus crotchii **Crotch bumble bee**	US: – CA: SA	Nectars on *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum* in coastal California east to the Sierra-Cascade crest and south into Mexico.	Spring and summer	**Low.** Marginally suitable habitat is present within Riversidean alluvial fan sage scrub vegetation.
Diplectrona californica **California diplectronan caddisfly**	US: – CA: SA	No information has been published on the larvae of this species, but other larvae in the genus live in fast-flowing, cool streams. Known only from the type locality (Claremont, pre-1914 collection) in Los Angeles County, and Thurman Flats (north of Yucaipa) in San Bernardino County, California.	Adults have been collected in May	**Absent.** No suitable habitat (fast-flowing, cool streams) is present.
Reptiles				
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation in Southern California.	Nearly year round, at least in southern areas	**Absent.** No suitable habitat (sandy or loose loamy soils with high moisture) is present.
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California, Mexico.	Most active March through June (nocturnal)	**Low.** Marginally suitable scrub habitat is present.

Table 4.2.B: Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Phrynosoma blainvillii (coronatum) **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) elevation.	April through July with reduced activity August through October	**Low to Moderate.** Suitable habitat (sandy soil in open areas) is present within the Project area.
Birds				
Laterallus jamaicensis coturniculus **California black rail**	US: – CA: ST/CFP	Requires shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. Prefers areas of moist soil vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges, with scattered small pools. Known from coastal California, northwestern Baja California, the lower Imperial Valley, and the lower Colorado River of Arizona and California. Now extirpated from virtually all of coastal Southern California.	Year-round	**Absent.** No suitable habitat (shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation) is present.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) elevation in cismontane southwestern California and Baja California.	Year-round	**Low.** Marginally suitable habitat (Riversidean alluvial fan sage scrub) is present.
Mammals				
Chaetodipus fallax fallax **Northwestern San Diego pocket mouse**	US: – CA: SSC	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush, from Los Angeles County through southwestern San Bernardino, western Riverside, and San Diego Counties to northern Baja California.	Year-round	**Low to Moderate.** Suitable habitat (sandy, herbaceous areas in coastal scrub and chaparral) is present.
Dipodomys merriami parvus **San Bernardino kangaroo rat**	US: FE CA: SSC	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of Interstate 10, with small remnant populations in the Etiwanda alluvial fan, the northern	Nocturnal, active year-round	**Absent**. Although alluvial fan sage scrub is present, the site is small, isolated and no longer associated with an active fluvial system.

Table 4.2.B: Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
		portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon. In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of State Route 60.		
Neotoma lepida intermedia **San Diego desert woodrat**	US: – CA: SSC	Found in desert scrub and coastal sage scrub habitat, especially in association with cactus patches. Builds stick nests around cacti, or on rocky crevices. Occurs along the Pacific slope from San Luis Obispo County to northwest Baja California.	Year-round, mainly nocturnal, occasionally crepuscular and diurnal	**Low to Moderate.** Suitable habitat (coastal sage scrub habitat with cactus patches) is present.

LEGEND

US: Federal Classifications

FE Listed as Endangered.

FT Listed as Threatened.

CA: State Classifications

SE State-listed as Endangered.

ST State-listed as Threatened.

SSC Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.

CFP California Fully Protected. Refers to animals protected from take under Fish and Game Code sections 3511, 4700, 5050, and 5515.

SA Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or rarity status.

1B California Rare Plant Rank 1B – rare, threatened or endangered in California and elsewhere.

2B California Rare Plant Rank 2B – rare, threatened or endangered in California, but more common elsewhere.

California Rare Plant Ranks are assigned by a committee of government agency and non-governmental botanical experts, including experts from the California Native Plant Society, and are not official State designations of rarity status.

The following four species are designated State and/or federally listed as endangered or threatened:

- **San Bernardino kangaroo rat** (*Dipodomys merriami parvus*; federally listed as endangered). Although alluvial fan sage scrub is present, the site is small, isolated, and no longer associated with an active fluvial system; therefore, this species is considered absent from the site.
- **California black rail** (*Laterallus jamaicensis coturniculus*; State listed as threatened). No suitable habitat (shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation) is present on site; therefore, this species is considered absent from the site.

- **Nevin's barberry** (*Berberis nevinii*; State and federally listed as endangered, and CNPS California Rare Plant Rank [CRPR] of 1B[9]). While this evergreen shrub blooms March through June, surveys may be conducted year-round. This perennial species was not observed during the field survey and is considered absent from the site.
- **Coastal California gnatcatcher** (*Polioptila californica californica*; federally listed as threatened; California Species of Special Concern [CSC]). The RAFSS habitat consisting of 5.37 acres in the Project site provides low quality habitat for the coastal California gnatcatcher. While this species was not identified during the on-site general biological resources survey, the on-site RAFSS provides potentially suitable habitat for the California gnatcatcher. LSA conducted on-site coastal California gnatcatcher surveys. The results of the surveys are negative.

Of the 10 non-listed special-status species (Table 4.2.B), the site provides low to moderately suitable habitat for six: mesa horkelia, crotch bumble bee, California glossy snake, coast horned lizard, San Diego desert woodrat, and northwestern San Diego pocket mouse. No suitable habitat is present on site for the four remaining non-listed species: Salt spring checkerbloom, rigid fringepod, California diplectronan caddisfly, and Southern California legless lizard. These special-status species have no official State or federal protection status and legal protection varies widely. Due to the low to moderate probability for occurrence of these species, relatively small Project footprint (6.5 acres), and isolated habitat conditions, potential Project effects to these non-listed special interest species are **less than significant**.

Mitigation Measures. No mitigation is required.

Impact Conclusion. The Project will not impact federal or State listed species or special-status species including the federally listed as threatened, California Species of Special Concern coastal California gnatcatcher. Impacts to federal and State listed and non-listed species are **less than significant**.

4.2.5.2 Sensitive Natural Communities

Threshold	Would the proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Sensitive Natural Communities. The RAFSS is a CNDDB-designated special-status plant community. The Project would result in the loss of 3.01 acres of highly degraded RAFSS habitat (Figures 4.2a–b). As stated previously, portions of the site are currently used for equipment and materials storage related to the adjacent Foothill Boulevard Master Plan Improvements Project. The on-site RAFSS community is highly degraded, small in size (3.01 acres), isolated from other RAFSS areas by existing residential, industrial, commercial and roadway uses, and no longer functions as part of a fluvial system. No other sensitive natural community is located within the Project limits.

Mitigation Measures. No mitigation is warranted.

[9] CRPR Status 1B Plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

Impact Conclusion. Due to the location, condition, use, and extent of the on-site vegetation, the incremental loss of 3.01 acres of RAFSS is a **less than significant impact**.

4.2.5.3 Jurisdictional Waters/Wetlands

Threshold	Would the proposed Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Project site does not include any federally protected wetlands. One remnant drainage feature is present on the Project site and is associated with one existing concrete box culvert under Foothill Boulevard.

No evidence of flows (e.g., OHWM), riparian habitat or wetlands was observed within this feature during the October 2019 field survey. Based on historic aerial photograph review, the San Antonio Creek floodplain once drained through the Project site, but was channelized in the late 1940s and 1950s. San Antonio Creek now drains within a concrete-lined channel approximately 0.2 mile east of the site. Historic aerial photographs indicate that water has been diverted through the site and/or being drained onto the Project site from adjacent industrial practices from as early as 1948. Conveyance of flows into these two drainage features may have occurred before property in the Project area, especially to the north, became more densely developed.

Based on a personal communication with Andresen Engineering, Inc., water sheet flows across the Project site during large (25- to 50-year) storm events.[10] In support of this statement, the Project's Standard Urban Stormwater Mitigation Plan (SUSMP), also referred to as the Low Impact Development (LID) Plan, indicates the Project site currently drains via sheet flow overland to the southwest corner of the site to the existing curb and gutter on Foothill Boulevard. Flows continue within the curb and gutter west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. The underground storm drainpipe carries flows to the San Antonio Creek Channel, a completely hardened and engineered drainage conveyance system.

Based on the LID Plan, the vast majority of on-site flows are not carried via the on-site drainage feature. Rather, this drainage feature collects storm water runoff from developed properties approximately 1,000 feet north of the site between Monte Vista Avenue and Andrew Drive but show no upstream connectivity to any water conveyance features or systems. Therefore, they are not features regulated by the USACE pursuant to Section 404/401 of the Clean Water Act or by the CDFW pursuant to Section 1602 of the Fish and Game Code.

Mitigation Measures. No mitigation is required.

Impact Conclusion. Due to the absence of any on-site jurisdictional areas and/or wetlands, **no impact** would result from development of the proposed Project.

[10] Personal Communication between LSA Biologist Denise Woodard and Andreasen Engineering, Inc. Engineer Gary Andreasen. December 18, 2019.

4.2.5.4 Wildlife Movement and Nesting/Migratory Birds

Threshold	Would the proposed Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Wildlife Movement. Habitat fragmentation occurs when a single, contiguous habitat area is divided into two or more areas, or where an action isolates two or more new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or to/from one habitat type to another. Habitat fragmentation may occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning. Wildlife movement includes seasonal migration along corridors, as well as daily movements for foraging. Examples of migration corridors may include areas of unobstructed movement for deer, riparian corridors providing cover for migrating birds, routes between breeding waters and upland habitat for amphibians, and between roosting and feeding areas for birds.

Development of the Project would change the current condition of the site. The highly degraded Riversidean alluvial fan sage scrub habitat would be replaced by urban uses. The site is in an area that has been regionally isolated from other natural areas by surrounding industrial/commercial development, the installation of roadways and utilities and long-term, frequent human activities. Due to the absence of connectivity, the site does not provide for regional wildlife movement or serve as a regional wildlife corridor. The site does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas.

Nesting/Migratory Birds. Under the MBTA, it is illegal to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. The MBTA similarly protects the nests of migratory birds. Various sections of the California Fish and Game provide protection to nesting birds, birds of prey, and species protected under the MBTA. The USFWS has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and would not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

During the bird breeding season (typically February 1 through August 31), large trees adjacent to the Project site may be used by hawks, ravens, or other large birds for nesting. Trees, shrubs, and other vegetation on site may provide nest sites for smaller birds. Nesting bird species, with potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA (16 USC 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey.

Mitigation Measures. The following mitigation measures shall be implemented to reduce potential significant impacts to nesting birds:

4.2.5.4A **Pre-construction Nesting Bird Survey.** Vegetation removal shall be conducted outside of the nesting season (February 1, or January 1 for raptors, through September 15). If avoidance of the nesting season is not feasible, then a qualified biologist shall conduct a nesting bird survey within three days prior any disturbance of the site, including disking, demolition activities, and grading.

If an active avian nest is identified, a biological monitor shall be present to delineate the boundaries of the buffer area and monitor the active nest to ensure that nesting behavior is not adversely affected by construction activities. Construction activities must occur outside of a 300-foot buffer around the active nest. For listed and raptor species, this buffer may be expanded to up to 500 feet from the active nest. The biological monitor shall have the authority to temporarily halt construction if it occurs within an established avian buffer or if new nesting activity occurs and a new buffer is required. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, construction activities within the buffer area can occur or resume. Upon completion of construction monitoring, the biological monitor shall prepare a report of findings documenting if any impacts to active avian nests occurred.

Impact Conclusion. Implementation of **Mitigation Measure 4.2.5.4A** would reduce potential impacts to nesting birds to a **less than significant impact**.

4.2.5.5 Adopted Policies and/or Ordinances

Threshold	Would the proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Table 4.2.C demonstrates the Project is consistent with the applicable Claremont General Plan goals and policies.

Table 4.2.C: General Plan Consistency Analysis, Biological Resources

General Plan Goals and Targets	General Plan Consistency Analysis
City of Claremont	
Open Space and Conservation Element Goal 5-1: Maintain unique and diverse open space resources throughout Claremont for purposes of resource and habitat protection.	
Policy 5-1.1. Strive to acquire or otherwise protect open space areas that provide key wildlife corridors, and provide connectivity between habitat areas.	**Not Applicable.** The site is located in an area that has been regionally isolated from other natural areas by surrounding industrial/ commercial development, the installation of roadways and utilities and long-term, frequent human activities. Due to the absence of connectivity, the site does not provide for regional wildlife movement or serve as a regional wildlife corridor. The site does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas.
Policy 5-1.2. Work with state and federal agencies to protect areas containing rare or endangered plants and animals.	**Consistent**. Focused surveys for the California gnatcatcher were negative. The Project would not impact federal or State protected rare or endangered plants and/or animals.
Policy 5-1.6. Encourage the preservation of natural areas so that future generations will	**Not Applicable.** The on-site habitat is highly degraded and isolated from other natural areas by surrounding industrial/commercial

Table 4.2.C: General Plan Consistency Analysis, Biological Resources

General Plan Goals and Targets	General Plan Consistency Analysis
have the opportunity to learn firsthand the natural environment and its importance.	development, the installation of roadways and utilities, and long-term, frequent human activities.
Policy 5.1-7. Preserve the integrity of integrity of riparian habitat areas, creek corridors and other drainages that support biological resources, and contribute to the overall health of the Watershed through the preservation of native plants and the removal of invasive, non-native plants.	**Not Applicable.** The Project site does not include any federally protected wetlands, riparian habitat, creek corridors, or drainages that support biological resources. One remnant drainage feature is present and is associated with an existing concrete box culvert under Foothill Boulevard. Conveyance of flows into this drainage feature may have occurred before property in the Project area, especially to the north, became more densely developed. However, this two drainage feature shows no upstream connectivity to any water conveyance features or systems.
Policy 5.1-8. Manage limited natural resources to enable future generations to share in the environmental wealth of the Claremont area.	**Consistent.** The site is relatively small, highly disturbed, and/or degraded and is surrounded by existing and planned urban uses. The site is not located within a City-identified hillside, wildland, or natural area, nor does the site provide connectivity with other natural areas. The site-specific biological resources surveys did not identify potential impacts related to the California gnatcatcher and nesting birds. Mitigation has been identified to reduce impacts to potentially nesting birds during construction.
Policy 5.1-9. Minimize impacts to birds by site disturbance activities.	**Consistent.** The site-specific biological resource surveys did not identify potential impacts related to the California gnatcatcher and nesting birds. Mitigation has been identified to reduce impacts to potentially nesting birds during construction.
Open Space and Conservation Element Goal 5-12: Conserve and properly manage natural resources for future generations.	
Policy 5.12.2. Consider the environmental impacts of proposed development of natural areas, recognizing the loss of natural resources is irreversible. The environmental analysis shall carefully weigh the benefits of such development.	**Consistent.** A Project-specific biological resources assessment (Appendix C-1) has been prepared for the Project. The relevant findings of this effort have been incorporated into this EIR. As necessary, mitigation measures have been identified to reduce potential biological resource impacts to a less than significant level.

Sources: City of Claremont General Plan – Chapter 5 Open Space, Parkland, Conservation, and Air Quality Element (2009)

Mitigation Measures. No mitigation is required.

Impact Conclusion. The Project would not conflict with Claremont General Plan policies related to the conservation of biological resources; therefore**, no impact** would result from development of the proposed Project.

4.2.5.6 Adopted Habitat Conservation Plans

Threshold	Would the proposed Project conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan?

Land use within the Project site includes vacant land and disturbed areas. Disturbed areas include areas of unlawful dumping of building debris (e.g., concrete, cinderblock and asphalt) and other refuse, such as landscape waste. Portions of the site are currently used for equipment and materials

staging related to the Foothill Boulevard Rehabilitation Project. The RAFSS occupying the site has been disturbed by current and historic land use practices and is of low quality. Surrounding lands uses include residential, commercial, industrial, and roadway uses. The site is not located within an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or approved local, regional, or State conservation plan.

Mitigation Measures. No mitigation is required.

Impact Conclusion. The Project would not conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or State habitat conservation plan; therefore, **no impact** would result from development of the proposed Project.

4.2.6 Cumulative Impacts

Cumulative impacts refer to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects.

A general biological resource survey has been conducted to assess potential impacts associated with development of the Project. The site is isolated and highly degraded by past and current dumping and previous construction staging activities. The site's proximity to existing and planned residential, commercial, industrial and roadway uses, as well as its isolation from natural areas, suggests it possesses limited habitat value. The site has not been identified as critical habitat for any threatened or endangered species; nor has it been identified as a natural or conservation area in the General Plans of either City. While development of the Project would incrementally decrease the amount of RAFSS present in the Project area, as previously stated, the on-site habitat is highly fragmented, isolated and not subject to natural hydrological processes. Due to the adjacency of existing developed uses, the site does not function as a local or regional wildlife corridor.

With mitigation, the Project-specific biological resource impacts have been reduced to less than significant levels. Due to the disturbed and isolated nature of the site, the limited extent of degraded RAFSS habitat, and the proximity of existing urban development, the Project impacts on biological resources are not cumulatively considerable.

4.3 CULTURAL RESOURCES

This section identifies and evaluates the Project's potential impacts related to cultural resources (archaeological and historic). The resources of concern include, but are not limited to, prehistoric and historic artifacts and/or historic structures. This section provides a detailed discussion of impacts potentially attributable to the proposed Project, and criteria used to determine impact significance to cultural resources. The analysis contained in this section is based on the following documents:

- *Cultural Resources Assessment for the Commons Specific Plan, in the Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California*. LSA Associates, Inc. May 2019. (Appendix D)

4.3.1 Existing Setting

Archaeology is the recovery and study of material evidence of human life and culture of past ages. With the passage of time, such evidence may become hidden from view and not easily identified during surface surveys. The potential for archaeological resources within any specific site may be based on other geography, vegetation, and other indicators known to be associated with human life and culture. Archaeological resources include both prehistoric remains and remains dating to the historical period. Prehistoric (or Native American) archaeological resources are physical properties resulting from human activities that predate written records and may include village sites, temporary camps, lithic (stone tool) scatters, rock art, roasting pits/hearths, milling features, rock features, and burials. Historic archaeological resources can include refuse heaps, bottle dumps, ceramic scatters, privies, foundations, and burials and are generally associated with the Spanish Mission Period through the mid-20th century.

Historical resources are buildings, structures, sites, places, or objects that are listed in or eligible for listing in the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), or a local register of historical resources. When supported by substantial evidence, resources representing historically significant or associated with significant architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural persons or events may be considered a historical resource.

4.3.1.1 Ethnography Context

The Project site is near the intersection of the traditional cultural territories of the Gabrielino and Serrano Native American tribes.

The territory of the Gabrielino included portions of Los Angeles, Orange, and San Bernardino Counties during ethnohistoric times. Gabrielino territory encompassed an extremely diverse environment that included coastal beaches, lagoons and marshes, inland river valleys, foothills, and mountains. The Gabrielino caught and collected seasonally available food resources, and led a semi-sedentary lifestyle, living in permanent communities along inland watercourses and coastal estuaries. Individuals from these villages took advantage of the varied resources available. Groups moved to temporary camps on a seasonal rotation to collect plant foods such as acorns, buckwheat, chia, berries, and fruits, and to conduct communal rabbit and deer hunts. They also established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt waterfowl. The Gabrielino lived in small communities, which were the focus of family life. Gabrielino villages were politically independent and

were administered by a chief, who inherited his position from his father. Shamans guided religious and medical activities, while group hunting or fishing was supervised by individual male specialists. The nearest historically known Native American village to the Project site was the Gabrielino community of *Tooypinga,* located approximately 4.5 miles to the southwest in the Pomona area.

The Serrano lived in the area generally north of Cahuilla territory (western Riverside County), occupying much of the present-day San Bernardino County and northeastern Los Angeles County as there was some overlap in the ancestral areas. The term Serrano is Spanish for "mountaineer" or "highlander" and is derived from *sierra*, meaning "mountain range" and was given to people who inhabited the areas of the San Bernardino Mountains with no associated mission. The Serrano culture group consists of two divisions, a mountain division, referred to as the Mountain Serrano, and a desert division, referred to as the Desert Serrano. The Serrano were hunter-gatherers who exploited whatever flora was available in the area they happened to be, generally it was acorns, pinion nuts, honey, mesquite, yucca, and cactus fruits, in addition to various seeds, bulbs, and roots. The Serrano had a patrilineal society composed of clans and families linked both by ancestry and ceremony, and most lived in small communities near reliable sources of water (springs, perennial seeps, streams, and small lakes). The basic settlement unit of the Serrano was a village with a number of small satellite resource-gathering camps. Today, many Serrano live either on the Morongo or San Manuel Reservations.

4.3.1.2 Historic Context

In California, the historic era is generally divided into three periods: the Spanish Period (1769 to 1821), the Mexican Period (1821 to 1848), and the American Period (1848 to present). As the cultural resources identified within the Project area date to the 20th century, the historic background focuses on local communities of the American Period.

Claremont. The Santa Fe Railroad laid its tracks though the north end of Pomona in January 1887, constructed a temporary depot, and established a post office. The railroad's subsidiary Pacific Land Improvement Company (PLIC) quickly built a land office and hotel to promote the sale of residential lots. The community was named for Claremont, New Hampshire, the hometown of a historically obscure PLIC board member. It was one of many town sites laid out by the PLIC between San Bernardino and Los Angeles in anticipation of an expanding population facilitated by the arrival of the railroad during this time period. The local real estate boom lasted less than a year, and Claremont would have become one of a long list of railroad "ghost towns" if not for the interest of the recently-established Pomona College (a small congregational school) to which the PLIC gifted the Hotel Claremont and 260 vacant lots in 1888. The community grew around the college, a grammar school was established, and a fire department organized the following year. By the turn of the century, the town included a general store, bank, jail, and several other businesses. The City of Claremont was officially incorporated on October 3, 1907, and several additional colleges were established around Pomona College in the 1920s. Along with the colleges, the citrus industry became the economic base of the community with citrus ranches spreading across all of the foothills. At its height, the industry supported four citrus packing houses and several supporting facilities on the railroad line through Claremont. Citrus continued to flourish locally until after the Second World War, when rising land values fostered residential development, with many growers selling their land. From the mid-1950s, the San Bernardino Freeway allowed easy access to surrounding communities, contributing to the continuing trend of suburban development.

Several lumber yard buildings constructed within the Project area in the mid-to-late 1940s were occupied by "The Air Museum" in 1957. The museum moved to the Ontario Airport in 1963, from there to Buena Park in 1970, ending up at Chino Airport in 1973 to become the Planes of Fame Air Museum where it remains today.

4.3.1.3 NOP/Scoping Comments

One commenter stated the historic San Antonio riverbed should be addressed in the Draft EIR. Based on the cultural resources records search and field survey, no remnant of the non-channelized riverbed is located within the project limits.

4.3.2 Regulatory Framework

4.3.2.1 Federal Regulations

National Historic Preservation Act (NHPA) of 1966 (as amended), Section 106. The NHPA declares a national policy of historic preservation to protect, rehabilitate, restore, and reuse districts, sites, buildings, structures, and objects significant in American architecture, history, archaeology, and culture. The NHPA established the National Register, State Historic Preservation Offices (SHPOs) and programs, and the Advisory Council on Historic Preservation. This Act applies to all properties on or eligible for inclusion in the National Register. The Section 106 review process[1] requires consultation to mitigate damage to "historic properties" as places that qualify for the National Register, including Native American traditional cultural places (TCPs). Evaluation of cultural resources consists of determining whether it is significant (i.e., whether it meets one or more of the criteria[2] for listing in the National Register) as follows:

> The quality of significance in America history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association:
>
> A. That is associated with events that have made a significant contribution to the broad patterns of our history;
>
> B. That is associated with the lives of persons significant in our past;
>
> C. That embodies the distinctive characteristics of a type, period or method of construction, or that represents the work of a master, or possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; and/or
>
> D. That has yielded, or may be likely to yield, information important to prehistory or history.

4.3.2.2 State Regulations

California Register of Historical Resources. The California Register includes California State Historical Landmarks; eligible Points of Historical Interest; and resources listed, or formally determined eligible for listing, in the National Register. Properties of local significance that have been designated under a local

1 36 CFR 800.16[1].
2 36 CFR 60.4.

preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory, may be eligible for listing in the California Register and are presumed to be significant resources for purposes of CEQA, unless a preponderance of evidence indicates otherwise.

Generally, a resource is considered by the lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register,[3] consisting of the following:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values;
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

California Environmental Quality Act (CEQA). A "historical resource" includes, but is not limited to, any object, building, site, area, place, record, or manuscript that is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.[4] CEQA mandates that lead agencies consider a resource "historically significant" if it meets the criteria for listing in the California Register, as described above. These criteria mimic those utilized to determine eligibility for the National Register.

Integrity is the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Historical resources eligible for listing in the California Register must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. The discovery of any historic resources during project construction would warrant further evaluation by a qualified archaeologist.

Senate Bill 18 (SB 18). SB 18 requires a City or County to consult with California Native American tribes prior to the adoption or amendment of a General Plan or Specific Plan for the purpose of preserving specified places, features, and objects located. This bill requires the planning agency to refer to the California Native American tribes specified by the Native American Heritage Commission (NAHC) and to provide them with opportunities for involvement.

Details regarding government-to-government consultation between the City and California Native American tribes are discussed in Section 4.11, *Tribal Cultural Resources*, of this EIR.

Assembly Bill 52 (AB 52). Pursuant to AB 52,[5] Native American consultation is required upon request by a California Native American tribe that has previously requested that the City provide it with notice of such projects. The City has consulted with California Native American tribes pursuant to AB 52.

[3] Public Resources Code, § 5024.1.
[4] Public Resources Code, § 5020.1(j).
[5] Public Resources Code §21080.3.1.

Details regarding government-to-government consultation between the City and California Native American tribes are discussed in Section 4.11, *Tribal Cultural Resources*, of this EIR.

California Health and Safety Code. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur.

4.3.2.3 Local Regulations

City of Claremont General Plan. The City's General Plan is the blueprint for future growth and development in the City. Goals and policies of the City's General Plan regarding cultural resources applicable to the Project are listed below in Table 4.3.A.

City of Claremont Municipal Code. The City of Claremont Municipal Code addresses cultural resources in Article XIII of Chapter 5: Preservation of Historic Resources. The purpose of this article is to implement the goals and policies of the Claremont General Plan, which recognize the presence of archaeological sites and buildings that have historic importance for the City. In addition, this article governs the creation and function of the Planning Commission (Commission), as well as the identification, preservation, and protection of historic, archaeological, and cultural resources within the City.

4.3.3 Thresholds of Significance

Appendix G of the State *CEQA Guidelines* recognizes the following significance thresholds related to cultural resources. Based on these significance thresholds, a project would have a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

4.3.4 Methodology Used for the Impact Analysis

The cultural resources study consisted of two parts:

- An archaeological records search conducted to determine whether any previously recorded significant cultural materials are present within the boundaries of the Project site; and
- Archaeological field reconnaissance in the form of a systematic and intensive pedestrian survey designed to identify any cultural resources within the Project site.

On September 10, 2018, a cultural resources records search was conducted for the Project site by the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. The search included a review of all recorded historic and prehistoric archaeological sites within one mile of the Project, as well as a review of known cultural resource survey and excavation reports. In addition, the California State Historic Property Data File (HPD), which includes the National Register, California Register, California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI), was searched.

On October 10, 2018, a pedestrian survey utilizing systematic parallel transects spaced by approximately 35 feet where possible was conducted of all accessible exposed areas of the Project parcels. Special attention was paid to areas of exposed soil for surface artifacts and features and rodent burrows for evidence of archaeosols.[6] The purpose of this survey was to identify and document, prior to the beginning of ground-disturbing activities, any cultural resources and thus also to identify any area(s) that might be sensitive for buried cultural resources.

Historic aerial photographs and historic maps were reviewed during October 2018 as additional research.

4.3.5 Impact Analysis

Table 4.3.A evaluates the Project's consistency with applicable Claremont General Plan goals and policies related to cultural resources. As detailed in Table 4.3.A, the Project is consistent with applicable General Plan policies related to cultural resources.

Table 4.3.A: General Plan Consistency Analysis, Cultural Resources

General Plan Goals and Policies	General Plan Consistency Analysis
City of Claremont General Plan – Chapter 2 Land Use, Community Character, and Heritage Preservation Element	
Goal 2.14: Retain and celebrate Claremont's rich history and heritage, as evidenced through its development patterns, buildings and building materials, landscaping, street treatments, parks and open space, and civic architecture.	
Policy 2.14.1: Continue to protect architectural, historical, open space, environmental, and archaeological resources throughout the City	**Consistent:** A *Cultural Resources Assessment* (CRA) was prepared for the proposed Project to determine if implementation of the proposed Project would affect cultural resources. The CRA concluded that no known cultural resources are located on the Project site. The CRA does include **Mitigation Measure 4.3.1A,** which would ensure that undiscovered cultural resources that could potentially be found on the Project site during grading and excavation activities would be properly protected.

Source: City of Claremont General Plan – Chapter 2 Land Use, Community Character, and Heritage Preservation Element (2009)

4.3.5.1 Historical Resources

Threshold	Would the proposed Project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

The records search concluded there have been 38 previous cultural resources studies conducted within a one-mile radius of the proposed Project, none of which included the Project site. Although no cultural resources have been documented on the Project site, one prehistoric archaeological site

[6] Soils that contain archaeological residue.

and three historic period[7] archaeological sites have been documented within one mile of the site along with more than 246 historic period-built resources. Although most of the built environment resources are not documented on site records in the California Historic Resources Information System (CHRIS), they are listed in the Los Angeles County Historic Properties Directory. The nearest resource documented on a site record (bounding the southern edge of the Project site) is Foothill Boulevard/Route 66.

A segment of former Route 66 (now Foothill Boulevard), which (as a whole) had been determined eligible for listing in the National Register and the California Register is adjacent to the Project site. In 2010, the California Department of Transportation (Caltrans) concluded that the approximately 2.1-mile segment between Towne Avenue and the Los Angeles/San Bernardino County line (including the segment adjacent to the Project area) lacks the requisite level of integrity to meet National Register and/or California Register criteria. Therefore, it does not contribute to the significance of the resource (Route 66) as a whole, and is not a "historical resource" under CEQA.

The Project site contains remnants of concrete structures that were determined to not be historical. As such, there are no buildings on the Project site that would be a historical resource or would be eligible for listing in the National Register or California Register. A historical resource as defined in Section 15064.5 of the *State CEQA Guidelines* can include resources listed in a local register. There are no structures on site that would be listed in a local register (i.e., City of Claremont or County of Los Angeles). As such, there are no historical resources as defined in Section 15064.5 of the *State CEQA Guidelines* located within the proposed Project site. The proposed Project would not cause a substantial adverse change in the significance of a historical resource and no mitigation is required.

Mitigation Measures. No mitigation is warranted.

Impact Conclusion. No impact would occur to a historical resource with implementation of the proposed Project.

4.3.5.2 Archaeological Resources

Threshold	Would the proposed Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5??

The cultural resources records search indicated 38 cultural resources studies that have been conducted within a one-mile radius of the site. Although no cultural resource have been documented on the Project site, one prehistoric archaeological site (19-000108) and three historic period archaeological sites (36-007792, 36-007794, and 19-004450) have been documented within one mile of the Project site. On October 10, 2018, a pedestrian survey of the Project site was conducted. The Project site has been subjected to surface disturbance from a construction staging site and erosion from the ephemeral drainage in Assessor's Parcel Numbers (APNs) 1006-312-03 and 1006-312-04. Concrete rubble and building (cinderblock and brick) and asphalt debris along with modern refuse

[7] 'Historic' typically refers to the period after European contact, Archeological sites may refer to buried resources, foundations, debris scatter, or other resources. "Built" typically implied standing structures. A historic resource does not necessarily need to be "built."

were noted on the surface throughout the Project site. The following historic archaeological resources were identified within one mile of the Project area:

- **19-004863 (S-1).** Raised building foundation, slab, apron, wall, steps, and indeterminate features of concrete, cinderblock, brick, and tarmac, dating to the mid-to-late 1940s located in APN 8307003066 (in Los Angeles County).
- **36-033017 (S-2).** This small refuse scatter located in APN 100-631-203 (in San Bernardino County) primarily comprises 20+ sanitary and condensed milk cans, along with 1-gallon fuel and paint cans, a cone-top beverage or brake fluid (?) can (1930s~1950s), coffee can lids, bottle and jar glass, and miscellaneous debris. With few exceptions, the items are fragmentary. The few index artifacts include a condensed milk can (1917–1929), an amethyst glass milk bottle fragment with "POMONA VALLEY CREAMERY" in raised letters (1910s–1920s), clear glass condiment jar with Hazel-Atlas maker's mark (1920–1964). Other artifacts include shoe fragments, window glass, and miscellaneous sheet metal fragments. Modern clear glass bottle fragments were also noted.
- **36-033018 (S-3).** This minimal refuse scatter located in APN 100-631-204 (in San Bernardino County) primarily comprises more than four streel beverage cans and fragments (1935 to circa 1970) along with more than two coffee cans, and all-steel 1-quart oil can, can fragments, and miscellaneous debris. The few index artifacts include a clear glass bottle with Owens-Illinois "Durglas" marker's mark (1953 in year of manufacture position), a brown glass bottle base, also with Owens-Illinois marker's mark (1954 in year of manufacture). Other artifacts include a metal drum lid clamp, window screen fragments, and miscellaneous galvanized sheet metal fragments. Modern glass fragments and rebar were also found.

The archaeological resources identified within the Project site are typical examples of common resource types (i.e., building foundations [19-004863] and minimal refuse scatters [36-033017 and 36-033018]). Although resource 19-004863 is associated with what would become a popular/ renowned aviation museum (Planes of Fame), the features themselves have no apparent associated artifacts. The building foundations associated with resource 19-004863 do not represent noteworthy archaeological data and do not have the potential for any. The refuse scatters (resources 36-033017 and 36-033018) predate resource 19-004863 and are too distant from Foothill Boulevard/Route 66 and Monte Vista Avenue to infer any relationship with either road (i.e., they are not a result of roadside dumping), and therefore have no specific historic association. Furthermore, these resources are in an almost completely compromised context; not only are they severely disturbed and contaminated by chronic dumping on the Project site, but they are also moderately to severely disturbed by erosion. Resources 19-004863, 36-033017, and 36-033018 have no potential for significant archaeological data and similarly do not meet any of the criteria under CEQA.

Although the resources on site did not meet criteria under CEQA and they have no potential for significant archaeological data, the Project site's proximity to a historically renowned archaeological site and location within the former drainage of a major water course indicates that the site may have some sensitivity for subsurface archaeological resources. Development of the Project requires extensive ground-disturbing activity and, due to the depth and extent of proposed on-site grading, such activity may unearth previously unrecorded archaeological resources. This is a potentially significant impact that requires mitigation.

Mitigation Measure. The following mitigation measure shall be implemented to reduce potential impacts to subsurface archaeological resources.

4.3.1A Archaeological Resources.

a. Prior to the commencement of construction activities, the Construction Contractor shall provide evidence to the City for review and approval that a qualified archaeologist who meets Secretary of the Interior Standards has been retained to provide pre-construction briefing, monitoring, and investigation of ground-disturbing activities. The scope, limit, duration and frequency of construction monitoring shall be established by the qualified archaeologist, City, construction contractor and Native American monitor prior to the initiation of ground-disturbance operations.

b. Prior to the commencement of construction activities, the construction Contractor(s) shall provide evidence to the City for review and approval that on-site work crews have been informed of the procedures to follow in the event an identified cultural resource is unearthed during construction. The pre-construction briefing shall be conducted by a qualified archaeologist.

c. In the event previously unidentified cultural resources are unearthed during construction, all work within a minimum of 100 feet of the discovery shall cease until the extent and nature of the discovery has been identified by the qualified archaeologist. Construction activities outside the exclusion area shall be permitted to continue.

d. Any potential cultural/archaeological resource unearthed by project construction activities shall be evaluated to determine eligibility for the California Register of Historical Resources or qualification as unique archaeological resources pursuant to CEQA. If the resource is determined by the qualified archaeologist to constitute a "historical resource" pursuant to *CEQA Guidelines Section* 15064.5(a) or has a "unique archaeological resource" pursuant to Public Resources Code Section 21083.2(g), the qualified archaeologist shall coordinate with the Construction Contractor, City and Native American monitor to develop a formal treatment plan that would serve to reduce impacts to the resources. The treatment plan established for the resources shall be in accordance with *CEQA Guidelines Section* 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any non-Native American historic cultural/archaeological resource shall be curated at a public, non-profit institution with a research interest in the materials.

e. The qualified archaeologist shall prepare a final report and appropriate California Department of Parks and Recreation (DPR) site forms at the conclusion of treatment and/or following archaeological construction monitoring. The report shall include a description of resources unearthed, treatment of the resources, results of the artifact processing, analysis, and research, and evaluation of the resources with respect to

the California Register of Historical Resources. The report and the site forms shall be submitted by the Applicant to the City, the South Central Coastal Information Center and representatives of other appropriate agencies.

Impact Conclusion. Impacts to undiscovered and/or unrecorded archaeological resources would be **less than significant** with implementation of **Mitigation Measure 4.3.1A**.

4.3.5.3 Human Remains

Threshold	Would the Project disturb any human remains, including those interred outside of formal cemeteries?

No evidence exists to suggest the project site has been utilized in the past for human burials; however, on-site construction could uncover previously unknown buried human remains. In the event of an accidental discovery or recognition of any suspected human remains, California State Health and Safety Code Section 7050.5 dictates that no further excavation or disturbance of the site (or any nearby area reasonably suspected to overlie adjacent human remains) may occur until the County Coroner determines that no investigation of the cause of death is required. If the coroner determines the remains to be Native American, the NAHC must be contacted within 24 hours, and **Mitigation Measure 4.11.2A** as detailed in Section 4.11.5.2 shall be implemented.

Mitigation Measure. Mitigation Measure 4.11.2A, as detailed in Section 4.11.5.2 of this EIR, shall be implemented.

Impact Conclusion. Adherence to State Health and Safety Code Section 7050.5 is required of all development projects. If human remains are encountered and determined to be Native American in origin, implementation of **Mitigation Measure 4.11.2A** as detailed in Section 4.11.5.2 would reduce impacts related to the discovery of buried human remains to **less than significant** levels.

4.3.6 Cumulative Impacts

Potential impacts of the proposed Project to unknown cultural resources, when combined with the impacts of past, present, and reasonably foreseeable projects could cumulatively contribute to a cumulatively to the overall loss of historical and archaeological artifacts unique to the region. As discussed above, the proposed Project would not have an impact on historical resources.

Areas are identified as sensitive for archaeological resources by Claremont's General Plan. Each development proposal received by Claremont is required to comply with the requirements of CEQA, including an environmental review if applicable. If there were any potential for significant impacts to archaeological resources as a result of present or reasonably foreseeable projects, a project-specific (site-specific) investigation would be required to determine the nature and extent of the resources and identify appropriate mitigation measures. When archaeological resources are assessed and/or protected as they are discovered, impacts to these resources are less than significant.

As such, implementation of **Mitigation Measures 4.3.1A** and **4.11.2A** would ensure that the proposed Project, together with cumulative projects, would not result in a cumulatively considerable impact to unique archaeological and historical resources and human remains.

4.4 ENERGY

This section analyzes the proposed Project's potential impacts related to energy and energy use based on the following technical study provided as Appendix B to this EIR.

- *Air Quality and Greenhouse Gas Analysis, The Commons Project, City of Claremont, Los Angeles County, California,* LSA Associates, Inc., January 2020.

4.4.1 Background on Energy

4.4.1.1 Electricity

Electricity is a man-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. Electricity is used for a variety of purposes, such as lighting, heating, cooling, and refrigeration and for operating appliances, computers, electronics, machinery, and public transportation systems.[1]

In 2018, California's electricity was generated primarily by natural gas (34.91 percent), coal (3.30 percent), large hydroelectric (10.68 percent), nuclear (9.05 percent), and renewable sources (31.36 percent). Total electric generation in California in 2018 was 285,488 gigawatt-hours (GWh), down 2.2 percent from 2017's total generation of 292,039 GWh. In 2018, California produced approximately 68.2 percent and imported 31.8 percent of the electricity it used.[2]

The Project site is within the service territory of Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square mile area of Central, Coastal, and Southern California.[3] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2018 was 83,399.9 GWh (28,617.1 GWh for the residential sector). Total electricity consumption in Los Angeles County was 67,856.3 GWh (20,589.2 GWh for the residential sector).[4]

Under existing conditions, the majority of the Project site is vacant; however, a small portion of the site is currently occupied by the Armstrong Garden Center. The portion of the parcel occupied by the Armstrong Garden Center would be subdivided from the rest of the proposed Project.[5] The Armstrong Garden Center would continue to operate as is and would not be part of future actions associated

1 United States Energy Information Administration (EIA). 2019a. Electricity Explained-Use of Electricity. https://www.eia.gov/energyexplained/index.php?page=electricity_use; accessed November 4, 2019.

2 California Energy Commission (CEC). 2019. Total System Electric Generation. https://ww2.energy.ca.gov/almanac/electricity_data/total_system_power.html; accessed November 4, 2019.

3 Southern California Edison (SCE). 2019. Our Service Territory. https://www.sce.com/about-us/who-we-are/leadership/our-service-territory; accessed November 4, 2019.

4 California Energy Commission (CEC). 2019. Electricity Consumption by Entity. http://www.ecdms.energy.ca.gov/elecbyutil.aspx; accessed November 4, 2019.

5 The Project includes a Tentative Tract Map (TTM 82315), which proposes to subdivide this existing parcel into lots for the Armstrong Garden Center and for the proposed single-family residential uses, townhome uses, and public streets within The Commons Specific Plan, which encompasses approximately 6.5 acres of the proposed subdivided parcel.

with the Project in terms of energy uses. As such, the annual electricity demand for the Armstrong Garden Center is not part of the existing setting.

4.4.1.2 Natural Gas

Natural gas is a nonrenewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over millions of years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses such as heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills.[6]

Natural gas consumed in California is used for general electricity generation (45 percent), residential uses (21 percent), industrial uses (25 percent), and commercial uses (9 percent). California continues to depend upon out-of-state imports for nearly 90 percent of its natural gas supply.[7]

The Southern California Gas Company (SoCalGas) is the natural gas service provider for the Project site. SoCalGas provides natural gas to approximately 21.8 million people in a 24,000-square mile service area throughout Central and Southern California, from Visalia to the Mexican border.[8] According to the CEC, total natural gas consumption in the SoCalGas service area in 2018 was 5,156.1 million therms (2,147.4 million therms for the residential sector). Total natural gas consumption in Los Angeles County in 2018 was 2,921.4 million therms (1,107.8 million therms for the residential sector).[9]

The annual consumption of natural gas for the Armstrong Garden Center is not part of the existing setting for this Project.

4.4.1.3 Petroleum/Transportation Energy

Petroleum is also a nonrenewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the Earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a larger number of consumer products, primarily fuel oil and gasoline.

Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pick-up trucks, and sport utility vehicles. In 2018, total gasoline consumption in California was 366,820 thousand barrels (15.4 billion gallons) or 1,853.5 trillion BTU.

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6 United States Energy Information Administration (EIA). 2019. Natural Gas Explained- Use of Natural Gas. https://www.eia.gov/energyexplained/index.php?page=natural_gas_use; accessed November 4, 2019.

7 California Energy Commission (CEC). 2019. Supply and Demand of Natural Gas in California. https://ww2.energy.ca.gov/almanac/naturalgas_data/overview.html; accessed November 4, 2019.

8 Southern California Gas Company. 2019. About SoCalGas. https://www3.socalgas.com/about-us/company-profile; accessed November 4, 2019.

9 California Energy Commission (CEC). 2019. Electricity Consumption by Entity. http://www.ecdms.energy.ca.gov/elecbyutil.aspx; accessed June 29, 2019.

Of the total gasoline consumption, 350,604 thousand barrels (14.7 billion gallons) of 1,771.6 trillion BTU was consumed for transportation.[10]

The annual consumption of gasoline for the Armstrong Garden Center is not part of the existing setting for this Project. The Project site is currently vacant; as such, transportation fuel consumption is not generated by the Project site under existing conditions.

4.4.1.4 NOP/Scoping Comments

No NOP or Scoping comments pertaining to energy were received.

4.4.2 Regulatory Framework

4.4.2.1 Federal Regulations

Corporate Average Fuel Economy. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. Corporate Average Fuel Economy (CAFE) standards are federal regulations that are set to reduce energy consumed by on-road motor vehicles. The U.S. Department of Transportation's (USDOT) National Highway Traffic Safety Administration (NHTSA) regulates the standards and the United States Environmental Protection Agency (EPA) measures vehicle fuel efficiency. The standards specify minimum fuel consumption efficiency standards for new automobiles sold in the United States. The law has become more stringent over time. The current standard is 27.5 miles per gallon (mpg) for passenger cars and 20.7 mpg for light-duty trucks.

On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and NHTSA announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S. The first phase of the national program applied to passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2012 through 2016. This phase required these vehicles to meet a fuel economy standard of 35.5 mpg. The second phase applied to passenger cars, light-duty trucks, and medium duty passenger vehicles for model years 2017 through 2025. This phase required these vehicles to meet an estimated fuel economy standard of 54.5 mpg.[11]

On September 15, 2011, the EPA and the USDOT issued final rule for the first national standards to improve fuel efficiency of medium- and heavy-duty trucks and buses, model years 2014 to 2018. For combination tractors, the agencies proposed engine and vehicle standards that would achieve up to a 20 percent reduction from the model year 2014 in fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies proposed separate gasoline and diesel truck standards, which would achieve up to a 10 percent reduction from the model year 2014 for gasoline vehicles and a 15 percent reduction for diesel vehicles (12 and 17 percent, respectively, if accounting

[10] United States Energy Information Administration (EIA). 2019. California State Profile and Energy Estimates. Table F3: Motor gasoline consumption, price, and expenditure estimates, 2017. https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA; accessed October 4, 2019.

[11] National Highway Traffic Safety Administration (NHTSA). 2019. Corporate Average Fuel Economy. https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy; accessed November 4, 2019.

for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle standards would achieve up to a 10 percent reduction from model year 2014 in fuel consumption.[12] On October 25, 2016, the EPA and USDOT issued Phase 2 of the national standards to improve fuel efficiency standards for medium- and heavy-duty trucks and buses for model years 2021 to 2027 to achieve vehicle fuel savings as high as 25 percent, depending on the vehicle category.[13]

Safer Affordable Fuel-Efficient Vehicles Rule. On August 2, 2018, the current Administration released a notice of proposed rulemaking, *The Safer Affordable Fuel-Efficient* (SAFE) *Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule) to amend the CAFE and greenhouse gas emission standards established in 2012 for model years 2021 through 2026. The SAFE Vehicle Rule would decrease fuel economy and would withdraw the California Waiver for the California Advanced Clean Car program, Zero Emissions Vehicle mandate, and greenhouse gas emission standards for model years 2021 through 2026. Final rulemaking on the SAFE Vehicles Rule is pending.[14]

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (Public Law 110–140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of the federal government. The Act sets increased CAFE Standards; the Renewable Fuel Standard; appliance energy efficiency standards; building energy efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration.[15]

Energy Policy Act of 2015. The Energy Policy Act of 2015[16] was passed by the United States Congress on July 29, 2005, and signed into law by President George W. Bush on August 8, 2005 and was the first major energy law enacted by the federal government in over a decade. The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under this Act, consumers and businesses can obtain federal tax credits for purchasing fuel-efficient appliances and products (including hybrid vehicles), building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro turbine power plants, and solar power equipment.[17,18]

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12 United States Environmental Protection Agency (EPA). 2019. Final Rule for Phase 1 Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-1-greenhouse-gas-emissions-standards-and; accessed June 29, 2019.

13 Ibid.

14 National Highway Traffic Safety Administration (NHTSA). 2019. The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule. https://www.nhtsa.gov/corporate-average-fuel-economy/safe; accessed June 29, 2019.

15 United States Environmental Protection Agency (EPA). 2019. Summary of the Energy Independence and Security Act. https://www.epa.gov/laws-regulations/summary-energy-independence-and-security-act; accessed June 29, 2019.

16 42 USC §13201 et seq.

17 Federal Energy Regulatory Commission. 2006. Energy Policy Act of 2005-Fact Sheet. August 8.

18 Federal Energy Regulatory Commission. 2019. Energy Policy Act of 2005. Public Law 109-58-August 8, 2015. https://ferc.gov/enforcement/enforce-res/EPAct2005.pdf; accessed June 29, 2019.

4.4.2.2 State Regulations

Assembly Bill 1575, Warren-Alquist Act. In 1975, largely in response to the oil crisis of the 1970s, the State Legislature adopted AB 1575 (also known as the Warren-Alquist Act), which created the California Energy Commission. The statutory mission of the CEC is to forecast future energy needs; license power plants of 50 megawatts (MW) or larger; develop energy technologies and renewable energy resources; plan for and direct State responses to energy emergencies; and, perhaps most importantly, promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code (PRC) Section 21100(b)(3) and *CEQA Guidelines* Section 15126.4 to require EIRs to include, where relevant, mitigation measures proposed to minimize the wasteful, inefficient, and unnecessary consumption of energy caused by a project. Thereafter, the State Resources Agency created Appendix F to the *State CEQA Guidelines*. Appendix F assists EIR preparers in determining whether a project would result in the inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the *CEQA Guidelines* states that the goal of conserving energy implies the wise and efficient use of energy and the means of achieving this goal include 1) decreasing overall per capita energy consumption; 2) decreasing reliance on fossil fuels such as coal, natural gas and oil; and 3) increasing reliance on renewable energy sources.

Senate Bill 1389, Energy: Planning and Forecasting. In 2002, the State Legislature passed SB 1389, which required the CEC to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles (ZEVs) and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

In compliance with the requirements of SB 1389, the CEC adopts an Integrated Energy Policy Report every two years and an update every other year. The most recently adopted reports include the Final 2017 Integrated Energy Policy Report[19]and the 2018 Integrated Energy Policy Report Update.[20] The CEC is currently undergoing the process to adopt the 2019 Integrated Energy Policy Report, which was circulated for public review in February 2019 and is anticipated to be approved in February 2020.[21] The 2017 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues would require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2017 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers

[19] California Energy Commission (CEC). 2018. 2017 Integrated Energy Policy Report. California Energy Commission. Publication Number: CEC-100-2017-001-CMF. February.

[20] California Energy Commission (CEC). 2018. 2018 Integrated Energy Policy Report Update. California Energy Commission. Publication Number: CEC-100-2018-001-VI. February.

[21] California Energy Commission (CEC). 2019. Supply and Demand of Natural Gas in California. https://ww2.energy.ca.gov/almanac/naturalgas_data/overview.html; accessed June 29, 2019.

faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas, updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency. The 2018 Update included a review of the implementation of California's energy policies and updated the 2017 California energy demand forecasts that were adopted as part of the 2017 Integrated Energy Policy Report proceedings.

Renewable Portfolio Standards. The California Renewable Portfolio Standards (RPS) program was established in 2002 by SB 1078. SB 1078 initially required that 20 percent of electricity retail sales be served by renewable resources by 2017; however, this standard has become more stringent over time. In 2006, SB 107 accelerated the standard by requiring that the 20 percent mandate be met by 2010. In April 2011, SB 2 required that a 33 percent of electricity retail sales be served by renewable resources by 2020. In 2015, SB 350 established tiered increases to the RPS of 40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. In 2018, SB 100 increased the requirement to 60 percent by 2030 and requires all the State's electricity to come from carbon-free resources by 2045. SB 100 took effect on January 1, 2019 (CPUC 2019).[22]

Title 24, California Building Code. Energy consumption by new buildings in California is regulated by the Building Energy Efficiency Standards, embodied in Title 24 of the California Code of Regulations (CCR), known as the California Building Code [CBC]). The CEC first adopted the Building Energy Efficiency Standards for Residential and Nonresidential Buildings in 1978 in response to a legislative mandate to reduce energy consumption in the State. The CBC is updated every three years, and the current 2016 CBC went into effect on January 1, 2017. The 2019 CBC update became effective on January 1, 2020. The efficiency standards apply to both new construction and rehabilitation of both residential and nonresidential buildings and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit process. Local government agencies may adopt and enforce energy standards for new buildings, provided these standards meet or exceed those provided in Title 24.

California Green Building Standards Code (CALGreen). In 2010, the California Building Standards Commission (CBSC) adopted Part 11 of the Title 24 Building Energy Efficiency Standards, referred to as the California Green Building Standards (CALGreen) Code. CALGreen took effect on January 1, 2011. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. The 2019 update became effective on January 1, 2020. The CALGreen established mandatory measures for residential and non-residential building construction and encourages sustainable construction practices in the following five categories: (1) planning and design, (2) energy efficiency, (3) water efficiency and conservation, (4) material conservation and resource efficiency, and (5) indoor environmental quality. Although the CALGreen Code was adopted as part of the State's efforts to reduce GHG emissions, the standards have co-benefits of reducing energy consumption from residential and nonresidential buildings subject to the standard.

[22] California Public Utilities Commission (CPUC). 2019. California Renewables Portfolio Standards (RPS). https://www.cpuc.ca.gov/rps/; accessed June 29, 2019.

California Energy Efficiency Strategic Plan. On September 18, 2008, the California Public Utilities Commission (CPUC) adopted California's first Long-Term Energy Efficiency Strategic Plan, presenting a roadmap for energy efficiency in California.[23] The plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term, and long-term strategies to assist in achieving those goals. The Plan also reiterates the following four specific programmatic goals known as the "Big Bold Energy Efficiency Strategies," established by the CPUC in Decisions D.07-10-032 and D.07-12-051:

- All new residential construction will be zero net energy (ZNE) by 2020.
- All new commercial construction will be ZNE by 2030.
- 50 percent of commercial buildings will be retrofit to ZNE by 2030.
- 50 percent of new major renovations of State buildings will be ZNE by 2025.

Assembly Bill 1493, Pavley, Vehicular Emissions: Greenhouse Gases. In response to the transportation sector accounting for more than half of California's carbon dioxide emissions, AB 1493 was enacted on July 22, 2002, requiring CARB to develop and adopt regulations that sets fuel economy and greenhouse gas emission standards for passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

Assembly Bill 1007, State Alternative Fuels Plan. Approved by Governor Arnold Schwarzenegger on September 29, 2005, AB 1007 required the CEC to prepare a plan to increase the use of alternative fuels in California. The State Alternative Fuels Plan was prepared by the CEC with CARB and in consultation with other federal, State, and local agencies to reduce petroleum consumption; increase use of alternative fuels (e.g., ethanol, natural gas, liquefied petroleum gas, electricity, and hydrogen); reduce greenhouse gas emissions; and increase in-state production of biofuels. The State Alternative Fuels Plan recommends a strategy that combines private capital investment, financial incentives, and advanced technology that would increase the use of alternative fuels; result in significant improvements in the energy efficiency of vehicles; and reduce trips and VMT through changes in travel habits and land management policies. The Alternative Fuels and Vehicle Technologies Funding Program legislation (AB 118, Statutes of 2007) proactively implements this plan.[24]

Executive Order S-01-07, Low Carbon Fuel Standard. Governor Arnold Schwarzenegger signed Executive Order S-01-07 on January 18, 2007. The order mandated that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the Executive Order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the SIP for alternative fuels (State Alternative Fuels Plan adopted by the CEC on December

[23] California Public Utilities Commission (CPUC). 2008. California Long Term Energy Efficiency Strategic Plan. September.
[24] California Energy Commission (CEC) and California Air Resources Board. 2007. State Alternatives Fuel Plan- Commission Report. CEC-600-2007-011-CMF. December.

24, 2007) and was submitted to the CARB for consideration as an "early action" item under AB 32. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009. After revisions in response to litigation, the Final Rulemaking Package adopting the regulation was filed with Office of Administrative Law (OAL) on October 2, 2015.

Title 20 Appliance Efficiency Standards. The 2006 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608) were adopted by the CEC on October 11, 2006, and approved by the OAL on December 14, 2006. The Appliance Efficiency Regulations regulates the sale of appliances in California and include energy performance, energy design, water performance, and water design standards for both federally regulated appliances and non-federally regulated appliances. Twenty-three categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

Title 13 California Code of Regulations. CCR Title 13, Article 4.8, Chapter 9, Section 2449 (General Requirements for In-Use Off-Road Diesel-Fueled Fleets) limits idling of off-road diesel-fueled vehicles (including construction vehicles) to less than 5 consecutive minutes. CCR Title 13, Article 1, Chapter 10, Section 2480 (Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools) regulates school bus idling at schools. A school bus must be turned off upon stopping at a school or within 100 feet of a school, and must not be turned on more than 30 seconds before beginning to depart from a school or from within 100 feet of a school. In addition, a school bus within 100 feet of a school must not idle for more than five consecutive minutes and must not idle for more than a cumulative five minutes in any one hour. Although these regulations are specifically for reduction of air pollutant emissions, they also reduce fuel consumption.

4.4.2.3 Regional Regulations

There are no regional regulations related to energy that are applicable to the proposed Project.

4.4.2.4 Local Regulations

City of Claremont General Plan. The Claremont General Plan identifies several goals and policies related to energy use within the City. Some of these goals and policies are designed for implementation citywide, while others are designed to be implemented at site-specific locations depending on the type of development proposed. Accordingly, Table 4.4.A in Section 4.4.5, below, summarizes the Project's consistency with applicable goals and policies of the Claremont General Plan.

4.4.3 Thresholds of Significance

For the purpose of this analysis, Appendix G of the *CEQA Guidelines* has been used as the significance threshold for energy. A project would normally have a significant effect on the environment if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; and/or
- Conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

None of the thresholds for energy were scoped out in the NOP or the Initial Study. As such, both of the thresholds listed above are addressed in the following analysis.

4.4.4 Methodology Used for the Impact Analysis

Annual natural gas and electricity usage for operation of the proposed Project were obtained from the CalEEMod model in the *Air Quality and Greenhouse Gas Analysis* (Appendix B).

Estimates of fuel consumption (diesel fuel and gasoline) from construction trucks and construction worker vehicles was based on trip estimates from the CalEEMod in *Air Quality and Greenhouse Gas Analysis* and fuel efficiencies from the CARB EMFA2017 model. Fuel consumption (diesel fuel and gasoline) from vehicle trips during operation was estimated for the opening year (2021) of the proposed Project based on trip estimates from the CalEEMod in the *Air Quality and Greenhouse Gas Analysis* and fuel efficiencies from the CARB EMFAC2017 model.

4.4.5 Impact Analysis

Table 4.4.A evaluates the Project's consistency with applicable Claremont General Plan goals and policies related to energy. As detailed in Table 4.4.A, the Project is consistent with applicable General Plan policies related to energy.

Table 4.4.A: General Plan Consistency Analysis, Energy

General Plan Goals and Policies	General Plan Consistency Analysis
City of Claremont General Plan – Open Space, Parkland, Conservation and Air Quality Element	
Goal 5-12: Conserve and properly manage natural resources for future generations	
Policy 5-12.1: Educate the public on the need for resource conservation and on ways to minimize the use and consumption of limited natural resources to assure that future generations share in the environmental wealth of the Claremont Area.	**Consistent:** People would reside upon the Project site once construction is completed. These residents would have the opportunity to educate themselves on resource conservation through programs and events that are offered by the City. Implementation of the proposed Project would not preclude residents on the site of continued education of resource conservation.
Goal 5-13: Maximize energy conservation throughout all segments of the community to reduce air pollutant emissions, and to reduce consumption of natural resources and fossil fuels. **Goal 5-14: Incorporate green building and other sustainable building practices into development projects.**	
Policy 5-13.1: Promote the use of energy-savings designs and devices in all new construction and reconstruction.	**Consistent:** The Project would include "Green" building practices that meet the California Building Energy Standards and CALGreen Building Standards. Each new building would be inspected for compliance and would include an operation manual to help end-users maintain and effectively use the sustainable building features provided. The Project would be developed to meet compliance of CALGreen Building Standards and Sustainability Guidelines. Where feasible and appropriate, the following strategies will be implemented: • Provide physical linkages throughout the project that promote walking and connection to the abutting bicycle network. • Consider the use of previous materials for walkways, trails, driveways, and parking lots. • Minimize the amount of paved area for roads, parking, and patios where feasible.
Policy 5-13.3: Promote energy-efficient design features, including appropriate site orientation, use of light color roofing and building materials, and use of evergreen trees and wind-break trees to reduce fuel consumption for heating and cooling.	
Policy 5-13.5: Continue to promote the use of solar and other energy conservation measures.	
Policy 5-13.6: Encourage residents to consider the cost/benefits of alternatives fuels.	

Table 4.4.A: General Plan Consistency Analysis, Energy

General Plan Goals and Policies	General Plan Consistency Analysis
Policy 5-13.7: Promote the use of different technologies that reduce uses of non-renewable energy resources. **Policy 5-14.1:** Facilitate the use of green building standards and Leadership in Energy and Environmental Design (LEED) in both private and public projects. **Policy 5-14.2:** Promote sustainable building practices that go beyond the requirements of Title 24 of the California Administrative Code, and encourage energy-efficient design elements as appropriate. **Policy 5-14.3:** Support sustainable building practices that integrate building materials and methods that promote environmental quality, economic vitality, and social benefit through the design, construction, and operation of the built environment.	• Since the design includes a mix of residential and non-residential uses, there are some efficiencies with overlapping parking demand. Hence, the parking requirements within the Specific Plan are less than those standards found within the City's code. • Non-residential parking for uses within the Mixed-Use Zone (PA3) shall reserve a minimum of 10 percent of parking spaces for EV vehicles (6 spaces as shown on the most current site plan) with installed and operating EV charging facilities. The percent of overall non-residential parking spaces dedicated to EV charging facilities may be reduced to 5 percent, if all charging facilities provided are EV Fast Charging installations. • All residential garages shall be pre-plumbed (or prewired) to accommodate electric vehicle charging. Future homeowners would need to install only the appropriate charging device that fits their electric vehicle. • Solar photovoltaic systems shall be included into the design of all residential buildings. The amount of solar panels shall be determined during the Building Permit process and will be dependent on the location of required roof-mounted mechanical and ventilation equipment. The roofs of the residential buildings shall include flat or low-sloping roofs to allow for the greatest solar orientation possible. The minimum amount of energy produced by said solar panels shall meet all applicable requirements. • Solar canopies for parking areas shall be subject to a Special Use & Development Permit by the Community Development Director. Solar canopies shall be prohibited within PA4. The Community Development Director may elect to forward the Special Use and Development Permit to the Architectural Commission. • Passive design strategies can dramatically affect building energy performance. These measures may include flat or low-pitched roofs to optimize solar exposure, solar orientation, passive solar design, and the use of natural lighting. • Incorporate the use of Low-E windows or use Energy Star windows. • Use a properly sized and energy-efficient heating/cooling system in conjunction with a thermally efficient building shell. • Utilize light colors for wall finish materials. • Install high R-value wall and ceiling insulation. • Install high-efficiency lighting (LED, fluorescent lighting, etc.) • Use dimensional planning and other material efficiency strategies. These strategies reduce the amount of building materials needed and lower construction costs. • Incorporate recycled materials, rapidly renewable materials and durable materials into building, landscape and/or infrastructure design. • Incorporate regional or locally extracted of manufactured materials. • Design adequate space to facilitate recycling collection and to incorporate a solid waste management program that reduces waste generation.

Table 4.4.A: General Plan Consistency Analysis, Energy

General Plan Goals and Policies	General Plan Consistency Analysis
	• Establish a construction waste recycling program with a local waste management company, with recycling no less than 60 percent of the construction waste generated by construction of the project. Excavated soil and land-clearing debris do not contribute to this requirement. • The waste disposal company shall be responsible for providing recycle bin(s) to facilitate recycling. • Use ultra low-flush toilets, low-flow shower heads and other water conserving fixtures and appliances. • Use state-of-the-art irrigation controllers and self-closing nozzles on hoses. • Minimize turf areas within the community. • Use drought-tolerant plants that require minimal or no irrigation. • Use reclaimed water for irrigation of common areas, wherever available. • All new parking lot and other security lighting shall be directed away from surrounding land uses and towards the specific location intended for illumination. State of the art fixtures shall be used, and all lighting shall be designed to minimize the production of glare and light spill onto surrounding uses. If light shields are necessary, they shall be painted to match the surface to which they are attached. • Up-lighted and back-lighted canopies or awnings, searchlights, flashing lights (except as used in conjunction with a security alarm system), roof-mounted lights, and any light that imitates or causes visual interference with a traffic signal or other necessary safety or emergency light are prohibited. It should be noted that the proposed Project, since it would be developed after January 1, 2020, would be subject to the California Solar Mandate, requiring residential uses to include solar power for electrical consumption; as such, the Project would include solar panels on all buildings.

Source: City of Claremont General Plan – Open Space, Parkland, Conservation and Air Quality Element (2009).

4.4.5.1 Energy Consumption

Threshold	Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Construction. Construction of the proposed Project would require energy for activities such as the manufacture and transportation of building materials, grading activities, and building construction. Construction of the proposed Project would require electricity use to power the construction-related equipment. The electricity use during construction would vary during different phases of construction, where the majority of construction equipment during grading would be gas-powered or diesel-powered, and the later construction phases would require electricity-powered, such as interior construction and architectural coatings.

Construction of the Project would not involve the consumption of natural gas. The construction-related equipment would not be powered by natural gas and no natural gas demand is anticipated during construction.

Transportation energy represents the largest energy use during construction and would occur from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Therefore, the analysis of energy use during construction focuses on fuel consumption. The use of energy resources would fluctuate according to the phase of construction. The majority of construction equipment during grading would be gasoline-powered or diesel-powered, and the later construction phases would be electricity-powered. Construction trucks and vendor trucks hauling materials to and from the Project site would be anticipated to use diesel fuel, whereas construction workers traveling to and from the Project site would be anticipated to use gasoline-powered vehicles. Fuel consumption from transportation uses depends on the type and number of trips, vehicles miles traveled, fuel efficiency of vehicles, and travel modes.

Diesel fuel usage from construction off-road equipment was calculated using the CalEEMod assumptions used in the *Air Quality and Greenhouse Gas Analysis*. The CalEEMod utilized the construction equipment shown in Table 4.4.B. Average brake-specific fuel consumption and diesel fuel properties (heating value and density) from the EPA AP-42 were used to obtain a fuel per horsepower-hour factor (EPA 1995). These factors and other calculations are shown in Table 4.4.C, which shows total fuel usage from construction off-road equipment is estimated to be 98,371 gallons, the consumption of which would occur over the 14 months of construction. As also shown in Table 4.4.C, the greatest amount of fuel (80,430 gallons) would be consumed by off-road equipment during the building construction.

Table 4.4.B: Construction Off-Road Equipment

Phase	Off-road Equipment Type	Amount	Usage Hour/ Day	Total Usage Days	Total Usage Hours/ Equipment
Site Preparation	Rubber-Tired Dozers	3	8	10	240
	Tractors/Loaders/ Backhoes	4	8	10	320
Grading	Excavators	1	8	20	160
	Graders	1	8	20	160
	Rubber-Tired Dozers	1	8	20	160
	Tractors/Loaders/ Backhoes	3	8	20	480
Building Construction	Cranes	1	7	230	1,610
	Forklifts	3	8	230	5,520
	Generator Sets	1	8	230	1,840
	Tractors/Loaders/ Backhoes	3	7	230	4,830
	Welders	1	8	230	1,840
Paving	Pavers	2	8	20	320
	Paving Equipment	2	8	20	320
	Rollers	2	8	20	320

Table 4.4.B: Construction Off-Road Equipment

Phase	Off-road Equipment Type	Amount	Usage Hour/ Day	Total Usage Days	Total Usage Hours/ Equipment
Architectural Coating	Air Compressors	1	6	20	120

Source: *Air Quality and GHG Analysis* (The Commons, January 2020)

Table 4.4.C: Off-Road Construction Equipment Diesel Fuel Usage

Phase	Off-road Equipment Type	Horsepower[1]	Load Factor[1]	Total Usage Hours/ Equipment	Horsepower-Hour[2]	Fuel Usage (gallons)[3]
Site Prep	Rubber-Tired Dozers	247	0.4	98.8	59,280	3,035
	Tractors/ Loaders/ Backhoes	97	0.37	35.89	31,040	1,589
Total Fuel Use: Infrastructure (gallons)						**4,624**
Grading	Excavators	158	0.38	60.04	25,280	1,294
	Graders	187	0.41	76.67	29,920	1,532
	Rubber-Tired Dozers	247	0.4	98.8	39,520	2,023
	Tractors/ Loaders/ Backhoes	97	0.37	35.89	46,560	2,384
Total Fuel Use: Grading (gallons)						**7,234**
Building Construction	Cranes	231	0.29	0.29	66.99	19,042
	Forklifts	89	0.2	0.2	17.8	25,154
	Generator Sets	84	0.74	0.74	62.16	7,913
	Tractors/ Loaders/ Backhoes	97	0.37	0.37	35.89	23,988
	Welders	46	0.45	0.45	20.7	4,334
Total Fuel Use: Building Construction (gallons)						**80,430**
Paving	Pavers	130	0.42	54.6	41,600	2,130
	Paving Equipment	132	0.36	47.52	42,240	2,163
	Rollers	80	0.38	30.4	25,600	1,311
Total Fuel Use: Paving (gallons)						**5,603**
Architectural Coating	Air Compressors	78	0.48	37.44	9,360	479
Total Fuel Use: Building Construction and Architectural Coating (gallons)						**479**
Total Fuel Usage (gallons)						**98,371**

Source: *Air Quality and GHG Impact Analysis* (The Commons, January 2020)

[1] Load factor and horsepower are CalEEMod defaults for the equipment type and were obtained from the *Air Quality Impact Analysis.*

[2] HP-Hour is the basis for the fuel calculation. HP-Hour is calculated using the following formula: HP-Hour = Total Hours × LF × HP.

[3] Off-road mobile source fuel usage is calculated using a fuel usage rate of 0.0512 gallons of diesel per horsepower (HP)-hour. This is calculated based on diesel fuel use.

Total fuel consumption in Los Angeles County totaled 4,818 billion gallons in 2018. Vehicle consumption accounts for the majority of the total fuel consumption in California. In 2018, 4,197.5 billion gallons of gasoline were consumed from vehicle trips in Los Angeles County based on EMFAC2017. Compared to the annual fuel consumption from vehicle trips in Los Angeles County, the peak annual fuel consumption of 98,371 gallons from off-road construction equipment during grading would be a small fraction of the annual fuel consumption in Los Angeles County.

Fuel use from construction trucks and construction worker vehicles traveling to the Project site was based on the estimated number of trips that Project construction would generate and the average trip distance using the CalEEMod assumptions *Air Quality and GHG Analysis*. Fuel efficiencies were estimated for the first full year of construction (2020) using the CARB EMFAC2017 model as shown in Table 4.4.D. It should be noted that calculating the fuel efficiency of vehicles for the year 2020 is a conservative approach because fuel efficiency is expected to continue to increase and improve during construction as new fuel economy standards are established.

Table 4.4.D: Construction Truck and Construction Worker Vehicle Fuel Efficiency

Vehicle Type	Vehicle Class	EMFAC2017 Outputs[2]		Diesel Fuel Efficiency[3] (miles/gallon)
		Diesel Fuel Consumption (1,000 gallons/day)	VMT (miles/day)	
Construction Truck	MHDT	727.46	7,535,147.50	10.36
	HHDT	1,774.20	11,545,819.98	6.51
Construction Worker Vehicle	LDA	46.12	2,185,238.84	47.38
	LDT1	0.43	9,520.38	22.14
	LDT2	15.84	548,393.87	34.62

Source: EMFAC2017 (CARB 2019) and *Air Quality and GHG Impact Analysis* (The Commons, January 2020)

[1] For construction trucks assumes 50 percent HHDT and 50 percent MHDT vehicles, consistent with assumptions in CalEEMod for hauling trucks. For construction worker vehicles assumes 50 percent LDA, 25 percent LDT1, and 25 percent LDT2 vehicles, consistent with assumptions in CalEEMod for worker vehicles.

[2] EMFAC2017 was run for South Coast Air Basin for the construction year 2021. Data was aggregated over all vehicle model years and speed bins.

[3] The fuel efficiency was calculated by dividing the VMT (miles/day) by the fuel consumption (gallons/day).

HHDT = Heavy Heavy Duty Trucks MHDT = Medium Heavy Duty Trucks VMT = vehicle miles traveled

Construction on-road vehicle fuel consumption calculations are shown in Table 4.4.E and Table 4.4.F for construction trucks and construction worker vehicles, respectively.

As shown in Table 4.4.E, total diesel fuel consumption would be 90.90 gallons from construction truck trips. As shown in Table 4.4.F, total gasoline consumption would be 14,550 gallons from construction worker vehicle trips. The peak annual fuel consumption from on-road vehicles would occur during the building construction phase, which would occur for 230 working days. During the building construction phase, an estimated 13,830 gallons annually of fuel would be consumed. In 2018, 620.5 million gallons of diesel fuel and 4,197.5 billion gallons of gasoline were consumed from vehicle trips in Los Angeles County based on EMFAC2017. Therefore, peak annual gasoline demand generated by on-road trips during construction would be approximately 0.000287 percent of the total annual gasoline and diesel fuel consumption in Los Angeles County.

Table 4.4.E: Construction Vehicle Fuel Use (Gasoline Vehicles)

Phase	Trip Type	Total One-Way Trips	Trip Length (miles)	Total Vehicle Miles Traveled (VMT)	Gasoline Fuel Efficiency (miles/gallon)	Fuel Usage (gallons/ year)
Site Prep	Work	18	14.70	265	25.25	10.50
Grading	Work	15	14.70	221	25.25	8.75
Building Construction	Work	90	14.70	1,323	25.25	52.40
Paving	Work	15	14.70	221	25.25	8.75
Architectural Coating	Work	18	14.70	265	25.25	10.50
					Total Gasoline Fuel Usage	90.90

Source: EMFAC2017 (CARB 2019) and *Air Quality and GHG Impact Analysis* (January 2020)

[1] Assumes 50 percent HHDT and 50 percent MHDT vehicles, consistent with assumptions in CalEEMod for hauling trucks.

[2] EMFAC2017 was run for South Coast Air Basin for the construction years 2020–2021. Data were aggregated over all vehicle model years and speed bins.

[3] The fuel efficiency was calculated by dividing the VMT (miles/day) by the fuel consumption (gallons/day).

HHDT = Heavy Heavy Duty Trucks MHDT = Medium Heavy Duty Trucks VMT = vehicle miles traveled

Table 4.4.F: Construction Worker Vehicle Gasoline Fuel Use

Phase	Total One-Way Trips/ Day	Total Days	Trip Length (miles)	Total Vehicle Miles Traveled (VMT)	Gasoline Fuel Efficiency (miles/gallon)	Fuel Usage (gallons/year)
Site Prep	18	10	14.70	2,646	22.0	120
Grading	15	20	14.70	4,410	22.0	200
Building Construction	90	230	14.70	304,290	22.0	13,830
Paving	15	20	14.70	4,410	22.0	200
Architectural Coating	15	20	14.70	4,410	22.0	200
					Total Gasoline Fuel Usage	14,550

Sources: EMFAC2017 (CARB 2019) and *Air Quality and GHG Impact Analysis* (The Commons, January 2020)

Impacts related to energy use during construction would be temporary and would be relatively small in comparison to Los Angeles County's overall usage of the State's available energy sources. Additionally, implementation of Regulatory Compliance Measure[25] EN-1 (RCM-EN-1) would require the construction contractor to ensure that all non-essential idling of construction equipment is restricted to five minutes or less in compliance with CARB Rule 2449, thus reducing transportation energy consumption. For these reasons, Project construction would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be **less than significant** and no mitigation is required.

Operation. Energy consumed by the proposed Project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the Project.

Energy and natural gas consumption was estimated for the Project using the CalEEMod results in the *Air Quality and Greenhouse Gas Analysis* prepared for the proposed Project. The proposed buildings would be constructed to CALGreen standards, which were included in CalEEMod inputs. Electricity,

[25] In this case, Regulatory Compliance Measures are SCAQMD Rules that are applicable to the proposed Project and are considered in the analysis of potential impacts related to air quality.

natural gas, and gasoline usage estimates associated with the operation of the proposed Project are shown in Table 4.4.G.

Table 4.4.G: Electricity and Natural Gas Demand from Proposed Project

Land Use Type	Electricity kWh/year/land use type	Natural Gas kBTU/yr/land use type (therms/yr)
Single-Family Housing	215,278	400,008
Multi-Family Residential	171,875	400,978
Retail Commercial	56,874	5,153
Total	**444,027**	**846,139**

Source: *Air Quality and GHG Impact Analysis* (The Commons, January 2020)
kWh = kilowatt-hour

As shown in Table 4.4.G, the estimated potential increased electricity demand associated with operation of the proposed Project is 444,027 kilowatt-hours (kWh) per year (0.44 gigawatt-hours [GWh] per year) more than what is occurring on the site based on the existing vacant land (without the Armstrong Nursery (existing baseline)). Total electricity consumption in Los Angeles County in 2018 was 67,856.3 GWh. Therefore, the increased electricity demand associated with the proposed Project would be 0.0006 percent of Los Angeles County.

As shown in Table 4.4.G, the estimated potential increased natural gas demand associated with the proposed Project is 846,139 therms per year compared to the existing vacant land of the Project site. Total natural gas consumption in Los Angeles County in 2018 was 2,921.4 million therms. Therefore, natural gas demand associated with the proposed Project would be 0.023 percent of Los Angeles County.

The proposed Project would also result in energy usage associated with gasoline fuel consumed by Project-related vehicle trips. Fuel use associated with vehicle trips generated by the proposed Project was calculated based on the Project's trip generation estimates from the CalEEMod in the *Air Quality and Greenhouse Gas Analysis* prepared for the proposed Project. The proposed Project is estimated to generate approximately 3,184,917 VMT annually. Fuel use associated with the vehicle trips generated by the proposed Project was calculated for the 2021 operational year based on vehicle fuel consumption for Los Angeles provided in EMFAC2017. The vehicle fuel consumption calculations for the proposed Project for the 2021 opening year are shown in Tables 4.4.H and 4.4.I and demonstrate the estimated annual fuel consumption for the proposed Project would be 74,892 gallons of gasoline and 8,221 gallons of diesel. It should be noted that the estimated operational fuel from vehicle trips associated with the proposed Project is conservative based on the year 2021. The fuel efficiency of vehicles is expected to continue to increase and improve throughout the life of the Project as new fuel economy standards are established. Therefore, the actual annual fuel consumption during operation of the proposed Project would be anticipated to decrease each year.

Table 4.4.H: Year 2021 Proposed Project Operational Trips – Fuel Efficiency

Fuel	Vehicle Class	EMFAC2017 Outputs[1]			
		Fleet Mix (%)[2]	Fuel Consumption (1,000 gallons/day)	VMT (miles/day)	Fuel Efficiency[3] (miles/gallon)
Gas	LDA	56.11%	8,195.76	246,181,276.15	30.04
	LDT1	6.21%	1,009.57	26,066,042.38	25.82
	LDT2	19.17%	3,441.72	81,991,235.59	23.82
	LHDT1	1.54%	598.07	6,230,805.22	10.42
	LHDT2	0.26%	111.80	1,014,315.33	9.07
	MCY	2.50%	53.90	1,958,676.92	36.34
	MDV	13.60%	2,808.58	54,421,172.70	19.38
	MH	0.31%	64.52	327,720.80	5.08
	MHDT	0.22%	264.51	1,325,210.14	5.01
	HHDT	0.00%	1.89	7,629.44	4.04
	OBUS	0.05%	49.58	246,477.18	4.97
	SBUS	0.02%	10.85	98,099.39	9.04
	Fleet Mix	**100%**	**16,629.19**	**419,957,390.60**	**25.25**
Diesel	LDA	11.03%	46.12	2,185,238.84	47.38
	LDT1	0.08%	0.43	9,520.38	22.14
	LDT2	2.56%	15.84	548,393.57	34.62
	LHDT1	22.50%	211.28	4,489,669.81	21.25
	LHDT2	8.88%	90.14	1,730,628.83	19.20
	MDV	6.08%	46.02	1,222,112.30	26.56
	MH	2.43%	11.04	115,365.73	10.45
	MHDT	24.44%	727.46	7,535,147.50	10.36
	HHDT	19.86%	1,774.20	11,545,819.98	6.51
	OBUS	0.85%	37.68	308,887.19	8.20
	SBUS	1.30%	26.53	199,477.21	7.52
	UBUS	0.00%	0.25	1,478.09	5.91
	Fleet Mix	**100%**	**2,986.99**	**29,891,739.43**	**10.01**
Electric	LDA	79.19%	0	4,192,834.84	0
	LDT1	2.78%	0	147,589.54	0
	LDT2	12.56%	0	552,985.87	0
	MDV	5.47%	0	249,429.99	0
	Fleet Mix	**100%**	**0**	**5,142,840.24**	**0**
Natural Gas	HHDT	47.09%	86.80	190,561.70	2.20
	UBUS	52.91%	145.44	575,030.88	3.95
	Fleet Mix	**100%**	**232.25**	**765,592.58**	**3.30**

Sources: EMFAC2017 (CARB 2019) and *Air Quality and GHG Impact Analysis* (January 2020)

Notes: For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

[1] EMFAC2017 was run for South Coast Air Basin for the operational year 2021. Data was aggregated over all vehicle model years and speed bins.

[2] Fleet mix is based on assumptions made in CalEEMod for the proposed project.

[3] The fuel efficiency was calculated by dividing the VMT (miles/day) by the fuel consumption (gallons/day).

HHDT = heavy heavy duty truck
LDA = light-duty automobile
LDT1 = light-duty truck 1
LDT2 = light-duty truck 2LHD1 = light heavy duty truck 1
LHD1 = light heavy duty truck 1
LHD2 = light heavy duty truck 2MCY = motorcycle
MDV = medium duty truck
MH = motor home
MHDT = medium heavy duty truck
OBUS = other bus
SBUS = school bus
UBUS = urban bus

Table 4.4.I: Year 2021 Proposed Project Operational Trips – Fuel Usage

Land Use	Total Annual VMT[2] (miles/year)	Fuel Type	Portion of Fleet[3] (%)	VMT by Fuel Type (miles/year)	Fleet Mix Efficiency[4] (miles/gallon)	Fuel Usage (gallons/year)
Single-Family Housing	734,546	Gas	94.67%	699,263	25.25	27,540
		Diesel	4.12%	30,432	10.01	3,023
		Electric	1.12%	8,273	0.00	0.00
		Natural Gas	0.08%	591	3.30	178
Condo/Townhouse	672,495	Gas	94.67%	1,607,587	25.25	25,214
		Diesel	4.12%	69,962	10.01	2,768
		Electric	1.12%	19,019	0.00	0.00
		Natural Gas	0.08%	1,358	3.30	163
Retail Commercial	590,443	Gas	94.67%	708,311	25.25	22,138
		Diesel	4.12%	30,825	10.01	2,430
		Electric	1.12%	8,380	0.00	0.00
		Natural Gas	0.08%	599	3.30	143
Total Diesel Consumption per Year- Proposed Project						8,221
Total Gasoline Consumption per Year-Proposed Project						74,892
Total Diesel Consumption per Year- Existing Nursery						0
Total Gasoline Consumption per Year-Existing Nursery						0
Diesel Consumption- Change from Existing						8,221
Gasoline Consumption- Change from Existing						74,892

Sources: EMFAC2017 (CARB 2019) and *Air Quality and GHG Impact Analysis (*January 2020).

Notes: Notes: For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

1 Calculated for operational year 2021 only. Future years would likely use less fuel due to more efficient cars.

2 Total VMT is based on project's trip generation and trip lengths.

3 Fleet distribution is based on EMFAC2017 output and CalEEMod assumptions.

4 Fuel efficiency is based on fuel consumption and VMT data from EMFAC2017 for South Coast Air Basin and total VMT.

As shown in Table 4.4.I, vehicle trips associated with the operation of the proposed Project would consume approximately 74,892 gallons of gasoline and 8,221 gallons of diesel fuel per year compared to the existing vacant land on the Project site. Based on fuel consumption obtained from CARB's EMFAC2017, 620.5 million gallons of diesel and 4,197.5 billion gallons of gasoline were consumed from vehicle trips in Los Angeles County in 2018. Therefore, fuel demand generated by vehicle trips associated with the proposed Project would represent 0.0000019 percent of that demanded in Los Angeles County.

As specified in Regulatory Compliance Measures RCM-EN-2 and RCM-EN-3, the proposed Project would be constructed to CALGreen standards and appliances would be energy efficient, which would help to reduce energy and natural gas consumption. Vehicles would continue to become more efficient each year in compliance with federal and State regulations, which would reduce fuel

consumption. The proposed Project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Impacts related to consumption of energy resources during operation would be **less than significant** and no mitigation is required.

Regulatory Compliance Measures. The following Regulatory Compliance Measures are SCAQMD Rules that are applicable to the proposed Project and are considered in the analysis of potential impacts related to air quality. The City of Claremont considers these requirements to be mandatory; therefore, they are not mitigation measures.

RCM-EN-1: Title 13 of the California Code of Regulations: General Requirements for In-Use Off-Road Diesel-Fueled Fleets. The construction contractor shall ensure that all non-essential idling of construction equipment is restricted to five minutes or less in compliance with California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449. Prior to issuance of any grading or building permits, the City of Claremont Director of Community Development, or designee, shall confirm that plans include notes with this requirement.

RCM-EN-2: Title 24 of the California Code of Regulations (CCR). Prior to issuance of building permits, the City of Claremont Director of Community Development, or designee, shall ensure that the project design complies with the 2019 Building Energy Efficiency Standards (Title 24 of the CCR) energy conservation and green building standards.

RCM-EN-3: Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Appliances installed in the project buildings shall comply with the energy efficiency requirements in Title 20 of the CCR, Appliance Energy Efficiency Standards. All appliances shall be Energy Star appliances.

Mitigation Measures. Mitigation measures are not warranted.

Impact Conclusion. Energy impacts during Project construction and operation would be **less than significant**.

4.4.5.2 Project Consistency with Energy Policies/Standards

Threshold	Would the proposed Project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

As indicated above, energy usage on the Project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in Los Angeles County. In addition, energy usage associated with operation of the proposed Project would be relatively small in comparison to the overall use in Los Angeles County and the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the Project's total impact on regional energy supplies would be minor, the proposed Project would not conflict with or obstruct California's energy conservation plans as described in the CEC's Integrated Energy Policy Report. Additionally, as demonstrated above, the proposed Project would not result the inefficient, wasteful, and unnecessary consumption of energy. Potential impacts related to conflict with or obstruct a State or

local plan for renewable energy or energy efficiency would be **less than significant** and no mitigation is required.

Mitigation Measures. Mitigation measures are not warranted.

Impact Conclusion. Energy impacts during Project construction and operation would be **less than significant**.

4.4.6 Cumulative Impacts

The geographic area for electricity service is the SCE boundaries and for natural gas service is the SoCalGas boundaries. The proposed Project would result in an increased services demand in electricity and natural gas. Although the proposed Project would result in a net increase in electricity usage, this increase would not require SCE to expand or construct infrastructure that could cause substantial environmental impacts. As discussed previously, the total annual electricity consumption in the SCE service area in 2018 was 285,488 GWh. By 2030, consumption is anticipated to increase by approximately 12,000 GWh for the low-demand scenario to 22,000 GWh for the high-demand scenario.[26] While this forecast represents a large increase in electricity consumption, the Project's percentage of cumulative consumption would be less than 0.0000946 percent. The Project, in combination with cumulative development (which includes development of 48 townhomes on the adjacent 3 acres in Upland), is well within SCE's system-wide net increase in electricity supplies annually over the 2018 to 2030 period, and there are sufficient planned electricity supplies in the region for estimated net increases in energy demands.

Similarly, additional natural gas infrastructure is not anticipated due to cumulative development. Total natural gas consumption in the SoCalGas service area in 2018 was 5,156.1 million therms. Total natural gas consumption in SoCalGas's service area is forecast to remain steady between 2018 and 2035 for the low- and mid-demand scenarios and to increase by approximately 650 million therms in the high-demand scenario due to intense energy efficiency efforts.[27] The Project's percentage of cumulative consumption of natural gas in the SoCalGas service area would be less than 0.027 percent. It is anticipated that SoCalGas would be able to meet the natural gas demand of the related projects (which includes development of 48 townhomes on the adjacent 3 acres in Upland) without additional facilities. In addition, both SCE and SoCalGas's demand forecasts include the growth contemplated by the Project and the related projects. SCE and SoCalGas plan to continue to provide reliable service to their customers and upgrade their distribution systems as necessary to meet future demand.

Transportation energy use would also increase; however, this transportation energy use would not represent a major amount of energy use when compared to the amount of existing development and to total number of vehicle trips and vehicle miles traveled throughout the Los Angeles County and the region. The proposed Project and related projects are required to comply with various federal and State government legislation to improve energy efficiency in buildings, equipment, and appliances and reduce vehicle miles traveled. Increased energy efficiency to comply with building energy efficiency standards would reduce energy consumption on a per square foot basis. In addition, utility

[26] California Energy Commission (CEC). 2018. California Energy Demand 2018–2030 Revised Forecast-Commission Final Report. February.

[27] Ibid.

companies are required to increase their renewable energy sources to meet the Renewable Portfolio Standards mandate of 60 percent renewable supplies by 2030. Further, compliance with the existing regulatory requirements and Project design features would ensure that proposed Project does not result in an inefficient, wasteful and unnecessary consumption of energy. Therefore, the proposed Project's contribution to impacts related to the inefficient, wasteful and unnecessary consumption of energy would **not be cumulatively considerable**, and no mitigation is required.

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4.5 GREENHOUSE GAS EMISSIONS AND GLOBAL CLIMATE CHANGE

This section analyzes the proposed Project's potential greenhouse gas (GHG) emissions and global climate change (GCC) impacts based on the following technical study provided as Appendix B to this EIR.

- *Air Quality and Greenhouse Gas Analysis, The Commons Project, City of Claremont, Los Angeles County, California,* LSA Associates, Inc., January 2020.

4.5.1 Background on Global Climate Change and Greenhouse Gas Emissions

4.5.1.1 Global Climate Change

Due to the cumulative nature of GCC, the assessment of Project-generated GHG emissions and the effects of GCC impacts can only be analyzed from a cumulative context. Climate change refers to any observed changes in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer) of time.[1] Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). Human activities, such as fossil fuel combustion and land use changes release carbon dioxide (CO_2) and other compounds, cumulatively termed greenhouse gases. GHGs are effective in trapping infrared radiation that otherwise would have escaped the atmosphere, thereby warming the atmosphere, the oceans, and earth's surface.

The primary observed effect of GCC has been a rise in the average global tropospheric[2] temperature of 0.36°F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling indicates that further warming may occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the state could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones.

According to the 2006 California Climate Action Team (CAT) Report,[3] based on trends established by the Intergovernmental Panel on Climate Change (IPCC), climate change effects, expected in the State over the course of the next century include:

- A diminishing Sierra snowpack declining by 70 percent to 90 percent, threatening the State's water supply.
- A rise in sea levels resulting in the displacement of coastal businesses and residences. During the past century, sea levels along California's coast have risen about seven inches. If emissions

[1] The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

[2] The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

[3] California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.

continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. (Note: This condition would not affect the Project area as it is a significant distance away from coastal areas.)

- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25 percent to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

Global surface temperatures have risen by 1.33°F ±0.32°F over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years. The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3–10.5°F by the end of the century. The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities."[4] Increased amounts of CO_2 and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.[5]

4.5.1.2 Greenhouse Gases

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. Natural sources of CO_2 include the respiration (breathing) of humans and animals and evaporation from the oceans. Together, these natural sources

4 Intergovernmental Panel on Climate Change (IPCC). 2013. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the IPCC. http://www.climatechange2013.org/.

2 The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the amount of heat that escapes, GHGs like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

release approximately 150 billion metric tons[6] of CO_2 each year, far outweighing the 7 billion metric tons of human-made emissions from fossil fuel burning, waste incineration, deforestation, and cement manufacture. Nevertheless, natural removal processes such as photosynthesis by land- and ocean-dwelling plant species cannot keep pace with this extra input of human-made CO_2, and consequently the gas is building up in the atmosphere.[7]

The gases that are widely viewed as the principal contributors to human-induced GHG are:[8]

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF_6).

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which some scientist believe can cause global warming. While GHGs produced by human activities include naturally occurring GHGs (e.g., CO_2, CH_4, and N_2O), some gases (e.g., HFCs, PFCs, and SF_6) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere as compared to these GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this EIR, the term "GHGs" refer collectively to the six gases identified above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of metric tons[9] of "CO_2 equivalents" (MT CO_2e). For example, N_2O is a 298 times more potent contributor to global warming than CO_2. Table 4.5.A identifies the GWP for each type of GHG in this EIR.

6 A tonne is a ton in the metric unit system, also called a metric ton, equal to 1,000 kilograms or about 2,204 pounds.
7 Enviropedia, http://www.enviropedia.org.uk/Global_Warming/Emissions.php.
8 The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this section.
9 A metric ton is equivalent to approximately 1.1 tons.

Table 4.5.A: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide (CO_2)	~100	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298

Source: *Table ES-1, GWP values from the IPCC Fourth 9 Assessment Report (AR4).*
Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017. Website: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017, (accessed July 2019).

The following discussion summarizes the characteristics of the six primary GHGs.

Carbon Dioxide. In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The concentration of CO_2 in the atmosphere has risen from about 280 ppm prior to the Industrial Revolution to more than 400 ppm currently.[10]The transportation sector remains the largest source of GHG emissions in 2015, representing 39 percent of the State's GHG emission inventory.[11] Emissions from on-road sources constitute over 92 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane. CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 include fires, geologic processes, and bacteria that produce CH_4 in a variety of settings (most notably, wetlands) (EPA 2010).[12] Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO_2, the major removal process of atmospheric CH_4—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

Nitrous Oxide. N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N_2O. The quantity of N_2O emitted varies according to the type of fuel, technology, and pollution control device used, as well as

[10] National Oceanic and Atmospheric Administration (NOAA). 2016. Climate Change: Atmospheric Carbon Dioxide. Website: https://www.climate.gov/news-features/understanding-climate/climate-change-atmospheric-carbon-dioxide, accessed July 2019.

[11] California Air Resources Board (ARB). 2019. California Greenhouse Gas Inventory – 2019 Edition. Website: https://ww2.arb.ca.gov/ghg-inventory-data, accessed October 2019.

[12] United States Environmental Protection Agency (EPA). 2010. Methane and Nitrous Oxide Emissions from Natural Sources. April. Website: http://scholars.unh.edu/cgi/viewcontent.cgi?article=1483&context=earthsci_facpub, accessed July 2019.

maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in the State.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride. HFCs are primarily used as substitutes for O_3-depleting substances regulated under the Montreal Protocol.[13] PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However, there are no known Project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

4.5.1.3 NOP/Scoping Comments

There were no comments received during the Public Scoping Meeting or the NOP public comment period regarding greenhouse gas emissions.

4.5.2 Existing Greenhouse Gas Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks[14] of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (Table 4.5.A), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

4.5.2.1 Global Emissions

Worldwide emissions of GHGs in 2017 totaled 25.6 billion MT CO_2e.[15] Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).

4.5.2.2 United States Emissions

In 2017, the United States emitted approximately 6.456 billion MT CO_2e, down from 7.4 billion MT CO_2e in 2007. United States emissions decreased by 0.5 percent from 2016 to 2017. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of multiple factors including a continued shift from coal to natural gas and increased use of renewables in the

13 The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O_3 depletion and which are also potent GHGs.

14 A sink refers to carbon sink, a naturally occurring process of stores of carbon accumulating over an indefinite period of time. The stores of carbon are locked into materials, free from atmospheric discharge. The most common sinks are organic material (i.e., trees, plants, soil) and bodies of water (i.e., oceans, lakes, streams, ice pack).

15 United Nations Framework Convention on Climate Change (UNFCCC). 2019. GHG data from UNFCCC. Website: https://unfccc.int/process-and-meetings/transparency-and-reporting/greenhouse-gas-data/ghg-data-unfccc/ghg-data-from-unfccc, accessed July 2019.

electric power sector, and milder weather that contributed to less overall electricity use. In 2017, the total United States GHG emissions were approximately 13 percent less than 2005 levels.[16]

4.5.2.3 State of California Emissions

According to CARB emission inventory estimates, the State emitted approximately 424 million metric tons (MMT) of CO_2e emissions in 2017. This is a decrease of 5 MMT CO_2e from 2016 and 7 MMT CO_2e below the 2020 target of 431 MMT CO_2e.[17]

The CARB estimates that transportation was the source of approximately 40 percent of the State's GHG emissions in 2017, followed by electricity generation (both in-state and out-of-state) at 15 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were residential and commercial activities at 9 percent, agriculture at 8 percent, high-GWP gases at 5 percent, and recycling and waste at 2 percent.[18]

4.5.3 Regulatory Framework

4.5.3.1 Federal Regulations

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the Environmental Protection Agency (EPA) has the authority to regulate CO_2 emissions under the Federal Clean Air Act (CAA).[19] While there currently are no adopted federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that they are required to implement a regulatory approach to GHG.

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six GHGs (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to GHG. This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles discussed below.

On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA implemented the first-ever national GHG emissions standards under the CAA, and NHTSA revised the Corporate Average Fuel Economy (CAFE) standards under the Energy

[16] United States Environmental Protection Agency (EPA). 2019. Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017. February. Website: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017, accessed July 2019.

[17] California Air Resources Board (CARB). 2019. California Greenhouse Gas Inventory – 2019 Edition. Website: https://ww2.arb.ca.gov/ghg-inventory-data, accessed October 2019.

[18] Ibid.

[19] *Massachusetts v EPA* (Supreme Court Case No. 05-1120).

Policy and Conservation Act. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon.

On August 24, 2018, the Environmental Protection Agency and NHTSA amended the existing CAFE standard with the new rule: The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule, which would freeze the tailpipe CO_2 emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. The SAFE Rule would retain the model year 2020 standards for both CAFE and SAFE programs through model year 2026.

4.5.3.2 State Regulations/Standards

California Climate Action Milestones. AB 1493 (2002) directed the CARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. The so-called "Pavley" regulations, or Clean Car regulations, were approved by the CARB in 2004. The CARB submitted a request to the EPA to implement the regulations in December 2005. After several years of requests to the federal government and accompanying litigation, this waiver request was granted on June 30, 2009. The CARB has since combined the control of smog-causing pollutants and GHG emissions to develop a single coordinated package of standards known as Low Emission Vehicles III. These regulations were expected to reduce GHG emissions from State-passenger vehicles by approximately 22 percent in 2012 and approximately 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs. AB 1493 also directed the State's Climate Action Registry to adopt protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

SB 812 added forest management practices to the State's Climate Action Registry members' reportable emissions actions. SB 812 also directed the Climate Action Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report, and certify CO stores and CO_2 emissions that resulted from the conservation and conservation-based management of forests in California.

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission (CPUC) to meet 20 percent of their retail sales with renewable power by 2017, was established by SB 1078 in 2002. The renewable portfolio standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by the CARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The renewable electricity standard is projected to reduce GHG emissions from the electricity sector by at least 12 MMT CO_2e in 2020.

EO S-3-05 (June 2005) established GHG targets for the State including returning to year 2000 emission levels by 2010; 1990 levels by 2020; and 80 percent below 1990 levels by 2050. EO S-3-05 directed the Secretary of the California Environmental Protection Agency to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team (CAT).

AB 32 and CARB's Climate Change Scoping Plan. In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. Under AB 32, the CARB must adopt regulations requiring the

reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. The CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized the CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, the CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

AB 32 required the CARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. In 2007, the CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). The CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, the CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The *Scoping Plan* evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan included the following:

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33 percent;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the *Scoping Plan*, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business As Usual" [BAU]). For purposes of calculating this percentage reduction, the CARB assumed that all new electricity generation would be supplied by natural gas

plants, no further regulatory action would affect vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, the CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 to 20 percent), the CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

More recently, in 2014, the CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*).[20] The stated purpose of the *First Update* is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050."

As part of the *First Update*, the CARB recalculated the State's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, the CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

On January 20, 2017, the CARB released the *2017 Climate Change Scoping Plan Update (Second Update)* for public review and comment. This update proposes the CARB's strategy for achieving the State's 2030 GHG target as established in SB 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20 percent. The *Second Update* incorporates approaches to cutting Short-Lived Climate Pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by the CARB in March 2017), and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon.

The 2017 Climate Change Scoping Plan (November 2017, adopted December 14, 2017) builds on and integrates efforts already underway to reduce the State's GHG, criteria pollutant, and toxic air contaminant emissions. The 2017 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals.[21]

[20] California Air Resources Board (CARB). *First Update to the Climate Change Scoping Plan: Building on the Framework.* 2014. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm, accessed October 2019.

[21] *California 2017 Climate Change Scoping Plan*, California Air Resources Board, November 2017 (adopted December 14, 2019): https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf, site accessed April 7, 2018.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 sets an interim target goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to the CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for State agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to CARB's membership and increase legislative oversight of the CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability.

More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring the CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the State's climate policies. AB 197 also added two members of the Legislature to the CARB as nonvoting members; requires the CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires the CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

Building Energy.

Title 24, Part 6. Title 24 of the CCR was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The CEC is required by law to adopt standards every three years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The Project is required to comply with 2019 Title 24 standards because its building construction phase would commence after January 1, 2020. This analysis does not quantify the increased energy efficiency and corresponding GHG emissions savings associated with the more stringent 2019 Title 24 standards, which results in a conservative assessment of GHG emission savings because the 2019 Title 24 standards have been documented to reduce energy usage (e.g., for

lighting, heating, cooling, ventilation, and water heating) and associated GHG emissions. It should be noted that the 2016 Title 24 energy data are used in CalEEMod version 2016.3.2.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and State-owned buildings and schools and hospitals. The CALGreen 2019 standards became effective on January 1, 2020. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
- Mandatory reduction in outdoor water use through compliance with a local water-efficient landscaping ordinance or the California Department of Water Resources' Model.
- Diversion of 65 percent of construction and demolition waste from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 65 percent diversion of construction and demolition waste, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The CPUC, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.[22] As defined by the CEC in its 2019 Integrated Energy Policy Report, a ZNE code building is "one where the value of the energy produced by on-site renewable energy

[22] See, e.g., CPUC, California's Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59-7EA82011B257/0/3.pdf. It is expected that achievement of the zero net energy goal would occur via revisions to the Title 24 standards.

resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric.

Title 20. Title 20 of the CCR requires manufacturers of appliances to meet State and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and State standards for federally regulated appliances, State standards for federally regulated appliances, and State standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the State to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the State to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Mobile Sources: Light Duty Auto and Low Carbon Fuel Standards.

AB 1493. AB 1493 required the CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the CARB to be vehicles that are used as personal non-commercial transportation in the State. The bill set CARB GHG emission standards on motor vehicles after 2008. When fully phased in, the standards on vehicles made from 2009–2012 resulted in a reduction of about 22 percent, while 2013–2016 models saw a reduction of about 30 percent in GHG emissions from 2002.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The LCFS target is to reduce carbon intensity fuels by at least 10 percent by 2020.SB 375.

SB 375. Adopted in 2008, requires the CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional Metropolitan Planning

Organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plans (RTPs). The goal of the SCS is to establish a forecast development pattern for the region that will achieve the GHG reduction targets. The targets for Southern California Association of Governments (SCAG) are an 8 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035. SCAG completed and adopted its 2016 RTP/SCS in April 2016.

Renewable Energy and Energy Utility Distribution to Consumers.

SB 350. SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Water Reduction Measures.

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste Reduction and Recovery.

AB 341. AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the State in reaching the 75 percent goal by 2020.

4.5.3.3 Regional Regulations

Southern California Association of Governments. A Sustainable Communities Strategy (SCS) within Regional Transportation Plan (RTP) demonstrates the region's ability to attain and exceed the GHG emission reduction targets set by the CARB. The SCS outlines the plan for integrating the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. The regional vision of the SCS maximizes current voluntary local efforts that support the goals of SB 375, as

evidenced by several Compass Blueprint Demonstration Projects and various county transportation improvements. The SCS focuses the majority of new housing and job growth in high-quality transit areas and other opportunity areas in existing main streets, downtowns, and commercial corridors, resulting in an improved jobs-housing balance and more opportunity for transit-oriented development. This overall land use development pattern supports and complements the proposed transportation network, which emphasizes system preservation, active transportation, and transportation demand management measures. The RTP/SCS exceeds its greenhouse gas emission-reduction targets set by the CARB by achieving a 9 percent reduction by 2020 and 16 percent reduction by 2035 compared to the 2005 level on a per capita basis.

South Coast Air Quality Management District. In April 2008, the SCAQMD, in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group." The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until the CARB (or some other State agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA. Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential, non-residential, industrial, etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects in which it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 3,000 MT CO_2e as a screening numerical threshold for industrial or warehouse projects.

The recent "Newhall" court case called into question the widespread use in CEQA documents comparing project GHG emissions to BAU emissions. BAU conditions are those that would result if no special project design, sustainability, or energy conservation measures were implemented other than those mandated by existing regulations. In terms of CEQA process, the BAU value should not be used as a method of determining project significance. However, the BAU amount is still useful for comparative purposes, to identify how well the project has reduced potential GHG emissions that might have occurred in relation to no mitigating activities.

4.5.3.4 Local Regulations

City of Claremont General Plan. The Community Design, Open Space, and Conservation, and Air Quality Elements of the City's General Plan contains the following goals or policies that are related to air quality but indirectly related to greenhouse gases as they address energy conservation and sustainability. Those goals and policies are analyzed in Table 4.5.E.

4.5.3.5 Greenhouse Gas Reduction Measures

By using energy more efficiently, harnessing renewable energy to power buildings and vehicles, improving access to sustainable transportation modes, recycling more waste, conserving water, and building local food systems, cities can support the local economy, create new green jobs, and improve public health and community quality of life. The GHG reduction measures are organized into four primary sectors, as defined by the following policy goals:

- **Energy:** Measures will increase communitywide building and equipment efficiency and renewable energy use, and promote energy efficiency and renewable energy generation for use supporting municipal operations that support the community.
- **Transportation and Land Use:** Measures will reduce single-occupancy vehicle travel, increase non-motorized travel, improve public transit access, increase motor vehicle efficiency, encourage alternative fuel vehicles, and promote sustainable growth patterns.
- **Water:** Measures will conserve potable water and reduce water demand by the community and municipal operations.
- **Solid Waste:** Measures will reduce solid waste sent to landfills that is generated by the community and municipal operations.

AB 32 directs California to reduce statewide GHG emissions to 1990 levels by 2020. To achieve these reductions, the CARB recommends that local governments target their 2020 emissions at 15 percent below "current" levels, consistent with the statewide commitment, to account for emissions growth that has occurred since 1990. A 15 percent reduction target is deemed to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels and is in line with current best practice for CAPs developed for numerous California cities.

4.5.4 Thresholds of Significance

CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

For the purpose of this analysis, Appendix G of the *CEQA Guidelines* has been used as the significance threshold for GHG emissions. A project would normally have a significant effect on the environment if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

While individual projects are unlikely to measurably affect GHG, each project incrementally contributes toward the potential for GHG on a cumulative basis, in concert with all other past, present, and probable future projects. However, despite this, neither the CEQA statutes nor Office of Planning and Research (OPR) guidelines, nor the draft proposed changes to the *CEQA Guidelines* currently prescribe thresholds of significance or a particular methodology for performing an impact analysis. As with most environmental topics, GHG significance criteria are left to the judgment and discretion of the lead agency. Since the City of Claremont does not have any threshold for determining GHG impacts, SCAQMD guidance on GHG thresholds was used in this analysis.

The SCAQMD has adopted a significance threshold of 10,000 MT CO_2e per year (MT CO_2e/yr) for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD has proposed a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1. Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2. Consistency with a locally adopted GHG Reduction Plan.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3. Numerical Screening Threshold:** IF GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD proposes the following options for the Tier 3 approach to the GHG Thresholds:

  - Option 1: A "bright-line" screening-level threshold of 3,000 MT CO_2e/yr for all land use types or;
  - Option 2:
    - 1,400 MT CO_2e for commercial projects;
    - 3,500 MT CO_2e for residential projects; or
    - 3,000 MT CO_2e for mixed-use projects.

    This bright-line threshold is based on a review of the OPR database of CEQA projects. Based on this review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold of 3,000 MT CO_2e/year would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4. Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MT CO_2e per year per service population (MT CO_2e/year/SP) for project-level analyses and 6.6 MT CO_2e/year/SP for plan-level projects (e.g., program-level projects such as general plans). The GHG efficiency metric divides annualized GHG emissions by the service population, which is the sum of residents and employees, per the following equation:

Rate of Emission: GHG Emissions (MT CO_2e/yr) ÷ Service Population

The Tier 4 efficiency evaluation consists of comparing the project's efficiency metric to efficiency targets. Efficiency targets represent the maximum quantity of emissions each resident and employee in the State of California could emit in various years based on emission levels necessary to achieve the statewide GHG emissions reduction goals. A project that results in a lower rate of emissions would be more efficient than a project with a higher rate of emissions, based on the same service population. The metric considers GHG reduction measures integrated into a project's design and operation (or through mitigation). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for the CARB's 2008 Scoping Plan.

The proposed Project is not exempt from the Tier 1 threshold. Under Tier 2 threshold, the City of Claremont has not yet adopted GHG reduction plans. For the purpose of this analysis, the proposed Project is first compared to the SCAQMD interim screening level Tier 3 numerical screening threshold of 3,000 MT CO_2e/year for residential mixed-use development. If it is determined that the proposed Project is estimated to exceed this screening threshold under Tier 3, it is then compared to the SCAQMD-recommended Tier 4 efficiency-based threshold of 4.8 metric tons of CO_2e per service population per year in 2020, and 3.0 metric tons of CO_2e per service population per year in 2035.

4.5.5 Methodology Used for the Impact Analysis

As the South Coast Air Quality Management District (SCAQMD) has recognized, the analysis of GHGs is a much different analysis than the analysis of criteria pollutants. For criteria pollutants, significance thresholds are based on daily emissions because attainment or nonattainment is based on daily exceedances of applicable Ambient Air Quality Standard (AAQS). Furthermore, several AAQS are based on relatively short-term exposure effects on human health (e.g., 1-hour and 8-hour). However, since the half-life of CO_2 is approximately 100 years, for example, the effects of GHGs are longer term and affect global climate over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate GHG effects over a longer time frame than a single day.

The recommended approach for GHG analysis included in the OPR June 2008 release is to (1) identify and quantify GHG emissions, (2) assess the significance of the impact on GHG, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact to below a level of significance. The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: "CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews."

With regard to GHG emissions, *CEQA Guidelines* Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

In 2016, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) released the latest version of CalEEMod (v2016.3.1), an emission model to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The purpose of this model is to calculate more accurately construction-source and operational-source criteria pollutant (NOx, VOC, PM_{10}, $PM_{2.5}$, SOx, and CO) and GHG emissions from direct and indirect sources; and to quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality impacts.

Construction and operation of the Project would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the Project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during the use, or operation, of buildings, and less than 20 percent of energy is consumed during construction (United Nations Environment Program 2007). Overall, the following activities associated with the proposed Project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction Activities:** During construction of the Project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO_2, CH_4, and N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment.
- **Gas, Electricity, and Water Use during Operation of the Project:** Natural gas use results in the emission of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the State per year (State of California 2008).
- **Solid Waste Disposal during Operation of the Project:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.
- **Motor Vehicle Use during Operation of the Project:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

Preliminary guidance from the OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. A detailed description of the assumptions used to estimate GHG emissions is included in Appendix B to this EIR.

4.5.6 Impact Analysis

Section 4.1 Air Quality, Table 4.1.H evaluates the consistency of the proposed Project with applicable Claremont General Plan policies to determine consistency with the Claremont's General Plan pertaining to greenhouse gas.

4.5.6.1 Greenhouse Gas Emissions

Threshold	Would the proposed Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction emissions were amortized into the operational phase in accordance with SCAQMD's proposed methodology (SCAQMD 2009). Implementation of a development project could contribute to global climate change through direct emissions of GHGs from onsite area sources and vehicle trips generated by the project, and indirectly through off-site energy production required for on-site activities, water use, and waste disposal. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, global climate change impacts of a project are considered on a cumulative basis.

Preliminary guidance from the OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities. Table 4.5.B identifies the annual GHG emissions for each of the planned construction phases (details are provided in the CalEEMod output in Appendix B).

Table 4.5.B: Regional Construction Emissions

Construction Phase	Peak Annual Emissions (MT/yr)				Total Emissions (MT/CO_2e)
	CO_2	CH_4	N_2O	CO_2e	
Site Preparation 2020	17.61	<0.01	0	17.74	—
Grading 2020	27.54	<0.01	0	27.75	—
Building Construction 2020	386.14	0.07	0	387.77	497.79
Building Construction 2021	38.46	<0.01	0	38.62	—
Paving 2021	21.46	<0.01	0	21.62	—
Architectural Coatings 2021	4.28	<0.01	0	4.28	—
Total Construction Emissions Amortized over 30 years					**16.59**

Notes: As a conservative analytical approach, peak annual emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project peak annual emissions since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.
Source: Compiled by LSA (January 2020).

CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/CO_2e = metric tons of carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide

Operational phase emissions are from operation of the proposed land use and from new, project-related vehicle trips. Operational and construction GHG emissions for the proposed Project, as detailed in Tables 4.5.B and 4.5.C, were calculated using CalEEMod (Version 2016.3.2). Based on

SCAQMD guidance, construction emissions were amortized over 30 years (a typical project lifetime) and added to the total Project operational emissions. Mobile-source emissions of GHGs would include Project-generated vehicle trips associated with the residential and commercial uses. The Project would have increased population density over an empty lot and an improved pedestrian network, which was accounted for in the analysis. Area-source emissions would be associated with activities including landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed Project.

Table 4.5.C: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	**NBio-CO_2**	**Total CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction Emissions Amortized over 30 Years	0	16.52	16.52	<0.01	0	16.59
Operational Emissions						
Area	0	24.31	24.31	<0.01	0	24.49
Energy	0	280.91	280.91	0.01	<0.01	282.42
Mobile	0	1,287.66	1,287.66	0.06	0	1,289.27
Waste	15.22	0	15.22	0.90	0	37.72
Water	2.39	34.40	36.79	0.25	<0.01	44.83
Total Project Emissions	**17.62**	**1,643.79**	**1,661.41**	**1.22**	**0**	**1,695.32**
					SCAQMD Tier 3 Threshold	**3,000**
					Significant?	**No**

Notes: As a conservative analytical approach, peak annual emissions from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project peak annual emissions since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.
Source: Compiled by LSA (January 2020).

Bio-CO_2 = biologically generated CO_2
CO_2 = carbon dioxide
MT/yr = metric tons per year
NBio-CO_2 = non-biologically generated CO_2
CH_4 = methane
CO_2e = carbon dioxide equivalent
N_2O = nitrous oxide
SCAQMD = South Coast Air Quality Management District

As presented in Table 4.5.C, the proposed Project would generate 1,695 MT CO_2e/yr. The Project's emissions are less than the SCAQMD Tier 3 threshold of 3,000 MT CO_2e/yr for residential projects. Based on this GHG analysis, the proposed Project impacts would be **less than significant**.

Mitigation Measures. No mitigation is required.

Impact Conclusion. Long-term operation of the proposed Project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. Operational and construction GHG emissions, as presented in Table 4.5.C, were calculated using CalEEMod, and demonstrate the proposed Project would not generate CO_2e above and beyond the SCAQMD Tier 3 Threshold; therefore, Project impacts would be **less than significant**.

4.5.6.2 Greenhouse Gas Plan, Policy, Regulation Consistency

Threshold	Would the proposed Project conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

The following analysis describes the extent the proposed Project complies with or exceeds performance-based standards included in the regulations outlined in applicable portions of the Climate Change Scoping Plan, RTP/SCS, and the City of Claremont's Sustainable City Plan. The analysis presented below confirms that the proposed Project would be consistent with applicable GHG reduction plans and policies.

Climate Change Scoping Plan. The 2006 Global Warming Solution Act (AB 32) requires that emissions are reduced to 1990 levels by 2020. In 2008, the CARB approved a Climate Change Scoping Plan as required by AB 32. The Climate Change Scoping Plan has a range of GHG reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. As shown in Table 4.5.C, the proposed Project operation would result in net increase of 1,695.32 MT CO_2e/yr. The breakdown of emissions by source category shows approximately less than 1 percent from area sources, 45 percent from energy consumption, 46 percent from mobile sources, 3 percent from solid waste generations, and 5 percent from water supply, treatment, and distribution.

Regional Transportation Plan/Sustainable Communities Strategy. The SCAG region was home to about 18.3 million people in 2012 and currently includes approximately 5.9 million homes and 7.4 million jobs. By 2040, the integrated growth forecast projects that these figures will increase by 3.8 million people, with nearly 1.5 million more homes and 2.4 million more jobs. The 2016 RTP/SCS is the region's transportation and sustainability investment strategy for protecting and enhancing the region's quality of life and economic prosperity through this period. The 2016 RTP/SCS is also expected to help California reach its GHG reduction goals, with reductions in per capita transportation emissions of 9 percent by 2020 and 16 percent by 2035. In addition, the 2016 RTP/SCS GHG emissions reduction trajectory shows that more aggressive GHG emissions reductions are projected for 2040. The 2016 RTP/SCS would result in an estimated 8 percent decrease in per capita GHG emissions by 2020, 18 percent decrease in per capita GHG emissions by 2035, and 21 percent decrease in per capita GHG emissions by 2040. By meeting and exceeding the SB 375 targets for 2020 and 2035, as well as achieving an approximately 21 percent decrease in per capita GHG emissions by 2040, the 2016 RTP/SCS is expected to fulfill and exceed its portion of SB 375 compliance with respect to meeting the California's GHG emission reduction goals.

At the regional level, the 2016 RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs. Generally, projects are consistent with the provisions and general policies of applicable City and regional land use plans and regulations, such as SCAG's SCS, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals. Therefore, the proposed Project would be consistent with the GHG reduction-related actions and strategies contained in the 2016 RTP/SCS.

GHG Emission Reduction Strategies. The scoping plan outlines a programmatic approach to review the potential GHG-related impacts associated with new development in the State of California. The City of Claremont has drafted a Sustainable City Plan that outlines several energy efficient goals that directly relate to GHG emission reduction goals. For example, the City's goal is to apply sustainable design standards to all new facilities communitywide and promote sustainable design practices in homes and commercial buildings (i.e., CALGreen Building Standards). The proposed Project would be required to meet the applicable Building Energy Efficient Standards. As summarized in Table 4.5.D, the Project would be consistent with GHG Emission Reduction Strategies and applicable State and local regulations. To facilitate implementation of the Green Building Code, the City of Claremont mandated all new discretionary development projects to incorporate by reference the mandatory requirements of the 2019 California Green Building Standards Code, effective January 1, 2020. The proposed Project would comply with performance-based standards included in the Green Building Code (e.g., 2019 Building Energy Efficiency Standards). As shown in Table 4.5.D, the Project would be consistent with all applicable GHG reduction strategies.

Table 4.5.D: GHG Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
State and Regional Regulations	
Energy	
California Building Energy Efficiency Standards (Title 24, Part 6). Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	**Consistent.** The proposed Project would comply with the requirements of the 2019 California Building Energy Efficiency Standards (Title 24, Part 6) including measures to incorporate energy-efficient building design features.
Water	
Water Use Efficiency. Reduce per capita water use by 20% by 2020. SB X7-7 is part of a California legislative package passed in 2009 that requires urban retail water suppliers to reduce per-capita water use by 10% from a baseline level by 2015, and to reduce per capita water use by 20% by 2020. Green accountability performance (GAP) Goal 16 directly aligns with SB X7-7. In Southern California, energy costs and GHG emissions associated with the transport, treatment, and delivery of water from outlying regions are high. Therefore, the region has extra incentive to reduce water consumption. While this is considered a state measure, it is up to the local water retailers, jurisdictions, and water users to meet these targets.	**Consistent.** The proposed Project would comply with the requirements of Title 19 – Article VIII – Chapter 19.570 – Water Efficient Landscaping and Irrigation, including measures to increase water use efficiency. Water-efficient irrigation systems and devices and drought-tolerant landscaping would be installed on the Project site.
Solid Waste	
Construction and Demolition Waste Diversion. Meet mandatory requirement to divert 50% of C&D waste from landfills by 2020 and exceed requirement by diverting 90% of C&D waste from landfills by 2035.	**Consistent.** In compliance with CALGreen requirements, at least 65 percent of all nonhazardous construction waste generated by the proposed Project would be recycled and/or salvaged (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). Furthermore, 100 percent of excavated soil shall be reused or recycled.

Table 4.5.D: GHG Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
Transportation	
Pavley and Low Carbon Fuel Standard (LCFS). CARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	**Consistent.** The Project does not involve the manufacture, sale, or purchase of vehicles. However, vehicles that operate within and access the Project site would comply with Pavley and Low Carbon Fuel Standard.
Local Plans: City of Claremont Sustainable City Plan	
Green Building Development. Promote and incentivize at least Tier 1 voluntary standards within CALGreen for all new residential and nonresidential buildings. Develop a heat island reduction plan and facilitate green building development by removing regulatory and procedural barriers.	**Consistent.** The 2019 Building and Energy Efficiency Standards would be effective January 1, 2020, and would be applicable to the proposed Project. Pursuant to the Los Angeles County's Green Building Ordinance, residential buildings would be required to achieve the Tier 1 energy standards as outlined in the California Building and Energy Efficiency Code. The proposed Project would meet or exceed Title 24 energy use requirements.
Solar Installations. Promote and incentivize solar installations for new and existing homes, commercial buildings, carports and parking areas, water heaters, and warehouses.	**Consistent.** The current Building and Energy Efficiency Standards mandate that new homes have solar panels. The proposed Project would meet or exceed Title 24 energy use requirements.
Electric Vehicle Infrastructure. Install electric vehicle (EV) charging facilities at residence parking area and/or garages.	**Consistent.** The current Building and Energy Efficiency Standards now requires installation of electric vehicle charging spaces in new residential homes (2019 CALGreen). The proposed Project would meet or exceed 2019 CalGreen requirements.

Source: LSA (October 2019).

Claremont General Plan Policies. The City of Claremont General Plan General includes policies that are directly and indirectly related to GHG emissions. Table 4.5.E evaluates the consistency of the proposed Project with the City's General Plan policies.

Table 4.5.E: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
Open Space, Parkland, Conservation and Air Quality Element	
Goal 5-18: Reduce the amount of air pollution emissions from mobile and stationary sources and enhance the airshed.	
Policy 5-18.1: Enhance pedestrian and bike facilities within the City and encourage alternative modes of transportation.	**Consistent:** The proposed Project includes pedestrian areas, specifically within the parks in the center of the Project site. Additionally, the proposed project includes bike rack areas for residents and patrons to the retail uses on site. The Project would enhance non-vehicular mobility through these features.
Policy 5-18.2: Encourage the use of clean fuel vehicles.	**Consistent:** The Project would include parking areas for electric vehicles and every dwelling unit would be EV charger ready; as such, the Project would encourage residents, patrons to the retail uses, and central and linear park to use clean fuel vehicles.
Policy 5-18.3: Promote the use of fuel-efficient heating and cooling equipment and	**Consistent:** The proposed Project would be designed to be compliant with CALGreen standards and Title 20 California Code of Regulations. This

Table 4.5.E: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.	would mandate that low-energy appliances and fuel-efficient HVAC systems are installed as part of the proposed Project.
Policy 5-18.4: Promote the use of clean air technologies such as fuel cell technologies, renewable energy sources. UV coatings, and alternative, non-fossil fuels.	**Consistent:** The proposed Project would be designed with features that are consistent with CALGreen standards and Title 20 California Code of Regulations. The Project would include solar technology for residential units as required by January 1, 2020 per California Solar Mandate. The Project would also promote residents and patrons of the retail uses and parks to use alternative modes of transportation such as bicycles, electric vehicles, rideshare, or walking.
Policy 5-18.5: Continue to require the planting of street trees along City streets and inclusion of trees and landscaping for all development projects to help improve airshed and minimize urban heat island effects.	**Consistent:** The Project must meet the requirements of the Foothill Boulevard Master Plan which includes street tree planting. The site plans of the proposed Project include a Schematic Planting Plan that includes a pallet of landscaping consisting of street trees along Foothill Boulevard internal trees to provide shade. The landscaping plan would be reviewed and approved by the City prior to final site plan approval and during Design Review.
Policy 5-18.7: Implement principles of green building.	**Consistent:** This Project requires "Green" building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials. Title 24 sets forth building standard requirements including, but not limited to, planning and site design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, waste reduction, indoor air quality and pollutant control, thermal comfort, and provisions for bicycle and electric vehicle parking. With each three-year cycle, the regulations are updated with the goal of reaching zero net energy in new residential construction by 2022 (effective Jan 1, 2023) and zero net energy in new commercial construction by 2030. All new development within the project site is required to meet the rigorous standards of Title 24. Each new building would be inspected for compliance and would include an operation manual to help end-users maintain and effectively use the sustainable building features provided.
Policy 5-18.8: Support jobs/housing balance within the community so more people can both live and work within the community. To reduce vehicle trips, encourage people to telecommute or work out of home or in local satellite offices.	**Consistent:** An objective of the proposed Project is to help meet the high market demand for high quality housing in eastern Los Angeles County and to meet the City's housing needs to support forecast population growth. The Project would include a variety of residential units including single-family residential, townhomes, and residential flats. The Project would also include 5,000 square feet of retail/commercial space. The Project would be located in an area where adjacent parcels are occupied by office uses, businesses, the Claremont College Complex, and nearby retail use. This mixed-use project would allow residents and patrons to shop, work, and reside locally in an urban setting with sufficient amenities available. The location of the site would also reduce the amount of vehicle miles traveled (See Transportation Section 4.10) and would also reduce air quality emissions that are prevalent with uses generated large amount of vehicle trips.

The proposed Project would not conflict with applicable plans, policies, or regulations of an agency pertaining to the reduction of greenhouse gas emissions; as such, impacts would be **less than significant.**

Mitigation Measures. No mitigation is required.

Impact Conclusion. The analysis in Table 4.5.E indicates the Project is consistent with the City of Claremont's General Plan air quality policies. Furthermore, as Project-related GHG emissions have been reduced to below the 2022 Efficiency Target and the proposed Project is consistent with SCAG RTP/SCS performance measures, development of the proposed uses would not be inconsistent with a plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, the Project would have a **less than significant impact** relative to this issue.

4.5.7 Cumulative Impacts

As climate change impacts are cumulative in nature, no typical single project can result in emissions of such a magnitude that it, in and by itself, would be significant on a project basis. The proposed Project has incorporated sustainability design measures in accordance with regulatory requirements as provided throughout the analysis and to reduce the proposed Project's potential impact with respect to GHG emissions. As GHG emissions would not exceed the SCAQMD Tier 3 numerical screening threshold and Project design measures would be applied to lower the GHG emissions, the proposed Project would result in a less than significant cumulative impact related to GHG emissions. The proposed Project's GHG reduction measures make it consistent with AB 32, 2016 RTP/SCS, and City's General Plan. Therefore, the proposed Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. Given this consistency, it is concluded that the proposed Project's GHG impacts are **not cumulatively considerable**.

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4.6 HAZARDS AND HAZARDOUS MATERIALS

This section addresses potential impacts to human health and the environment that may result from exposure to hazardous materials or hazardous conditions during the construction or occupation of the proposed Project. Potential effects that have been determined to have no impact or be less than significant include those associated with the routine transport, use, or disposal of hazardous materials; reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; safety hazards associated with the site's past or future use; and impairment/interference with adopted emergency response plans or emergency evacuation plans. These aforementioned topics have been analyzed in the Initial Study (Appendix A1) and are not further studied in this section of this EIR. This section focuses on the potential impacts to human health and the environment that may result due to being within 2 miles of Cable Airport. This section is based in part on the following documents:

- ACTA, *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites,* July 2017 (Appendix E-2).
- California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011.

4.6.1 Existing Setting

4.6.1.1 Project Site History

The property is currently undeveloped and consists primarily of disturbed areas with annual grasses and some native vegetation. Residential and commercial buildings were once located on site, and while no structures remain on site, concrete foundations from at least three buildings are visible in the western portion of the property. The subject property was initially developed for residential uses in the 1940s. Commercial uses on site once included a hydraulic lift, an airplane museum, an auto body repair shop, an automobile parts store, a backpack store, a furniture store, a landscape contractor, and a plant nursery. All commercial buildings were demolished in 1984.

The site was previously subject to a past project where the proponent submitted an application to the City of Claremont to develop 70,800 square feet of office uses in four, two-story buildings and 14,000 square feet of retail uses in two, single-story buildings on the Project site. The project proponent proposed to develop an additional 26,700 square feet of retail use in two single-story buildings on its adjacent land in the City of Upland (east and adjacent to the subject property of this EIR). An Initial Study/Mitigated Negative Declaration (IS/MND) was prepared to environmentally clear the project under CEQA. On October 15, 2009, the Architectural Commission of the City of Claremont approved this project and certified the IS/MND. Although project approval was granted, the property was never developed with the uses intended under this project.

4.6.1.2 Surrounding Area

Surrounding parcels are located within the City of Claremont and City of Upland. In the City of Claremont, adjacent uses to the west include the Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses, is located to the northwest. Northwest of Claremont Boulevard is the College Center strip mall and multifamily and single-family residential uses. The property located due north

of the Project site is largely vacant except for a cluster of commercial/light industrial buildings which take access from Monte Vista Avenue. The site of a recently approved 70-acre sports park is located south of the Project site, across Foothill Boulevard, in the City of Upland. The Claremont Colleges and the College Park multifamily residential development are located approximately 0.33 and 0.50 mile south and southwest from the site, respectively. In the City of Upland, the 3 acres of land adjacent to the eastern boundary of the site is anticipated to be developed in the future with 48 townhomes. Adjacent land across Monte Vista Avenue is occupied by the College Business Park and low-density multifamily (Harvest at Upland) residential uses. Cable Airport is located approximately 0.35 mile east of the Project site and the Holliday Rock company (an independent producer of aggregate, ready mix concrete, and hot mix asphalt) headquarters and mining facility is located north of Cable Airport, 0.41 mile northeast of the Project site.

Cable Airport is a small, non-towered, privately owned general aviation airport located in the City of Upland that is predominantly used by single-engine aircraft. The Project site is located approximately 1,850 feet (0.35 mile) southwest of Cable Airport's Runway 6/24. The City of Claremont has not approved the Cable Airport Land Use Compatibility Plan (CALUCP); therefore, the CALUCP is not applicable to the proposed Project. The Los Angeles County Airport Land Use Commission does not have an Airport Land Use Compatibility Plan for Cable Airport in place; as such, the proposed Project is required to abide by the standards contained in the *2011 California Airport Land Use Planning Handbook* (*2011 Handbook*). Based on the *2011 Handbook*, the proposed Project is located in Safety Zones 2 and 4.

According to the CALUCP, under existing conditions, the proposed Project site is located in the 55 to 60 decibel (dB) Community Noise Equivalent Level (CNEL) noise contour of Cable Airport. The CALUCP also depicts that the proposed Project would be in the 60 dB CNEL noise contour of Cable Airport under year 2030 conditions.[1]

4.6.1.3 NOP/Scoping Comments

An NOP comment letter from the County of Los Angeles County Airport Land Use Commission (LACALUC) was received on December 17, 2019. The LACALUC requests that the proposed Project be reviewed by the ALUC for a consistency determination, prior to final action taken by the local agency on the Project. The comment letter also indicates that in lieu of an Airport Land Use Compatibility Plan for the Los Angeles County portion of the Airport Influence Area for Cable Airport, the ALUC would use the *2011 Handbook* for consistency purposes.

Comments from the general public were received in response to the NOP regarding safety hazards associated with the proposed Project being located near Cable Airport. Main issues of these comments are summarized as follows:

- The EIR should review all applicable plans associated with Cable Airport regarding airplane operations generating noise, crossing the site during take-offs/landings, air traffic volume and

[1] Cable Airport, *Cable Airport Land Use Compatibility Plan*, Exhibit 8 Existing Noise Impact-2008 and Exhibit 9 Future Noise Impact Area Cable Airport.

timing, and the character of the planes being used at Cable Airport, including older model airplanes that generate more noise and exhaust compared to modern aircraft.

- Plane crashes onto the Project site with the potential to cause damage to buildings and injure/kill people on site.
- The landscaping of the Project site, which could attract birds that could become obstructions to aircraft landing and taking off from Cable Airport.
- Parking adjacent to the avigation easement should not be allowed.
- The proximity of the Project to Cable Airport creates issues of safety, noise, and air pollution from low-flying planes. Consider that this is a parcel that is so close to Cable Airport that it contains an aviation easement to provide for emergency landings.
- Development of the parks on the Project site should preclude planting trees or other enhancements that would encumber the capacity for the easement on the Project site to serve as a crash landing site.
- Concerned about noise generated by Cable Airport operations on the Project site, specifically related to take-off and landings as well as airshows that occur on the weekends.
- Concerned about the recent accidents that have occurred at Cable Airport and surrounding areas: Crashes occurring on September 17, 2018, May 1, 2019, and June 15, 2019, resulting in a fatality and injures.

Two public comments related to hazards or hazardous materials were identified during the Public Scoping Meeting. Bob Cable, of Cable Airport, commented that based on the Project's location, aircraft would fly approximately 344 feet above the Project site, and that the open space corridor within the Project site, which is within the line of site of Runway 6, must remain clear of obstructions. He also stated that all aviation easements must be granted with the City of Upland and San Bernardino County. A second commenter expressed concerns about hazards to Project occupants due to the Project site's proximity to Cable Airport.

4.6.2 Existing Policies and Regulations

The following policies and regulations pertain to potential hazards to Project occupants from being located near Cable Airport operations.

4.6.2.1 Federal Regulations

Federal Aviation Administration. The Federal Aviation Administration (FAA) establishes land use criteria around airports. Advisory Circular 150/5300-13A-Airport Design[2] contains the FAA's standards and recommendations for the geometric layout and engineering design of runways, taxiways, aprons, and other facilities at civil airports. It describes the runway protection zone and imaginary surfaces

[2] United States Department of Transportation, Federal Aviation Administration, *AC 150/5300-13A-Airport Design*, date issued September 28, 2012. Website: https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5300-13 (accessed December 18, 2019).

(primary, approach, and transitional surfaces). In addition, Federal Aviation Regulation, Part 77, establishes a series of imaginary surfaces in the airspace surrounding a runway or helicopter pad.

4.6.2.2 State Regulations

California Airport Land Use Planning Handbook. The October *2011 California Airport Land Use Planning Handbook* (*2011 Handbook*) was prepared to provide guidance for conducting airport land use compatibility planning as required by Article 3.5, Airport Land Use Commissions, Public Utilities Code (PUC) Sections 21670 – 21679.5. Article 3.5 outlines the statutory requirements for Airport Land Use Commissions (ALUCs) including the preparation of an Airport Land Use Compatibility Plan (ALUCP) and also mandates that the Division of Aeronautics create a handbook that contains the identification of essential elements for the preparation of an ALUCP. The *2011 Handbook* is intended to do the following: (1) provide information to ALUCs, their staffs, airport proprietors, cities, counties, consultants and the public; (2) to identify the requirements and procedures for preparing effective compatibility planning documents; and (3) define exemptions where applicable. The *2011 Handbook* provides guidance for meeting the baseline safety and compatibility requirements of the FAA and Division of Aeronautics; however, ALUCs may choose to be more restrictive than California's guidance when local conditions warrant. The Division of Aeronautics does not have the authority to adopt land use development standards; whereas, ALUCs are statutorily permitted (i.e., they have the option and the authority) to include building standards, height restrictions, and land uses in their Airport Land Use Compatibility Plans. When an ALUC chooses to establish development standards in an ALUCP to prevent airport noise and safety hazards, they are indirectly setting development standards for local government because local government general and specific plans must be consistent with the ALUCP per Section 21670.1(c)(2)(D) of the PUC and Government Code Section 65302.3(a), unless the conclusion of the overrule process allows otherwise.

In the case of the proposed Project, the *2011 Handbook* will be used to determine potential airport operation safety hazards for occupants of the proposed Project site.

4.6.2.3 Regional and Local Regulations

City of Claremont General Plan. The City of Claremont's General Plan is the blueprint for future growth and development in the City. Goals and policies of the City's General Plan that pertain to airport hazards are listed and analyzed below in Table 4.6.A.

Table 4.6.A: City of Claremont General Plan Consistency Analysis, Airport Hazards

General Plan Goals and Targets	General Plan Consistency Analysis
Goal 4-9 Balance the desire to support the benefits of regional and international airports with the need to minimize impacts of aircraft operations on the quality of life for Claremont residents.	
Policy 4.9-2: Continue to monitor air traffic patterns associated with Ontario International Airport, Cable Airport, and Brackett Field, and work with airport officials to minimize noise, safety, and land use impacts on Claremont.	**Consistent:** This policy is aimed towards the City of Claremont coordinating with officials from Ontario International Airport, Cable Airport, and Brackett Field to implement strategies to minimize noise, safety and land use impacts on land within the City of Claremont. Implementation of the proposed Project would not preclude the City of Claremont from continued coordination with staff at these airports. As such, implementation of the Project has no bearing on the results of this policies' implementation and the Project would be consistent.

Goal 6-2: Minimize risk of injury, loss of life, and damage to property from natural-cause disasters and conditions.	
Goal 6-3: Lower the risks of aircraft accidents.	
Policy 6-3.1: Adhere to airport comprehensive land use plans and restrictions established by the Federal Aviation Administration to reduce damage resulting from aircraft accidents.	**Consistent:** The Los Angeles County Airport Land Use Planning Commission (LACALUPC) has not established an Airport Land Use Compatibility Plan (ALUCP) for Cable Airport within Los Angeles County or City of Claremont jurisdictions. As such, the proposed Project would be required to adhere to standards set forth in the 2011 California Airport Land Use Planning Handbook (2011 Handbook). Based on the site's location relative to Cable Airport and according to the 2011 Handbook, the proposed Project is located in Safety Zones 2 and 4. The 2011 Handbook establishes development limitations in these zones. Per the *2011 Handbook*, airport land use compatibility planning recognizes the objectives of the local municipal agency (in this case City of Claremont) which has ultimate authority for land use planning and regulations; the airport operator, which has responsibility for airport planning; and the ALUC, (in this case the LACALUPC) which has statutory authority for preparation of airport land use compatibility plans and review of local land use plans and actions. As the Project includes an action pertaining to a land use action within two nautical miles of a public/public use airport, if an ALUC has not been adopted, the City of Claremont is required to provide the LACALUPC the opportunity to review the Project. The requirement exists regardless of whether the City of Claremont has (or has not) adopted Cable Airport Land Use Compatibility Plan. Once the proposed Project has been reviewed, the LACALUPC's may *approve* or *disapprove* (as they have not yet adopted an ALUCP for Cable Airport) the Project submitted for review. Absent having an adopted ALUCP for Cable Airport, LACALUPC's authority to approve a land use action, regulation, or permit is limited by the law (PUC Section 21675.1(c)). As the proposed Project would adhere to the *2011 Handbook* requirements in lieu of an ALUCP for Cable Airport implemented by LACALUPC, the proposed Project would be consistent with this applicable airport planning document. The FAA identifies areas adjacent to the ends of runways as having a high exposure to potential aircraft crash-related hazards; as such, these areas are designated as "Runway Protection Zones". The "Runway Protection Zones" are non-developable land per FAA regulations to ensure that arriving and departing aircraft from airports have clearance to avoid obstructions that could result in aircraft accidents. The Project site is not within the FAA "Runway Protection Zones" of Cable Airport; as such, further consistency analysis pertaining to this policy in regards to FAA regulations is not required. The *2011 Handbook* addresses aircraft safety areas beyond the FAA "Runway Protection Zones."

Source: *Chapter 6 Public Safety and Noise Element,* Claremont General Plan, 2009 and *Safety Element*

City of Claremont Municipal Code. Section 16.154.020(H)(7)(a)(b) of the Claremont Municipal Code provides special provisions related to noise for airport and aircraft operations, including:

- The Director shall consult the nearby airport proprietors to recommend changes in airport operations to minimize any noise disturbance which the airport owner may have authority to control in their capacity as proprietor.
- Nothing in Section 16.154.020 shall be construed to prohibit, restrict, penalize, enjoin, or in any manner regulate the movement of aircraft which are in all respects conducted in accordance with, or pursuant to, applicable federal laws or regulations.

The City of Claremont Municipal Code does not implement any provisions regarding the reduction of safety hazards to residents and employees of the City related to Cable Airport operations.

Los Angeles County Airport Land Use Commission. In Los Angeles County, the Regional Planning Commission has the responsibility for acting as the Airport Land Use Commission and coordinating the airport planning of public agencies within the county. The local agencies that surround and are affected by Los Angeles County's airports also have an impact on the operations of the facilities. These jurisdictions incorporate regulations in their general plans, specific plans, and zoning ordinances that address airport issues such as noise and safety. In establishing these regulations, each jurisdiction considers the effect of neighboring airports on new land uses as well as the impact the new land uses may have on airport operations. The LACALUC does not have the authority to zone property or apply other land use controls normally exercised by local public agencies. Additionally, recommendations made by the LACALUC are advisory to local jurisdictions, not mandatory. The local jurisdictions also have the power to overrule the LACALUC through a hearing that can be held where the local agency can vote to overrule the LACALUC decision by a two-thirds vote (if specific findings are made that a proposed project is consistent with the purposes of the Airport Land Use law). The LACALUC complements the planning responsibilities of the cities, County, and other affected agencies by setting uniform policies and standards to prohibit development of incompatible uses. However, it is the responsibility of the cities and County, through planning and zoning powers, to specify which compatible uses are appropriate within their jurisdictions.

Cable Airport Land Use Compatibility Plan. The function of the CALUCP is to promote compatibility between Cable Airport and the land uses that surround it in the City of Upland. As required by State law, the plan provides overarching guidance to affected local land use jurisdictions with regard to airport land use compatibility matters involving Cable Airport. The CALUCP is separate and distinct from the jurisdictions' other land use policy documents—their general plans and zoning ordinances—yet all of the documents are expected to be made consistent with each other through incorporation of the compatibility policies into the general plans and zoning ordinances. Since the proposed Project is in the City of Claremont, and the City has not adopted the CALUCP, this document is not applicable to the proposed Project.

4.6.3 Thresholds of Significance

The thresholds for hazards and hazardous materials impacts under Appendix G for the *State CEQA Guidelines* have been determined to have No Impact or be Less Than Significant; as such, they have been scoped out of this EIR and are discussed in the Initial Study (Appendix A1) prepared for this Project. As such, the focus of this EIR section pertains to potential hazards to site occupants and buildings from Cable Airport operations. The Project would result in a significant impact if it were to:

- For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the Project area.

Noise impacts of aircraft overflights are assessed in the Section 4.9, Noise, of this EIR. The following Hazards and Hazardous Materials threshold is analyzed in Section 4.12, Wildfire, of this EIR:

- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

4.6.4 Methodology Used for the Impact Analysis

An Aircraft Risk Analysis, titled *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites* (Appendix F2) was prepared to describe the potential for an aircraft accident that could result in casualties to persons residing on the Project site. The potential for an accident causing a casualty on The Commons was determined by estimating the likelihood of an accident occurring and, given such an event, estimating the likelihood of injury to a resident. Accident rates were developed using annual operations data and the historical record of accidents in the vicinity of the airport. Impact location likelihoods were computed based on statewide data gathered by the Institute of Transportation Studies. The probability of impact for each of the sites was then combined with the probability of a consequence to determine risk. Risk values were segmented by time periods during a 24-hour day to include probabilities of building occupancy and operational frequency. Risks were calculated using aircraft operations data from January 1900 through December 2015. Five additional sites (similar to the proposed Project site) were analyzed for comparison: three commercial sites and two residential sites.

The Project site has been analyzed for aircraft hazards through the *2011 Handbook* in lieu of the Cable Airport Land Use Compatibility Plan that has not been adopted by the Los Angeles County Airport Land Use Commission or the City of Claremont.

4.6.5 Impact Analysis

The following impact analysis pertains to the potential hazards to Project occupants, structures and buildings from being located within two miles of Cable Airport.

4.6.5.1 Within Two Miles of a Private Airport or Within an Airport Land Use Plan or Within Two Miles of a Public Airport

Threshold	For a project located within an airport land use plan or where such a plan has not been adopted within two miles of a public airport or public use airport, would the proposed Project result in a safety hazard or excessive noise for people residing or working in the Project area?

Safety Risk Discussion. The proposed Project could increase the population of Claremont by up to 162 persons.[3] The closest airport in proximity to the Project site is Cable Airport in the City of Upland. Cable Airport is located approximately 0.35 mile (1,850 feet) to the east of the Project site across Monte Vista Avenue.

In order to determine the potential risk of implementing the proposed Project within close proximity to Cable Airport, an Aircraft Individual Risk Analysis technical report was prepared in July 2017 for the Project (refer to Appendix F2). This report was prepared to analyze the potential for an aircraft

[3] The most current statistical figures published by SCAG for the City's average household size assume 2.61 persons per housing unit for Claremont. The proposed Project could increase the City of Claremont's population by approximately 162 persons (2.61 persons/dwelling unit × 62 units = 161.82 persons).

accident that could result in casualties and injuries to persons residing on the proposed Project site. The potential for an accident causing a casualty on the Project site was determined by estimating the likelihood of an accident occurring and, given such an event, estimating the likelihood of injury to a resident. The accident rates were developed using annual operations data of Cable Airport and the historical record of accidents in the airport's vicinity.[4] The technical report included analysis for the Project site and comparable analysis to five other Cable Airport-adjacent sites with similar development characteristics as the proposed Project. Analysis determined that the annual maximum risk of a severe injury or casualty to an occupant of the Project site due to an airplane accident from Cable Airport was equivalent to 27 chances in 1 million. To provide a perspective, the annual risk of a person being injured in a car accident is 7,000 chances in 1 million; therefore, car travel is more than 250 times riskier than the potential for severe injury or casualty due to an aircraft accident on the Project site. Table 4.6.B shows the results of the analysis for the proposed Project compared to the five other airport-adjacent sites. Figure 4.6.1 shows the locations of the five sites compared to the location of the Project analyzed in the Aircraft Individual Risk Analysis technical report.

Table 4.6.B: Individual Risk of a Severe Injury or Greater due to a Cable Airport Accident

Site and Use	Risk	Simplified Risk
Project Site (commercial and residential)	2.70×10^{-5}	27 chances in 1 million
Site 1 Commercial	5.27×10^{-5}	52.7 chances in 1 million
Site 2 Commercial	4.22×10^{-5}	42.2 chances in 1 million
Site 3 Residential	5.83×10^{-5}	58.3 chances in 1 million
Site 4 Approved Residential	2.74×10^{-5}	27.4 chances in 1 million
Site 5 Commercial	3.43×10^{-5}	34.3 chances in 1 million.

Source: ACTA, *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites*, pg. 5, July 2017.

Compared to the five other nearby airport sites with commercial and residential uses, the Project site presents the lowest individual risk of severe injury or death from a Cable Airport accident among the sites analyzed. To further reduce the potential for severe injury or casualty on the site, the Project applicant has designed a 150-foot wide swath of land, devoid of buildings and tall vegetation (i.e., residential buildings, retail/commercial buildings, tall trees, etc.) as a feature that lines up with the Cable Airport Runway 6/24. This area of the Project is designed in this manner to allow for a cleared area in the event of an aircraft departure failure from Cable Airport. The void of development on the Project site in this area would reduce the potential for building damage and severe injury or casualty to site occupants, if an emergency landing of a Cable Airport aircraft needs to be performed on the Project site.

Although the probability of Project residents being severely injured or killed due to a Cable Airport accident is low, the probability is still greater than if the proposed Project was not developed on the specific site. As such, impacts pertaining to this threshold would be potentially significant with implementation of the proposed Project and mitigation measures would be needed to reduce such an impact.

[4] The historical data used did not include the crash on June 15, 2019, where an aircraft bound for Torrance from Cable Airport crashed into a two-story house in Upland. The pilot was killed, one person suffered life-threatening injuries, and two others had minor injuries. Source: https://abc7.com/3-injured-in-plane-crash-near-cable-airport-in-upland/5348196/ accessed November 20, 2019.



LSA

FIGURE 4.6-1

N

NO SCALE

SOURCE: ACTA, *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites*, July 2017

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The Commons
Project Site and Modeled Sites
of Cable Airport Impact Probabilities"

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Safety Hazards in Terms of Applicable Regulatory/Planning Documents. The following discusses the potential safety hazard impacts pertaining to the applicable regulatory and planning documents for Cable Airport and the proposed Project site. The proposed Project is located in Safety Zone 2 and Safety Zone 4 (refer to Figure 4.6.2[5]) as established under the *2011 Handbook*.

Federal Aviation Regulations. The FAA identifies areas adjacent to the ends of runways as having a high exposure to potential aircraft crash-related hazards; as such, these areas designated as "Runway Protection Zones." The "Runway Protection Zones" are non-developable land per FAA regulations to ensure that arriving and departing aircraft from airports have clearance to avoid obstructions that could result in aircraft accidents. The Project site is not within the FAA "Runway Protection Zones" of Cable Airport; as such, further analysis of safety hazards pertaining the FAA regulations is not required. The *2011 Handbook* addresses aircraft safety areas beyond the FAA "Runway Protection Zones."

According to the Project site plan, the 5,000-square foot mixed-use building would have a maximum height of 59 feet (from finished grade); the single-family residential units would have a maximum height of 27 feet (from finished grade); and the townhomes would have a maximum height of 35 feet (from finished grade). None of the structures on the Project site would intrude into FAA FAR Part 77 Imaginary Airspace Surfaces.[6]

***California Airport Land Use Planning Handbook*.** The Cable Airport is defined as a short general aviation runway with less than 4,000 feet of runway space. Based on the *2011 Handbook*, approximately 3.61 acres of the Project site is located within Safety Zone 2 and 2.89 acres are located within Safety Zone 4.

The *2011 Handbook* establishes the following development limitations for Safety Zone 2 and Safety Zone 4:

- Safety Zone 2: Inner Approach/Departure Zone.
  - Normally Allow:[7] Agriculture; non-group recreational uses; low-hazard materials storage; warehouses; low-intensity light industrial uses; and auto, aircraft, and marine repair services.
  - Limit:[8] Single-story office buildings; and nonresidential uses to activities that attract few people.

[5] Figure 4.6.2 was prepared using the *California Airport Land Use Planning Handbook* generic safety zones configurations as shown in Figure 3A Safety Compatibility Zone Examples – General Aviation Runways: Example 1 Short General Aviation Runway. The Example 1 configuration was the closest example to the Cable Airport runway system; as such, this example was used to prepare Figure 4.6.2.

[6] The Caltrans Handbook uses the FAA FAR 77 regulations to determine the height of objects permitted on land within safety zone hazards of airports. Map 3D Allowable Object Heights of the Cable Airport Land Use Compatibility Plan shows that objects can be developed at a height of between 75 to 150 above ground level on the northeast corner of the site within Claremont and greater than 150 feet in height above ground level on the remaining area of the site within the City of Claremont. This diagram is applicable to use since it is based on FAR 77 Imaginary Airspace Surfaces modeling.

[7] Normally Allow is defined as: Typical examples of the use are acceptable.

[8] Limit is defined as: Use is acceptable with limitations on density or intensity.

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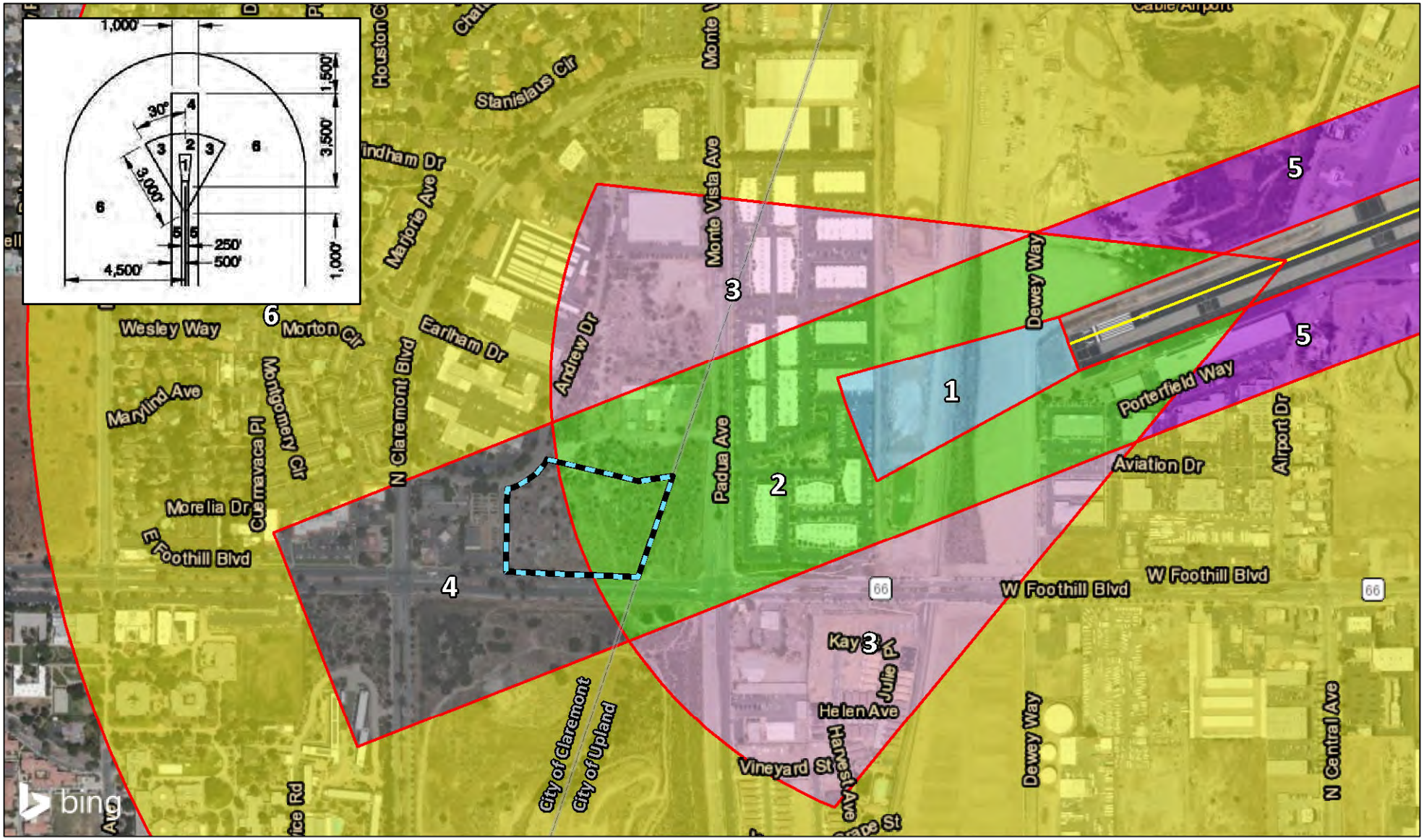

LSA

LEGEND

- Project Site
- City Boundary
- Runway Centerline

Safety Zones

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5
- Zone 6

0 300 600
FEET

FIGURE 4.6-2

The Commons

Safety Zones of Project Site

SOURCE: Basemap - Bing (2019); Mapping - California Airport Land Use Planning Handbook, pg. 3-17 (10/2011)

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- Avoid:[9] All residential uses except as infill in developed area; multistory uses; uses with high density or intensity; shopping centers; and most eating establishments.
- Prohibit:[10] Theaters, meeting halls and other assembly uses; office buildings greater than three stories; labor-intensive industrial uses; children's schools, large daycare centers, hospitals, nursing homes; stadiums, group recreational uses; and hazardous uses (e.g., aboveground bulk fuel storage).
- Maximum Residential Densities in a Suburban area is 1 dwelling unit per 10 to 20 gross acres.
- Maximum Nonresidential Intensities in a Suburban area is 40 to 60 persons per gross acre.

- Safety Zone 4: Outer Approach/Departure Zone.
  - Normally Allow: Greenhouses, low-hazard materials storage, mini-storage, and warehouses; and light industrial and vehicle repair services.
  - Limit: Residential uses to low density.
  - Avoid: High-intensity retail or office buildings.
  - Prohibit: Children's schools, large daycare centers, hospitals, nursing homes; stadiums, and group recreational uses.
  - Maximum Residential Densities in a Suburban area is 1 dwelling unit per 2 to 5 gross acres.
  - Maximum Nonresidential Intensities in a Suburban area is 100 to 150 persons per gross acre.

The Project's site plan shows the development of single-family residential units, townhomes, and a 5,000-square foot mixed-use building occupied by retail (ground floor) and residential flats (second and third floors). A Central Park, Linear Park, Central Plaza, and a surface parking lot would be located on a 150-foot wide swath of land within the Project site. This swath of land lines up with Cable Airport's Runway 6/24 and acts as a cleared area (cleared of buildings and tall vegetation) to allow for emergency landings if a departure from Cable Airport fails. The proposed Project would include the development of residential units (single-family residential units, townhomes, and a portion of the residential flats in the mixed-use building) within Safety Zone 2; a zone where development of residential units should be avoided unless it is part of an infill project. The proposed Project is not considered an infill project; as such, development of the residential units on the Project site would not be consistent or compatible with safety regulations of the *2011 Handbook*. An approximately 0.15 acre portion of the Central Park would be located within Safety Zone 2 (a normally allowable use in this zone). The Project site would develop residential units, residential flats, and the majority of the Central Park within Safety Zone 4. The residential uses located in Safety Zone 4 are allowable on a limited basis if they are low density (below 1 dwelling unit per 2 to 5 gross acres). This portion of the Project site would have an estimated residential density of 22 dwelling units per 3.09 acres of land (7.1 dwelling units per 1 gross acre), which is far greater than the low density standard of 1 dwelling

[9] Avoid is defined as: Use generally should be permitted only if an alternative site outside the zone would not serve intended public function.

[10] Prohibit is defined as: Use should not be permitted under any circumstances.

unit per 2 to 5 gross acres. As such, development of the residential units on the Project within Safety Zone 4 would not be consistent or compatible with safety regulations of the *2011 Handbook*.

However, per the *2011 Handbook*, airport land use compatibility planning recognizes the objectives of the local municipal agency (in this case City of Claremont) which has ultimate authority for land use planning and regulations. As the Project includes an action pertaining to a land use action within two nautical miles of a public/public use airport if an ALUCP has not been adopted, the City of Claremont is required to provide the Los Angeles County Airport Land Use Planning Commission (LACALUPC) the opportunity to review the Project.

Once the proposed Project has been reviewed, the LACALUPC may *approve* or *disapprove* (as they have not yet adopted an ALUCP for Cable Airport) the Project submitted for review. Absent having an adopted ALUCP for Cable Airport, LACALUPC's authority to approve a land use action, regulation, or permit is limited by the law (PUC Section 21675.1(c)). Approval of the Project requires that the LACALUPC find, based on substantial evidence in the record, that all of the following criteria are met:

- "The commission is making substantial progress toward completion of the plan."
- "There is a reasonable probability that the action (in this case the Project), regulation, or permit will be consistent with the plan being prepared by the commission."
- "There is little or no probability of substantial detriment to or interference with the future adopted plan if the action, regulation, or permit is ultimately inconsistent with the plan."

If all of the above stated criteria are not met, the LACALUPC legally cannot approve the proposal (the proposed Project in this case). If LACALUPC concludes that it cannot take action because it does not have an ALUCP for Cable Airport and is not making progress toward preparation of one, then approval of the land use proposal (in this case the proposed Project) would be subject only to action by the local jurisdiction (in accordance with PUC Section 21679). As the proposed Project will adhere to the above outlined process, as presented in the *2011 Handbook*, the proposed Project would be consistent with this applicable airport planning document.

Noise Hazards from Cable Airport Operations. Noise hazards generated by Cable Airport operations to occupants of the Project site are discussed in Chapter 4.9, Noise and Vibration, of this EIR.

Mitigation Measures. The following mitigation measures shall be implemented to reduce safety hazard impacts pertaining to the Project being located near Cable Airport operations:

4.6.1A Prior to the issuance of building permits, the Project applicant shall provide the City of Claremont a copy of an *Airport Proximity Disclosure* that would be presented to prospective buyers of real estate within the Project site. The *Airport Proximity Disclosure* shall convey information to prospective buyers about airport-associated annoyances or inconveniences such as noise, vibration, or odors. The *Airport Proximity Disclosure* shall:

1. Contain the following language dictated by State law in conjunction with real estate transfer: "*NOTICE OF AIRPORT IN VICINITY: This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that*

reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what appropriate annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you."

2. Include signs declaring the *NOTICE OF AIRPORT IN VICINITY* and a map of the Airport Influence Area to be prominently posted in the real estate sales office and/or other key locations at the Project site.

4.6.1B Any activity (i.e., activities taking place in the common areas and parks within the site) or development (i.e., residential and retail development) on the Project site shall be prohibited from:

- Emitting/generating smoke (or any visibility-reducing emissions);
- Producing electromagnetic frequencies at levels that could interfere with the safe operation of Cable Airport; and
- Installing lighting that is not shielded and focused in a downward position to avoid direct light spillage/light glare/illumination into the direction of Runway 6/24 of the Cable Airport and into the sky where aircraft cross over the Project site.

The Project applicant shall provide final design of the proposed Project to staff at the City of Claremont and to the owners of Cable Airport showing that such onsite activities will not cause safety issues to pilots arriving and departing from Cable Airport or to pilots flying over the Project site.

4.6.1C Prior to recording of final tract maps of the Project site, the Project applicant shall provide a copy of a recorded and deed restricted avigation easement between the property owner (grantor) and Cable Airport (grantee) to the City of Claremont. This would establish a perpetual right and easement for the unobstructed flight of aircraft over the proposed Project site and the perpetual right to cause noise and other impacts inherent in the operation of aircraft of all types over the proposed Project site.

Impact Conclusion. Implementation of **Mitigation Measure 4.6.1A, 4.6.1B,** and **4.6.1C** does not preclude airplane crashes from occurring on the site causing hazards (injury and/or death) to site occupants and/or buildings.

Other mitigation measures have been considered but have been determined to not fully reduce the potential impact to a less than significant level. The development of different uses at the Project site has been considered; however, such a change in land uses would not be consistent with the objectives of the proposed Project. Height restrictions on buildings within the Project site would be applied in accordance with the *2011 Handbook*, CALUCP, and Claremont Zoning requirements; however, the height of structures on the site would be developed to allowable maximums. This would not protect people residing or working on the site from hazards potentially caused by activities at Cable Airport. As no mitigation measures exist to reduce impacts to a less than significant level, implementation of

the proposed Project would result in a **significant and unavoidable impact** related to safety hazards and to people residing or working in the Project area due to the close proximity of Cable Airport operations.

4.6.6 Cumulative Impacts

Implementation of **Mitigation Measures 4.6.1A**, **4.6.1B,** and **4.6.1C** would not reduce safety hazards to people residing or working in the Project area related to operational activities of Cable Airport. Each related project (including the 3 acre site adjacent to the eastern boundary of the Project site where 48 townhomes may be developed in the future), similar to the proposed Project would be required to conduct project-specific impact analysis to determine the potential of exposing residents to safety hazards or excessive noise from nearby airports. The proposed Project would not combine with other projects to result in a cumulatively considerable impact related to safety hazards from nearby airport as this type of impact is considered on a project-by-project basis.

4.7 HYDROLOGY AND WATER QUALITY

This section describes the hydrologic conditions on and adjacent to the Project site and evaluates potential impacts to surface and groundwater resources associated with the proposed Project.

The analysis contained in this section is based on the following technical studies prepared for the proposed Project:

- *Biological Resources Assessment, The Commons, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California.* LSA Associates, Inc. December 2019 (Appendix C-1).
- *Drainage Report for The Commons at NW Corner Foothill Blvd & Monte Vista Ave. City of Claremont and City of Upland.* Andreasen Engineering, Inc. October 16, 2018 (Appendix F-1).
- *Standard Urban Stormwater Mitigation Plan (SUSMP), Claremont Commons.* Everest Environmental, Inc. June 27, 2018, revised January 28, 2020 (Appendix F-2).
- *Hydrology Work Maps.* On-site Map prepared by Andreasen Engineering, Inc. on October 16, 2018. Off-site Map prepared by Arrow Engineering on October 16, 2018. (Appendix F-3).
- *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland*, *California, Alta California*. Geotechnical, Inc. June 20, 2018 (Appendix F-4).

In addition to these Project-specific technical studies, this analysis incorporates information from the following documents:

- *Statement of Water Service for: Los Angeles County APN 8307-003-066& San Bernardino County APNs 1006-312-02, 03, & 04. Golden State Water Company. May 24, 2018 (*
- *Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County.* Los Angeles County Regional Board. March 8, 2000.
- Final Draft, *2015 Urban Water Management Plan*, Claremont. Golden State Water Company. July 2016.
- *2015 Urban Water Management Plan.* Metropolitan Water District of Southern California. June 2016.
- *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements: NPDES No. CAS004001 Order No. R4-2012-0175, Waste Discharge Requirements for Municipal Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach.* California Regional Water Quality Control Board, Los Angeles Region. Adopted by the Los Angeles Regional Water Quality Control Board on November 8, 2012.
- *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements: NPDES No. CAS618036 Order No. R8-2010-0036, Waste Discharge Requirements for the San Bernardino County Flood Control District, the County of San Bernardino, and the Incorporated Cities of San Bernardino County within the Santa Ana Region.* California Regional Water Quality Control Board, Santa Ana Region. Adopted on January 29, 2010.

- Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties. California Water Resources Control Board. May 6, 2019.
- The Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin. California Water Resources Control Board. January 24, 1995, Updated June 2019.

4.7.1 Existing Setting

4.7.1.1 Topography, Drainage, and Existing Storm Drain Facilities

The Project site is primarily undeveloped property comprising pervious surfaces but contains a small impervious building pad in disrepair. Topographically, the Project site slopes gently down toward the southwest with elevations ranging from approximately 1,362 feet above mean sea level (amsl) at the northeast end to approximately 1,330 feet amsl at the southwest end.

In the past, the San Antonio Creek floodplain drained through the Project site, but the Creek was channelized in the late 1940s and 1950s. The San Antonio Dam was constructed by 1956 to manage storm water flows within San Antonio Creek. San Antonio Creek now drains within a concrete-lined channel approximately 0.2 mile east of the site. Portions of the site drain via overland sheet flow generally to the southwest corner of the site to the existing curb and gutter along Foothill Boulevard. At this point, flows continue within the curb and gutter to the west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. An underground storm drainpipe carries flows to the engineered San Antonio Creek Channel. Flows from the site comingle with the San Antonio Creek Channel approximately 0.2 mile to the east, then flow into Chino Creek approximately 5.7 miles to the south, and finally into Chino Creek Reach 1B before discharging into the Prado Flood Control Basin approximately 11.5 miles from the Project discharge point.

Runoff enters the site from partially and fully developed properties located between the site and Claremont Boulevard/Andrew Drive. One channel feature directs this off-site drainage through the site to a box culvert located beneath Foothill Boulevard.[1] These flows continue onto the property south Foothill Boulevard, where they are retained and infiltrated within a former quarry site. This condition has been previously documented in the Final EIR and associated reports prepared for the *Claremont Colleges East Campus Project.*[2]

An existing underground storm drain collects storm water runoff from the gutter at the northeast corner of Monte Vista Avenue/Foothill Boulevard and discharges directly into the box culvert along

[1] This feature has no connectivity to any water conveyance feature or system, and no longer carry upstream flows; therefore, they have not been determined to be features regulated by the California Department of Fish and Wildlife pursuant to Section 1602 of the Fish and Game Code.

[2] As stated in the February 2010 *Initial Study Claremont Colleges East Campus Project* (page 18) states, "…The site receives unintended storm water runoff from areas to the north, which results in periodic ponding in surface depressions within the project boundaries." The Hydrology Analysis (Appendix O, *Claremont Colleges East Campus Final Environmental Impact Report, SCH 2010021040*, April 2016) states that project, "… proposes to construct a retention basin that will collect the site's storm water via on-site storm drains and v-shaped concrete drainage swales, which will be installed along graded terraces on the sites' slopes. Water collected in the retention basin will infiltrate into the ground." The retention basin has been designed for the 100-year storm event.

Foothill Boulevard to the property south of the roadway. Storm water along the west side of Monte Vista Avenue currently flows south to Foothill Boulevard, then flows west for approximately 50 feet along Foothill Boulevard where there is currently no curb or cutter before entering the box culvert beneath the roadway. These flows continue beneath Foothill Boulevard to the property located directly south of Foothill Boulevard.

The current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates the site is located within Flood Zone X: Area of Minimal Flood Hazard.[3]

4.7.1.2 Water Quality

Water quality for the Project site is regulated pursuant to the Los Angeles Region of the California Regional Water Quality Control Board (Los Angeles RWQCB). However, downstream receiving waters of the site are located within the Chino Basin subwatershed of the Santa Ana River Watershed, which covers the easternmost portion of Los Angeles County, and portions of southwestern San Bernardino County, western Riverside County, and northwestern Orange County.[4] The Santa Ana RWQCB's Basin Plan (Basin Plan) is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the Basin Plan: (a) designates beneficial uses for surface and ground waters; (b) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy; and (c) describes implementation programs to protect all waters in the region. In addition, the Basin Plan incorporates (by reference) all applicable State and RWQCB plans and policies and other pertinent water quality policies and regulations.

The Basin Plan is a resource for the Santa Ana RWQCB and others who use water and/or discharge wastewater in the Santa Ana Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues.

The Basin Plan is reviewed and updated as necessary. Following adoption by the Santa Ana RWQCB, the Basin Plan and subsequent amendments are subject to approval by the State Board, the State Office of Administrative Law, and the United States Environmental Protection Agency (EPA).

According to the Basin Plan, water quality in the Santa Ana Region is affected by a number of factors, including but not limited to wastewater discharge, consumptive use, import of water high in dissolved solids, runoff from urban and agricultural areas, and the recycling of water within the basin. The most serious water-related problem identified by the Basin Plan was water supply. The Santa Ana Region

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3 *Flood Insurance Rate Map*. Federal Emergency Management Agency. Map Numbers 06071C8605H (San Bernardino County, revised August 28, 2008) and 06037C1750F (Los Angeles County, revised September 26, 2008) https://www.floodpartners.com/?gclid=EAIaIQobChMIrsmu4PaJ3wIVT2F-Ch0pAQUYEAMYASAAEgJunfD_BwE (accessed September 18, 2019).

4 The Santa Ana River Watershed lies primarily within the boundaries of the Santa Ana Regional Water Quality Control Board. However, a portion of the Chino Basin subwatershed lies within the jurisdictions of Pomona and Claremont in Los Angeles County. The primary receiving waters within the Los Angeles County portion of the Chino Basin subwatershed are San Antonio Creek and Chino Creek, which discharge into the Santa Ana River at Prado Basin.

also faces pollutant and toxicity concerns. The Santa Ana River is a discharge-dominated river, receiving most of its inputs from treated wastewater.

The Santa Ana River extends approximately 96 miles from its headwaters to where it drains into the Pacific Ocean. The headwaters for the Santa Ana River and its tributaries originate in the San Gabriel, San Bernardino, and Santa Ana Mountains. From the San Bernardino and San Gabriel Mountains, the Santa Ana River flows through the Santa Ana Valley, then through the Prado Basin and a narrow pass in the Santa Ana Mountains. From the Santa Ana Mountains, the Santa Ana River flows southwesterly to the Pacific Ocean.

The Santa Ana River is divided into six reaches. As stated previously, storm water from the Project site continue within the Foothill Boulevard curb and gutter west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. An underground storm drainpipe carries flows to the engineered San Antonio Creek Channel. Flows from the site comingle with the San Antonio Creek Channel approximately 0.4 mile to the east, then on to Chino Creek approximately 5.7 miles to the south, and finally on to Chino Creek Reach 1B before discharging into the Prado Flood Control Basin approximately 11.5 miles from the Project discharge point. The Prado Flood Control Basin connects to Santa Ana River Reach 2, which discharges into Santa Ana River Reach 1 before ultimately discharging to the Pacific Ocean.

The Project-specific Standard Urban Storm Water Mitigation Plan (SUSMP) identified the following receiving waters as being in the most recent Federal Clean Water Act (CWA) Section 303(d) list of impaired water bodies:

- San Antonio Creek for pH;
- Chino Creek Reach 2 for pH and Coliform Bacteria;
- Chino Creek Reach 1B for Chemical Oxygen Demand (COD) and Nutrients; and
- The Prado Flood Control Basin is listed for pH.

Tables 4.7.A and 4.7.B identify the designated beneficial uses for receiving waters. These designations provide a description of how water is used and what beneficial purposes it serves. Table 4.7.A provides a description of each of these beneficial water uses, while Table 4.7.B provides the specific locations of the various beneficial use designations.

Table 4.7.A: Descriptions of Beneficial Uses

Designated Beneficial Use	Description of Beneficial Use
Municipal and Domestic Supply (MUN)	Waters used for community, military, municipal, or individual water supply systems including, but not limited to, drinking water supply.
Agricultural Supply (AGR)	Waters used for farming, horticulture or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.
Industrial Service Supply (IND)	Waters used for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection and oil well repressurization.

Table 4.7.A: Descriptions of Beneficial Uses

Designated Beneficial Use	Description of Beneficial Use
Industrial Process Supply (PROC)	Waters used for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, process water supply and all uses of water related to product manufacture or food preparation.
Groundwater Recharge (GWR)	Waters used for natural or artificial recharge of groundwater proposed for future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
Hydropower Generation (POW)	Waters used for hydroelectric power generation.
Water Contact Recreation (REC1)	Waters used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs.
Non-contact Water Recreation (REC2)	Waters used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing and aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Waters that support warm water ecosystems including, but not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.
Limited Warm Freshwater Habitat (LWRM)	Waters that support warm-water ecosystems which are severely limited in diversity and abundance as the result of concrete-lined watercourses. Also low, shallow dry weather flows which result in extreme temperature, pH, and/or dissolved oxygen conditions. Naturally reproducing finfish populations are not expected to occur.
Cold Freshwater Habitat (COLD)	Waters that support cold water ecosystems that may include, but are not limited to, preservations and enhancement of aquatic habitats, vegetation, fish and wildlife, including invertebrates.
Wildlife Habitat (WILD)	Water that support wildlife habitats including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
Rare and Endangered Species Habitat (RARE)	Waters that support habitat necessary for the survival and successful maintenance of plant or animal species designated under State or Federal law as rare, threatened, or endangered.
Spawning, Reproduction, and Development (SPWN)	Waters that support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.

Source: *Chapter 3: Beneficial Uses*. Santa Ana Basin Plan. January 24, 1995; Updated June 2019. https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2019/New/Chapter_3_June_2019.pdf (accessed September 18, 2019).

Table 4.7.B: Locations of Beneficial Uses

Designated Beneficial Use	San Antonio Creek	Chino Creek Reach 2	Chino Creek Reach 1B	Prado Basin Management Zone	Santa Ana River Reach 2	Santa Ana River Reach 1
Municipal and Domestic Supply (MUN)	Present	Excepted	Excepted	Excepted	Excepted	Excepted
Agricultural Supply (AGR)	Present	—	—	—	Present	—
Industrial Service Supply (IND)	Present	—	—	—	—	—

Table 4.7.B: Locations of Beneficial Uses

Designated Beneficial Use	San Antonio Creek	Chino Creek Reach 2	Chino Creek Reach 1B	Prado Basin Management Zone	Santa Ana River Reach 2	Santa Ana River Reach 1
Industrial Process Supply (PROC)	Present	—	—	—	—	—
Groundwater Recharge (GWR)	Present	Present	—	—	Present	—
Hydropower Generation (POW)	Present	—	—	—	—	—
Water Contact Recreation (REC1)	Present	Present*	Present	Present	Present	Present*
Non-contact Water Recreation (REC2)	Present	Present	Present	Present	Present	Present
Warm Freshwater Habitat (WARM)	—	—	Present	Present	Present	Intermittent
Limited Warm Freshwater Habitat (LWRM)	—	Present	—	—	—	—
Cold Freshwater Habitat (COLD)	Present	—	—	—	—	—
Wildlife Habitat (WILD)	Present	Present	Present	Present	Present	Intermittent
Rare and Endangered Species Habitat (RARE)	—	—	Present	Present	Present	—
Spawning, Reproduction, and Development (SPWN)	—	—	—	—	Present+	—

*Access prohibited in all or some portions per agency with jurisdiction.
+ SPWN only from Prado Dam to 0.6 mile downstream of the State Route 90 (Imperial Highway) Bridge.
Note: "Excepted" indicates the waterbody is specifically exempt from the **MUN** designation in accordance with the criteria specified in the "Sources of Drinking Water Policy," which directed the Regional Boards to add the **MUN** Beneficial Use for all waterbodies not already so designated, unless they met certain exception criteria pursuant to Regional Water Quality Control Board Resolution No. 89-42. California State Water Resources Control Board, Resolution No. 88-63, "Sources of Drinking Water Policy," adopted May 19, 1988.
Source: *Chapter 3: Beneficial Uses*. Santa Ana Basin Plan. January 24, 1995; Updated June 2019. Table 3-1 Beneficial Uses – Continued, Pages 3-1, 3-28, 3-37, 3-40, and 3-46.
https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2019/New/Chapter_3_June_2019.pdf (accessed September 18, 2019).

4.7.1.3 Water Supply

Domestic water supply for the City and the Project site is provided by the Golden State Water Company (GSWC)[5] through a combination of local groundwater and imported water. Approximately 60 percent

[5] *Statement of Water Service for: Los Angeles County APN 8307-003-066 & San Bernardino County APNs 1006-312-02, 03, & 04.* Golden State Water Company. May 24, 2018.

of GSWC's supply is extracted from the Six Basins[6] and Chino Basin in accordance with the Six Basins Judgment, which defines adjudication for these basins to ensure safe operating yield and avoidance of groundwater over-extraction.[7] The balance of GSWC's supply is imported from the Metropolitan Water District of Southern California (MWD) via the Three Valleys Municipal Water District (TVMWD). The GSWC's Claremont System's[8] water use in 2015 was 192 gallons per capita per day (GPCD).[9]

The site is located at the interface between the Upper Claremont Heights Basin and the Pomona Basin. The operating safe yield (OSY) for the Six Basins was calculated to be 19,300 acre-feet per year (AFY), of which the GSWC's Claremont System has pumping rights to 34.74 percent.[10] Additional pumping rights secured by the GSWC under long-term leases from the City and Pomona College for 2.77 and 1.85 percent, respectively, raise the current total available groundwater rights to 39.36 percent of the Six Basins OSY. Since implementation of the Six Basins Judgment, GSWC's Claremont System pumping rights have varied between 6,298 and 9,447 AFY because the Six Basins Watermaster calculates the OSY based on fluctuating hydrologic conditions.[11] It should be noted that the Six Basins Judgment allows rightholders that do not pump their full allotment in a given year to carry-over the unused water rights into the following year.

4.7.1.4 NOP/Scoping Comments

The City received three comment letters in response to the Notice of Preparation (NOP) circulated publicly between November 19 and December 20, 2019, concerning the proposed Project's potential impacts associated with hydrology and/or water quality. Table 1.A in the Executive Summary and Appendix A2 detail all the comments received during the NOP review period. The main issues of these comments include:

- The project should consider storm water runoff from a potential increase in rainfall volumes and intensity.
- The project should consider the potential for Monte Vista Avenue to convey increased storm water runoff onto the site from the San Antonio Creek floodplain and resulting in on-site flooding.
- Project-related changes in upstream and downstream drainage patterns, runoff, and sedimentation should be included in the EIR. The volume, velocity, and frequency of existing and post-Project surface flows, polluted runoff, and soil erosion in streams and water bodies should be discussed.
- For streams or drainage channels subject to California Department of Fish and Wildlife jurisdiction pursuant to Section 1600 et seq. of the California Fish and Game Code, the 100, 50, 25, 10, 5, and 2-year frequency storm event for existing and proposed conditions should be evaluated and avoidance, minimization, and/or mitigation measures should be prescribed as applicable.

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6 The Six Basins comprise the Ganesha, Live Oak, Pomona, Lower Claremont Heights, Upper Claremont Heights, and Canyon Basin.

7 *Final Draft, 2015 Urban Water Management Plan – Claremont.* Golden State Water Company. Page 6-6. July 2016.

8 The Claremont System serves the City of Claremont, part of the Cities of Montclair, Pomona, and Upland, and a portion of unincorporated County land.

9 *Final Draft, 2015 Urban Water Management Plan – Claremont.* Golden State Water Company. Page 5-7. July 2016.

10 Ibid. Page 6-6.

11 Ibid. Page 6-6 and Page 6-7.

- The Project should consider the depth of the groundwater table and the potential for necessary dewatering activities during construction.
- The Project should consider risks of flooding and/or inundation due to potential failure of the San Antonio Dam.

The following comments related to hydrology and/or water quality were received during the Public Scoping Meeting held at Claremont City Hall on September 24, 2018:

- How will storm water flows from the north be handled on site and comingled with on-site and off-site flows.
- Concern about storm water management.

The analysis presented in Section 4.7.5 below addresses the NOP comment letters and public scoping meeting comments in accordance with CEQA.

4.7.2 Existing Policies and Regulations

In the past, the effort to control the discharge of storm water has focused on managing the quantity of storm water (e.g., flood control) and only to a limited extent on managing the quality of storm water. In recent years, awareness of the need to improve water quality has increased. With this awareness, an extensive body of federal, State, and local laws and regulatory programs has been established to pursue the goal of reducing pollutants contained in storm water discharges to waterways. The emphasis of these programs is to promote the concept and the practice of preventing pollution at the source, before it can cause environmental harm.

4.7.2.1 Federal Regulations

Clean Water Act. In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the state that the discharge would comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request.)
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. RWQCBs administer this permitting program in California.

- Section 402(p) requires permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the United States Army Corps of Engineers (USACE).

EPA regulations require NPDES permits for discharges of storm water from industrial/construction and MS4s. To comply with the permits, storm water pollution controls must be implemented for construction and industrial activity that discharges either directly to surface waters or indirectly through separate municipal storm drains. Pollution control is achieved by establishing engineering measures that have been designed, tested, and successfully implemented throughout the past decades, such as detention basins and sediment traps, during both the construction period and the operational phases of a project. In California, the RWQCBs administer the NPDES permitting program.

Pursuant to Section 404 of the CWA, the USACE regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in the USACE regulations). The USACE typically regulates as non-wetland waters of the U.S. any body of water displaying an ordinary high water mark (OHWM). In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met.

National Flood Insurance Program (NFIP). Beginning with the Flood Control Act of 1936, Congress assigned the USACE the responsibility for flood control engineering works and later for floodplain information services. Flood control was provided through the construction of dams and reservoirs. Despite these programs and rapidly rising federal expenditures for flood control, flood losses continued to rise. In 1968, Congress passed the National Flood Insurance Act, which created the NFIP. The Flood Disaster Protection Act of 1973, which amended the 1968 Act, required the purchase of flood insurance by property owners who were located in special flood hazard areas and were being assisted by federal programs, or by federally supervised, regulated, or insured agencies or institutions.

National Flood Insurance Program Reform Act of 1994. In 1994, the National Flood Insurance Program Reform Act went through its first major revision since its inception. Included in this revision were provisions that if a lender were to escrow an account and if the structure were in the floodplain, then the lender *must* escrow for flood insurance. The revised legislation also included increased flood insurance limits and the elimination of the 1962 buy-out program. However, the legislation did initiate the Hazard Mitigation Fund as part of the flood insurance policy. Also included in this legislation was the increase from a 5-day to a 30-day waiting period for a new policy to become effective. It also prohibits the waiver of flood insurance purchase requirements as a condition of receiving federal

disaster assistance. If the flood insurance policy were not maintained, in the event of another disaster, no disaster assistance would be made available for that structure.

4.7.2.2 State Regulations

Porter-Cologne Water Quality Control Act. California's Porter-Cologne Act,[12] enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. It prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant."

Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and for regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan.

RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. The water quality standards developed for particular water segments vary depending on uses. Additionally, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

The NPDES Construction General Permit issued by the SWRCB applies to all construction activities that result in the disturbance of at least one acre of total land area, or activity that is part of a larger common plan of development of one acre or greater. The NPDES permit deals with both the construction phase and operational phase of development projects. For the construction phase of a project, the NPDES permit identifies the preparation of a Storm Water Pollution Prevention Plan (SWPPP).

The implementation of NPDES permits ensures the State's mandatory standards for the maintenance of clean water and the federal minimum standards are met. Coverage under an NPDES permit regulates sedimentation and soil erosion through implementation of an SWPPP and periodic inspections by RWQCB staff. An SWPPP is a written document that describes the construction operator's activities to comply with the requirements in the NPDES permit. The SWPPP establishes a process whereby the operator evaluates potential pollutant sources at the site and implements Best Management Practices (BMPs) designed to prevent or control the discharge of pollutants in storm water runoff.

[12] Water Code §§13000 et seq.

Storm water control measures during construction and grading would be outlined in the construction NPDES permit and SWPPP prepared for the proposed Project. Examples of such BMP control measures include but are not limited to the following:

- Temporary detention basins for runoff and silt containment;
- Regular street-sweeping and truck washing prior to exiting construction areas;
- Covering of soil hauling trucks to minimize dust generation (and silt buildup on project roads;
- Dirt rockers at project exits to reduce soil transported out of construction areas;
- Monitoring of runoff and protection devices during storm events;
- Use of silt fencing, gravel bags, and/or straw bales to channel runoff to temporary basins; and
- Identification of emergency procedures in case of hazardous materials spills.

The Project applicant would be required to obtain a construction NPDES permit prior to any site grading.

California Fish and Game Code. The California Fish and Game Code has provisions to prevent unauthorized diversions of any surface water and discharge of any substance that may be deleterious to fish, plant, animal, or bird life. The California Department of Fish and Wildlife (CDFW), through provisions of the California Fish and Game Code,[13] is empowered to regulate any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. The presence of a channel bed and banks, and at least an intermittent flow of water define streams (and rivers), is one of the most important factors in establishing CDFW jurisdiction. The CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream, or lake as defined by the CDFW.

Groundwater Management Act (AB 3030). The Groundwater Management Act[14] provides a systematic procedure for an existing local agency to develop a groundwater management plan. Assembly Bill (AB) 3030 allows a local agency whose service includes a groundwater basin that is not already subject to groundwater management pursuant to law or court order to adopt and implement a groundwater management plan and includes plans to mitigate overdraft conditions, control brackish water, and to monitor and replenish groundwater. Adjudicated basins[15] are not required to form groundwater sustainability agencies or prepare groundwater management plans. Rather, adjudicated basins are required to submit an annual report to the Department of Water Resources, which provide much of the same information required by Courts during the adjudication process. As detailed in Section 4.7.1.3, above, the basins from which the GSWC (and ultimately the project itself) may obtain water have previously been adjudicated.

Sustainable Groundwater Management Act of 2014 (Senate Bills 1168 and 1319, Assembly Bill 1739). In March 2014, the Governor's Office released a draft framework soliciting input on actions

13 California Fish and Game Code §§1601 through §1603.

14 California Water Code, §§ Sections 10750–10756

15 Through adjudication, the courts can assign specific water rights to water users and can compel the cooperation of those who might otherwise refuse to limit their pumping of groundwater. Watermasters are typically appointed by the court to ensure that pumping conforms to the limits defined by the adjudication.

that can be taken to ensure local groundwater managers have the tools and authority to manage groundwater sustainably. In response, Senate Bill (SB) 1168 and AB 1739 were introduced. These bills moved through the legislation process in nearly identical form while the authors and administration convened multiple stakeholder meetings and further developed the provisions of the bills. On August 22, 2014, both bills were amended to divide the provisions between the two bills. In tandem, SB 1168 and AB 1739 provide a comprehensive groundwater sustainability management program.[16] In September 2014, SB 1168 and SB 1319, and AB 1739 were enacted, amending and adding to the State's Government and Water Codes relative to the management of groundwater resources. The three bills comprise the Sustainable Groundwater Management Act of 2014, which provides for the formation of local groundwater sustainability agencies responsible for monitoring and sustainably managing groundwater basins.

Cobey-Alquist Flood Plain Management Act (Sections 8000–9651 of the California Water Code). The Cobey-Alquist Flood Management Act states that a large portion of land resources of the State of California is subject to recurrent flooding. The public interest necessitates sound development of land use, as land is a limited, valuable, and irreplaceable resource, and the floodplains of the State are a land resource to be developed in a manner that, in conjunction with economically justified structural measures for flood control, would result in prevention of loss of life and of economic loss caused by excessive flooding. The primary responsibility for planning, adoption, and enforcement of land use regulations to accomplish floodplain management rests with local levels of government. It is policy of the State of California to encourage local government to plan land use regulations to accomplish floodplain management and to provide State assistance and guidance. As part of its discretionary review process, the City must determine if the project would comply with this Act and not create flooding impacts on adjacent land uses.

California Toxics Rule. On May 18, 2000, the State Environmental Protection Agency (CalEPA) promulgated numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to waters in the State of California. CalEPA promulgated this rule based on the Administrator's determination that the numeric criteria are necessary in California to protect human health and the environment. Pursuant to this rule, project-specific treatment control BMPs shall be capable of removing pollutants at a high efficacy level equal to or greater than (≥) 80 percent. The rule fills a gap in California water quality standards that was created in 1994 when a State court overturned the State's water quality control plans containing water quality criteria for priority toxic pollutants. These federal criteria are legally applicable in the State for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA.

4.7.2.3 Local Regulations

Municipal Separate Storm Sewer System Permit System. In Los Angeles County, the City of Claremont is a co-permittee under the Los Angeles Regional Water Quality Control Board's Order Number R4-2012-0175: National Pollutant Discharge Elimination System General Permit No. CAS004001 (also known as the Municipal Separate Storm Sewer System or MS4 Permit for co-permittees in Los Angeles County).

[16] *Sustainable Groundwater Management Act of 2014*. Association of California Water Agencies https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed September 18, 2019).

RWQCBs regulate hydromodification[17] as well as surface and groundwater quality through adoption of water quality plans and standards, and issuance of water quality permits and waivers. The NPDES MS4 permit is intended to regulate the discharge of urban runoff from the MS4. Under the applicable NPDES MS4 permits, the City is responsible for the management of storm drain systems within its jurisdiction.

The MS4 contains provisions for receiving water limitations, discharge prohibitions, and storm water management, monitoring and reporting for reducing pollutants to applicable standards. The Local Implementation Plan (LIP) describes how the permittees of the MS4 would implement the requirements of the Permit. The MS4 Permit mandates a Low Impact Development (LID) approach to storm water treatment and management of runoff discharges pursuant to Los Angeles County Code Title 12, Chapter 84. The Project site should be designed to minimize imperviousness, detain runoff, and infiltrate, reuse runoff where feasible. LID BMPs should be used to infiltrate, harvest and use, or treat runoff from impervious surfaces, in accordance with Los Angeles County's *Low Impact Development Standards Manual*.[18] The project must ensure that runoff does not create a hydrologic condition of concern. RWQCBs continuously update impairments as studies are completed.

City of Claremont Standard Urban Stormwater Mitigation Plan (SUSMP). For all projects subject to the Construction General Permit (CGP) in Los Angeles County, applicants are required to develop and implement an effective SUSMP; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP. The purpose of a SUSMP is to:

1) Identify all pollutant sources, including sources of sediment that may affect the quality of storm water discharges associated with daily use/activity (storm water discharges) from the property site;
2) Identify non-storm water discharges;
3) Identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the property site; and
4) Develop a maintenance schedule for BMPs designed to reduce or eliminate pollutants.

In November 2013, Los Angeles County amended County Code Title 12, Chapter 84 to incorporate the requirements of the 2012 MS4 Permit, LID approach, and SUSMP. Accordingly, the Project-specific SUSMP shall be referred to as the LID Plan. The Project applicant would be required to obtain a construction NPDES permit prior to any site grading, which would require the identification of post-construction BMPs to be incorporated into the Project-specific LID Plan to control the post-construction entry of contaminants into storm flows.

In accordance with *CEQA Guidelines* Section 15378, the Project-specific LID Plan analyzes the project, to ensure the Project is considered in light of the whole action. As required by Claremont acting as the Project Lead Agency under CEQA, project-specific LID Plan must be submitted to the City for approval prior to the City issuing any building or grading permits. A LID Plan identifies applicable RWQCB-approved BMPs to address the quality of post-construction storm water runoff water quality.

[17] Hydromodification is the alteration of the hydrologic characteristics of coastal and non-coastal waters, which, in turn, could cause degradation of water resources.

[18] *Low Impact Development Standards Manual.* County of Los Angeles Department of Public Works. February 2014.

These BMPs include installation and maintenance of requirements for all structural or treatment control BMPs to reduce pollutants in post-development runoff. Projects designated as "Priority Projects" are further required to incorporate LID features and BMPs to address pollutants of concern from the project site. Due to the size, location, and nature of the development, the Project is not designated a Priority Project.

City of Claremont General Plan. The Claremont General Plan identifies several goals and policies related to hydrology and water quality within the City. Some of these goals and policies are designed for implementation citywide, while others are designed to be implemented at site-specific locations depending on the type of development proposed. Accordingly, Table 4.7.D in Section 4.7.5, below, summarizes the Project's consistency with applicable goals and policies of the Claremont General Plan.

4.7.3 Thresholds of Significance

CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

For the purpose of this analysis, Appendix G of the *CEQA Guidelines* has been used as the significance threshold for surface hydrology, water quality, and/or groundwater. The Project would have a significant impact on surface hydrology, water quality, and/or groundwater if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
    - Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or
    - Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; and/or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.7.4 Methodology Used to Assess Impacts

The Drainage Report analysis divided the Project site into drainage areas and used runoff characteristics (soil type, impervious fraction) and acreage in order to calculate flows in cubic feet per second from 25-year and 50-year storm events. The Drainage Report estimates the peak discharge for drainage area based on ratio of runoff depth to rainfall depth, time-averaged rainfall intensity for a storm duration equal to the time of concentration, the area of the basin, and the land use type and soil condition.

The Drainage Report determined the required storage volume of BMPs to capture increased runoff from the Project site resulting from conversion of pervious surfaces to impervious surfaces. The post-Project flows have been allocated to flow in a manner that resembles the existing conditions and maintains current drainage patterns.

Overall, the evaluation of hydrology and water quality impacts associated with the proposed Project includes the following:

- Determine the construction phase water quality impacts based on NPDES standards;
- Determine the construction impacts on drainage patterns and drainage capacity;
- Determine the operational water quality impacts based on NPDES standards;
- Determine the operational impacts on drainage patterns and drainage capacity; and
- Determine the impacts on local groundwater table levels.

The Project-specific LID Plan analyzes water quality and storm water impacts of the project site in accordance with the Los Angeles County RWQCB MS4 Permit. Downstream receiving waters of the site are located within the Chino Basin subwatershed of the Santa Ana River Watershed, which covers the easternmost portion of Los Angeles County, and portions of southwestern San Bernardino County (including the City of Upland), western Riverside County, and northwestern Orange County. The Santa Ana River Watershed lies primarily within the boundaries of the Santa Ana Regional Water Quality Control Board. However, a portion of the Chino Basin subwatershed lies within the jurisdictions of Pomona and Claremont in Los Angeles County. The primary receiving waters within the Los Angeles County portion of the Chino Basin subwatershed are San Antonio Creek and Chino Creek, which discharge into the Santa Ana River at Prado Basin.[19]

According to the Los Angeles County RWQCB Basin Plan, water quality objectives for San Antonio Creek and Chino Creek have been established by the Santa Ana RWQCB and are administered

[19] *National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements: NPDES No. CAS004001 Order No. R4-2012-0175, Waste Discharge Requirements for Municipal Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except those Discharges Originating from the City of Long Beach*. California Regional Water Quality Control Board, Los Angeles Region. Table 3 (Discharge Location). Adopted by the Los Angeles Regional Water Quality Control Board on November 8, 2012.

pursuant to the Santa Ana RWQCB Basin Plan.[20] Therefore, impacts to water quality from the proposed Project are analyzed in the Project-specific LID Plan in accordance with the Santa Ana RWQCB Basin Plan for the City of Claremont.[21]

The Project-specific LID Plan (Appendix F-2) characterized the physical properties of the Project site and receiving waters, delineated a single Drainage Management Area (DMA), and divided it into four subareas (A through D) for the site (Appendix F-3) that direct storm water flows through BMPs based on the required amount of runoff to be captured, or the Design Capture Volume (DCV). The DCV is the volume of runoff produced by the "Design Storm," which is the 85th percentile 24-hour storm event. The DCV for the project site is 17,949 cubic feet (cf) of storm water runoff.

Drainage pattern and capacity impacts from the Drainage Study and LID Plan are evaluated against the CEQA significance criteria for runoff, flooding, and water quality to determine the potential for significant impacts.

4.7.4.1 Pollutants of Concern and Assessment Methodology

Pollutants expected from development of the Project site include bacteria and viruses, sediments from typical fallout, oils and grease (hydrocarbons), metals, nutrients, pesticides, and trash and debris. Potentially, the site discharges may contain organic compounds. The pollutants of concern for the water quality analysis were identified based on the previously described regulations and the pollutants identified by regulatory agencies that potentially could be generated by urban runoff from the proposed Project. The potential pollutants associated with the Project based on the Project-specific LID Plan are identified in Table 4.7.C, which describes these pollutants and their general impact on water quality and aquatic habitat.

Table 4.7.C: Pollutants of Concern and General Water Quality Impacts

Pollutant	Water Quality Impact
Bacterial and Viruses (Pathogens)	May result in water body impairments, can exceed public health standards for water contact recreation, creating a harmful environment. Can alter the aquatic habitat and create a harmful environment for aquatic life.
Heavy Metals	Metals can be toxic to human and animal life. Toxicity varies with water hardness.
Nutrients (Phosphorous and Nitrogen)	Elevated nutrient levels in surface waters cause algal blooms, excessive vegetative growth, and dissolved oxygen levels, which is detrimental to aquatic life.
Pesticides/Herbicides	Elevated levels can indirectly or directly constitute a hazard to life or health. During cleaning activities, these compounds can be washed off into storm drains creating runoff containing toxic levels of the pesticides active component. Dirt, grease, and grime may adsorb concentrations that are harmful or hazardous to aquatic life.
Toxic Organic Compounds	May contain levels that are harmful or hazardous to aquatic life.

[20] *Chapter 3: Water Quality Objectives. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.* California Water Resources Control Board. Table 3-10 (Water Quality Objectives for Selected Constituents in Inland Surface Waters) and Page 3-38. May 6, 2019.

[21] *The Water Quality Control Plan (Basin Plan) for the Santa Ana River Basin.* California Water Resources Control Board. January 24, 1995, Updated June 2019.

Table 4.7.C: Pollutants of Concern and General Water Quality Impacts

Pollutant	Water Quality Impact
Sediments	Excessive sediment can be detrimental to aquatic life by interfering with photosynthesis, respiration, growth, and reproduction.
Trash and Debris	Detrimental effect on recreational value of a water body and aquatic habitat; interferes with aquatic life respiration and can be harmful or hazardous to aquatic animals that mistakenly ingest floating debris.
Oil and Grease	Can accumulate in aquatic life from contaminated water, sediments, and food and are toxic at low concentrations. Can persist in sediments for long periods of time and result in adverse impacts on the diversity and abundance of existing bio-communities and can affect the aesthetic value of a water body.

Sources: *Chapter 4: Water Quality Objectives*. Santa Ana Basin Plan. January 24, 1995; Updated June 2019. https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2019/New/Chapter_4_June_2019.pdf (accessed September 19, 2019).
Section VIII Pollutant Identification. Standard Urban Stormwater Mitigation Plan (SUSMP), Claremont Commons. Everest Environmental, Inc. June 27, 2018.

The pollutants of concern from the Project site that match pollutants from 303(d) listed receiving waters are bacteria and viruses (pathogens) and nutrients. PH (pH) is also a 303(d) listed pollutant, but it is not expected to occur on site.

The Project-specific LID Plan outlines the various BMPs that would be implemented for this Project. These have been developed by the Project engineer to address Project-specific water quality impacts. The selected BMPs shall achieve the following, consistent with the LID Plan requirements:

- Remove pollutants of concern (high efficiency ≥ 80 percent);
- Minimize Urban Runoff;
- Minimize Impervious Footprint;
- Conserve Natural Areas; and
- Minimize Directly Connected Impervious Areas.

4.7.5 Impact Analysis

Table 4.7.D evaluates the Project's consistency with Claremont's General Plan goals and policies related to Hydrology and Water Quality.

Table 4.7.D: Claremont and Upland General Plan Consistency Analysis, Hydrology and Water Quality

General Plan Goals and Policies	General Plan Consistency Analysis
City of Claremont General Plan – Chapter 5 Open Space, Parkland, Conservation, and Air Quality Element	
Goal 5-4: Protect groundwater resources.	
Policy 5-4.2: Encourage use of drainage improvements designed with native vegetation where possible, to retain or detain storm water runoff, minimizing volume and pollutant concentrations.	**Consistent:** Only California native and/or drought-tolerant species shall be selected for landscaping, and the landscape maintenance contractors would be provided educational materials to be made aware of site-specific water quality guidelines pursuant to **Typical Standard Condition and**

Table 4.7.D: Claremont and Upland General Plan Consistency Analysis, Hydrology and Water Quality

General Plan Goals and Policies	General Plan Consistency Analysis
	Regulation HYD-3. The site would include permeable surfaces and an on-site contech[1] retention/infiltration system. After accounting for 72 hours of infiltration and the Contech system, the site would retain and infiltrate storm water runoff. Off-site flows from the north would bypass the site via underground pipelines, thus continuing the pre-construction path of storm water conveyance at volumes that would not exceed the existing, undeveloped condition. The proposed retention/infiltration system is efficient in the high removal (>80%) of sediments, metals, oil and grease, organics, nutrients, trash, and bacteria.
Goal 5-15: Achieve the highest level of water conservation possible.	
Policy 5-15.1: Support water conservation through requirements for landscaping with drought-tolerant plants and efficient irrigation.	**Consistent:** Only California native and/or drought-tolerant species shall be selected for landscaping.
City of Claremont General Plan – Chapter 6 Public Safety and Noise Element	
Goal 6-6: Minimize the risks associated with storm flooding and dam inundation.	
Policy 6-6.1: Work with the U.S. Army Corps of Engineers and Los Angeles County to ensure dam structures are upgraded as needed to best withstand earthquakes and prevent dam inundation.	**Consistent:** Federal Emergency Management Agency (FEMA) requires that all dam owners develop Emergency Action Plans (EAP) for warning, evacuation, and post-flood actions, and development of potential flood inundation maps and facilitation of emergency response is the responsibility of the dam owner. Because the Project does not preclude the City from coordinating with the U.S. Army Corps of Engineers and Los Angeles County, it is reasonable to conclude the Project site is adequately protected from potential dam inundation to the degree that other surrounding developed properties are protected.
Policy 6-6.2: Work with the U.S. Army Corps of Engineers and Los Angeles County to encourage regular maintenance and monitoring of flood-control facilities.	**Consistent:** The Project does not preclude the City from coordinating with the U.S. Army Corps of Engineers and Los Angeles County for maintenance and monitoring of flood control facilities. Additionally, the Project would pay development impact fees that would be used in part to construct and maintain flood-control facilities citywide.
Goal 6-10: Maintain the highest level of emergency preparedness for natural and human-caused disasters and threats.	
Policy 6-10.1: Educate residents of hazards and threats addressed in the Claremont Emergency Plan/ SEMS Multi-hazard Functional Plan, and the Natural Hazard Mitigation Basic Plan and use these Plans as a guide to prevention and mitigation of natural and human-caused hazards.	**Consistent:** The proposed Project would be conditioned to comply with State Civil Code Sections 1103 through 1103.4 requiring notification to those potentially affected of the risk involved in locating within a flood hazard or dam inundation area.

Sources: City of Claremont General Plan – Chapter 5 Open Space, Parkland, Conservation, and Air Quality Element and Chapter 6 Public Safety and Noise Element (2009).

1. Contech is the manufacturer of the proposed LID BMP for the Project and the term used in the project-specific LID Plan to describe the system. https://www.conteches.com/stormwater-management?gclid=EAIaIQobChMI8vvSrZ_U5gIVZyCtBh3BiAWSEAAYASAAEgIOZPD_BwE)

4.7.5.1 Water Quality Standards and Waste Discharge

Threshold	Would the proposed Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Pollutants of concern during construction and operation of the proposed Project include bacteria and viruses, sediments from typical fallout, oils and grease (hydrocarbons), metals, nutrients, pesticides, and trash and debris. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. In addition, chemicals, liquid products, and petroleum products (such as paints, solvents, and fuels) may be spilled or leaked and have the potential to be transported via storm runoff into downstream receiving waters (e.g., San Antonio Creek, Chino Creek, Prado Basin, Santa Ana River, and, ultimately, the Pacific Ocean).

Construction activities must comply with the requirements of the SWRCB NPDES Construction General Permit pursuant to the CWA, California's Porter-Cologne Act, and the applicable NPDES MS4 Permit. Compliance with the NPDES MS4 Permit requires preparation of an SWPPP. BMPs detailed in the SWPPP would be implemented during construction activities to minimize erosion and siltation and prevent spills. Construction BMPs would include but not be limited to erosion control,[22] sediment control,[23] and good housekeeping practices.[24] These BMPs are designed to minimize erosion and retain sediment on site, and to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. The SWPPP would be developed, and construction BMPs selected and implemented to target pollutants of concern during construction.

Claremont routinely conditions project developers to comply with the requirements of the respective NPDES MS4 Permits[25] pursuant to the CWA and California's Porter-Cologne Act through implementation of construction and operational BMPs to reduce pollutants of concern. Accordingly, the following Standard Conditions and Regulations applicable to the Project site and are required to ensure Project impacts related to violation of water quality standards, waste discharge requirements, and degradation of surface and/or groundwater quality during construction of the Project remain **less than significant**.

Typical Standard Condition and Regulation HYD-1: Prior to the issuance of a grading permit, the Project applicant shall file and obtain a Notice of Intent (NOI) with the applicable Regional Water Quality Control Board(s) in order to be in compliance with the State National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit for discharge of surface runoff associated with construction activities. Evidence that this has been obtained (i.e., a copy of the Waste Discharger's Identification Number)

22 Erosion control is any source control that protects and prevents soil particles from detaching by rainfall, flowing water, or wind.

23 Sediment control is any practice that traps soil once it has been detached and moved by rain, flowing water, or wind.

24 Non-storm water management and material management "good housekeeping practices" prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharge. Waste management and materials pollution control "good housekeeping practices" prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with storm water.

25 NPDES No. CAS004001 Order No. R4-2012-0175 for the City of Claremont.

shall be submitted to the City of Claremont for coverage under the NPDES General Construction Permit. The NOI shall address the potential for an extended and discontinuous construction period based on funding availability. This condition and regulation shall be implemented to the satisfaction of the City of Claremont Director of Community Development, overseeing the Engineering Division.

Typical Standard Condition and Regulation HYD-2: Prior to the issuance of a grading permit, the Project applicant shall submit to and receive approval from the City of Claremont a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall include a surface water control plan and erosion control plan citing specific measures to control on-site and off-site erosion during the entire grading and construction period. In addition, the SWPPP shall emphasize structural and nonstructural Best Management Practices (BMPs) to control sediment and non-visible discharges from the site. The SWPPP shall include inspection forms for routine monitoring of the site during all construction phases to ensure NPDES compliance and that additional BMPs and erosion control measures would be documented in the SWPPP and utilized if necessary. The SWPPP shall address the potential for an extended and discontinuous construction period based on funding availability. The SWPPP shall be kept on site for the entire duration of Project construction and shall be available to the applicable Regional Water Quality Control Board(s) (RWQCBs) for inspection at any time. BMPs to be implemented may include the following:

- Sediment discharges from the site may be controlled by the following: sandbags, silt fences, straw wattles and temporary basins (if deemed necessary), and other discharge control devices. The construction and condition of the BMPs shall be periodically inspected during demolition and construction, and repairs shall be made when necessary as required by the SWPPP.
- Materials that have the potential to contribute to non-visible pollutants to storm water must not be placed in drainage ways and must be contained, elevated, and placed in temporary storage containment areas.
- All loose piles of soil, silt, clay, sand, debris, and other earthen material shall be protected in a reasonable manner to eliminate any discharge from the site. Stockpiles shall be surrounded by silt fences and covered with plastic tarps.
- In addition, the construction contractor shall be responsible for performing and documenting the application of BMPs identified in the SWPPP. Weekly inspections shall be performed on sandbag barriers and other sediment control measures called for in the SWPPP. Monthly reports and inspection logs shall be maintained by the contractor and reviewed by the City of Claremont, responsible agencies, and the representatives of the State Water Resources Control Board. In the event that it is not feasible to implement specific BMPs, the City of Claremont can make a determination that other BMPs would provide equivalent or superior treatment either on or off site.

This condition and regulation shall be implemented to the satisfaction of the City of Claremont Director of Community Development, overseeing the Engineering Division.

Except for a few remnant structural foundations, the Project site is relatively undeveloped. Implementation of the proposed Project would result in approximately 70 percent of the Project site (198,198 square feet) to be converted to impervious surfaces. The increase in impervious surfaces would potentially increase the volume and velocity of storm water runoff and increase pollutant loading to downstream receiving waters. As discussed below, operational BMPs would be implemented to reduce pollutants of concern during operation of the proposed Project.

As detailed in the Project-specific Drainage Study and LID Plan, storm runoff from the Project site would continue to be conveyed similar to the existing drainage patterns and in accordance with Los Angeles County's *Low Impact Development Standards Manual*.[26] Off-site flows from the north that currently enter the Project site and flow off site to the south beneath Foothill Boulevard would enter catch basins along the north property line and be conveyed underground through the site via pipelines before discharging into existing box culverts beneath Foothill Boulevard without comingling with on-site storm water flows.

To account for a potential increase on runoff volume from the increase in impervious surfaces on site, approximately 30 percent of the site would comprise drought-tolerant landscaping and other pervious surfaces designed to retain or detain storm water runoff while minimizing volume and pollutant concentrations in accordance with Claremont General Plan Policies 5-4.2 and 5-15.1. The remainder of on-site flows that currently sheet flow onto Foothill Boulevard and comingle with the San Antonio Creek Channel approximately 0.4 miles east of the Project site would be captured on site. On-site impervious areas such as rooftops and roadways/driveways/parking lots would direct flows into a storm drain system that discharges to an underground corrugated metal pipe Contech[27] retention/ infiltration system proposed in Subarea D. Off-site flows from the north would bypass the site via underground pipelines, thus continuing the pre-construction path of storm water conveyance at volumes that would not exceed the existing, undeveloped condition.

Release of pollutants of concern or other elements that might degrade or harm biological resources or ecosystem processes downstream would be minimized through implementation of the corrugated metal pipe Contech retention/infiltration system. This system is designed to provide water quality treatment during percolation with a pollutant removal efficiency rating of at least 80 percent in accordance with the California Toxics Rule. Additionally, the LID Plan requires the developer/ homeowner's association to conduct annual inspections and maintenance of the Contech retention/ infiltration system to ensure its continued operation as designed.

As preliminary Project drawings progress through the final drawings stage, the LID Plan must be updated to reflect any changes in scope and/or scale of the Project. Accordingly, the following Standard Condition and Regulation are applicable to ensure Project impacts related to violation of water quality standards, waste discharge requirements, and degradation of surface and/or groundwater quality during operation of the Project remain **less than significant**.

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26 *Low Impact Development Standards Manual.* County of Los Angeles Department of Public Works. February 2014.

27 Contech is the manufacturer of the proposed LID BMP for the Project and the term used in the project-specific LID Plan to describe the system. https://www.conteches.com/stormwater-management?gclid=EAIaIQobChMI8vvSrZ_U5gIVZyCtBh3BiAWSEAAYASAAEgIOZPD_BwE.

Typical Standard Condition and Regulation HYD-3: Prior to issuance of a grading permit, the Project proponent shall submit a Final Standard Urban Storm Water Mitigation Plan (Final SUSMP or LID Plan) to the City of Claremont for review and approval. The Final LID Plan shall specify low impact development (LID) best management practices (BMPs) to address adverse hydromodification effects for the Project site in accordance with Section 8 of the *County of Los Angeles Department of Public Works Low Impact Development Standards Manual* pursuant to the City of Claremont National Pollutant Discharge Elimination System (NPDES) No. CAS004001 Municipal Separate Storm Sewer System (MS4) Permit, Order Number R4-2012-0175. The Final LID Plan shall specify an inspection and maintenance protocol for the LID BMPs.

If the Final LID Plan indicates the Project is not exempt from hydromodification controls, The Claremont NPDES MS4 Permit requires the Project applicant to obtain Drainage Acceptance Letters from the owner of every impacted downstream property and comply with one of the following alternative requirements:

- The Project is designed to retain on-site, through infiltration, evapotranspiration, and/or harvest and use, the volume of storm water runoff from the 95th percentile, 24-hour storm; or
- The storm water runoff flow rate, volume, velocity, and duration for the post-development condition does not exceed the pre-development condition for the 2-year, 24-hour rainfall event; or
- The Erosion Potential (Ep) in the receiving water channel would approximate 1, as determined by a Hydromodification Analysis Study and the equation presented in the *County of Los Angeles Department of Public Works Low Impact Development Standards Manual*. Alternatively, other work index equations to calculate Ep may be used with approval from the Executive Officer of the Regional Water Board.

Proposed LID BMPs specified in the Final LID Plan shall be incorporated into the final grading and development plans submitted to the City of Claremont for review and approval. This condition and regulation shall be implemented to the satisfaction of the City of Claremont Director of Community Development, overseeing the Engineering Division.

The Project-specific LID Plan would be reviewed and approved as a routine action during the processing of the Project by the City; therefore, it is reasonable that the required measures and features detailed in the LID Plan to safeguard water quality would be incorporated into the proposed Project. Given compliance with **Standard Conditions and Regulations HYD-1** through **HYD-3,** and all applicable federal, State, and local laws regulating surface and groundwater quality, the proposed Project would result in **less than significant impacts** from conflicts with water quality standards and waste discharge requirements. No mitigation is required.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant.**

4.7.5.2 Groundwater

Threshold	Would the proposed Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

In its current undeveloped state, the majority of the site facilitates groundwater infiltration during storm events. The development of the site would convert approximately 70 percent of the surface area (198,198 square feet) to impermeable surfaces. The proposed Contech retention/infiltration system and landscaped areas (including private outdoor space and on-site recreation areas) would provide on-site infiltration through preservation of permeable surfaces.

The current drainage pattern of the site and its surroundings would be maintained. Flows from properties north of the site would be conveyed in bypass storm drains south to existing box culverts beneath Foothill Boulevard, and on-site flows would be conveyed in a series of storm drains to an underground Contech retention/infiltration system on site designed to exceed the site's DCV in accordance with the City's NPDES MS4 Permit. Any excess on-site flows shall be conveyed through the existing storm drain beneath Foothill Boulevard in order to maintain the site's existing drainage pattern.

The site is located at the interface between the Upper Claremont Heights Basin and the Pomona Basin. Recharge for the Upper Claremont Heights Basin and Pomona Basin occurs from deep percolation, subsurface inflow, and artificial recharge through spreading basins.[28] Additionally, pursuant to the Groundwater Management Act,[29] the Six Basins Judgment defines adjudication for these basins, and the Watermaster calculates the operating safe yield based on fluctuating hydrologic conditions to ensure safe operating yield and avoidance of groundwater over-extraction.[30] Therefore, the Project does not conflict with the stated purpose or provisions of the Groundwater Management Act (refer to Section 4.7.2.2).

The topography of the site is generally uneven, and gently sloping at about three percent from 1,350 feet above mean sea level (amsl) at the north portion of the site to 1,330 feet amsl at the southwesterly portion of the site. Per its 2018 Annual Report, the Six Basins Watermaster identifies groundwater levels in the vicinity of the site at an elevation ranging from 1,150 to 1,200 feet therefore, based on the current surface grade, groundwater levels would range from 130 to 150 feet below current surface grade.[31] Because rough grading and other excavation of the Project site is not expected to come close to 40 feet bgs, development of the Project site is not expected to encounter any groundwater or require dewatering during construction activities.

Through preservation of the site's existing drainage pattern and implementation of the underground Contech retention/infiltration system on site designed to exceed the site's DCV in accordance with the City's NPDES MS4 Permit, storm flows would be ultimately conveyed to the same areas where groundwater recharge in the Upper Claremont Heights Basin and the Pomona Basin predominantly

28 *Final Draft, 2015 Urban Water Management Plan, Claremont.* Golden State Water Company. Page 6-4. July 2016.
29 California Water Code, §§ Sections 10750–10756
30 *Final Draft, 2015 Urban Water Management Plan – Claremont.* Golden State Water Company. Pages 6-6 and 6-7. July 2016.
31 Figure 3-14, *Six Basins Watermaster 2018 Annual Report*, Weidermuth Environmental, Inc., March 2019.

occurs. Furthermore, these basins are subject to adjudication through the Six Basins Judgment to ensure safe operating yield and avoidance of groundwater over-extraction. Therefore, development of the site is not expected to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. Impacts would be **less than significant** and no mitigation is required.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant.**

4.7.5.3 Drainage Pattern and Capacity-Related Impacts

Threshold	Would the proposed Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would: i. Result in substantial erosion or siltation on- or off-site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or iv. Impede or redirect flood flows?

The hydrology conditions for the Project: 1) off-site flows from the north that enter the site via the existing drainage channel, and 2) runoff generated on site from the conversion of pervious surfaces to impervious surfaces through development of the Project.

The Project site is currently undeveloped, but a few remnant structural foundations are located in the western portion of the site. Impervious surfaces on site are currently minimal and runoff can infiltrate into existing earthen surfaces on the majority of the site. On-site soils consist primarily of Soboba stony loamy sand classified as very well draining with a high ability to transmit water.

In the past, the San Antonio Creek floodplain drained through the Project site, but the Creek was channelized in the late 1940s and 1950s. The San Antonio Dam was constructed by 1956 to manage storm water flows within San Antonio Creek. San Antonio Creek now drains within a concrete-lined channel approximately 0.2 mile east of the site. The Project-specific Drainage Study and LID Plan indicate on-site runoff drains primarily via sheet flow overland generally from north to south to the southwest corner of the site to the existing curb and gutter on Foothill Boulevard. At this point, flows continue within the curb and gutter west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. An underground storm drainpipe carries flows to the engineered San Antonio Creek Channel. Flows from the site comingle with the San Antonio Creek Channel approximately 0.2 mile to the east, then flow into Chino Creek approximately 5.7 miles to the south, and finally into Chino Creek Reach 1B before discharging into the Prado Flood Control Basin approximately 11.5 miles from the Project discharge point.

Runoff enters the site from partially and fully developed properties located between the site and Claremont Boulevard/Andrew Drive. One channel features directs this off-site drainage through the site to a box culvert located beneath Foothill Boulevard. These flows continue onto the property south Foothill Boulevard, where they are retained and infiltrated within a former quarry site. This condition has been previously documented in the Final EIR and associated reports prepared for the Claremont Colleges East Campus Project.

An existing underground storm drain collects storm water runoff from the gutter at the northeast corner of Monte Vista Avenue/Foothill Boulevard and discharges directly into the box culvert along Foothill Boulevard to the property south of the roadway. Storm water along the west side of Monte Vista Avenue currently flows south to Foothill Boulevard, then flows west for approximately 50 feet along Foothill Boulevard where there is currently no curb or cutter before entering the box culvert beneath the roadway. These flows continue beneath Foothill Boulevard to the property located directly south of Foothill Boulevard.

As detailed in the Project-specific Drainage Study and LID Plan, storm runoff from the Project site would continue to be conveyed similar to the existing drainage patterns and in accordance with Los Angeles County's *Low Impact Development Standards Manual*.[32] Off-site flows from the north that currently would enter the Project site and flow off site to the south beneath Foothill Boulevard during storm events would enter catch basins along the north property line and be conveyed underground through the site via pipelines appropriately sized[33] to safely convey the flows before discharging into existing box culvert beneath Foothill Boulevard without comingling with on-site storm water flows. Therefore, off-site flows that would enter the Project site through the drainage channel prior to development would continue to discharge through the culvert beneath Foothill Boulevard and have no potential to result in siltation or erosion, flooding, or to exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff as a result of Project construction or operation.

Construction activities must comply with the requirements of the SWRCB NPDES Construction General Permit pursuant to the CWA, California's Porter-Cologne Act, and the City's NPDES MS4 Permit. Through implementation of **Standard Conditions and Regulations HYD-1** and **HYD-2,** the proposed Project would develop an SWPPP and specify BMPs to minimize erosion and siltation and prevent spills. Construction BMPs would include but not be limited to erosion control,[34] sediment control,[35] and good housekeeping practices.[36] These BMPs are designed to minimize erosion and retain

32 *Low Impact Development Standards Manual.* County of Los Angeles Department of Public Works. February 2014.

33 Inside diameter of the proposed bypass pipelines range between 8 inches and 14 inches. Refer to Pages 11 through 13 and 20 through 22 in Appendix F1.

34 Erosion control is any source control that protects and prevents soil particles from detaching by rainfall, flowing water, or wind.

35 Sediment control is any practice that traps soil once it has been detached and moved by rain, flowing water, or wind.

36 Non-storm water management and material management "good housekeeping practices" prevent pollution by limiting or reducing potential pollutants at their source or eliminating off-site discharge. Waste management and materials pollution control "good housekeeping practices" prevent pollution by limiting or reducing potential pollutants at their source before they come in contact with storm water.

sediment on site, and to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

To account for a potential increase on runoff volume from the increase in impervious surfaces on site, approximately 30 percent of the site would comprise drought-tolerant landscaping and other pervious surfaces designed to retain or detain storm water runoff while minimizing volume and pollutant concentrations in accordance with General Plan Policies 5-4.2 and 5-15.1. The remainder of on-site flows that currently sheet flow onto Foothill Boulevard and comingle with the San Antonio Creek Channel approximately 0.4 mile east of the Project site would be captured on site. On-site impervious areas such as rooftops and roadways/driveways/parking lots would direct flows into a storm drain system that discharges to an underground corrugated metal pipe Contech retention/infiltration system proposed in Subarea D. After accounting for 72 hours of infiltration and the Contech system, the site would retain and infiltrate storm water runoff as specified in **Standard Conditions and Regulation HYD-3**. Off-site flows from the north would bypass the site via underground pipelines, thus continuing the pre-construction path of storm water conveyance so as not to impede or redirect flood flows.

Although conversion of pervious surfaces to impervious surfaces has the potential to increase the velocity and volume of on-site storm water runoff, this conversion would reduce the potential for on-site siltation and erosion during operation of the Project because less soil would be exposed to runoff. Implementation of **Standard Conditions and Regulation HYD-3** during operation of the Project site would ensure on-site storm water runoff is managed in accordance with the City's NPDES MS4 Permit. The rate and amount of surface runoff from the site would be attenuated to prevent erosion, siltation, and flooding on and off site. Additionally, the LID BMPs would manage runoff volumes and velocity so that the capacity of existing or planned storm water drainage systems would be maintained and substantial additional sources of polluted runoff would be managed in accordance with the California Toxics Rule. Because the volume and velocity of storm water flows from the Project site would not increase, improvements to downstream drainage systems are not required. Drainage pattern and capacity-related impacts would be **less than significant** and no mitigation is required.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant.**

4.7.5.4 Flood Hazard, Tsunami, and Seiche Zones

Threshold	In flood hazard, tsunami, or seiche zones, [would the Project] risk release of pollutants due to Project inundation?

The current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) indicates the Project site is located within Flood Zone X: Area of Minimal Flood Hazard.[37]

[37] *Flood Insurance Rate Map*. Federal Emergency Management Agency. Map Number 06037C1750F (Los Angeles County, revised September 26, 2008) https://www.floodpartners.com/?gclid=EAIaIQobChMIrsmu4PaJ3wIVT2F-Ch0pAQUYEAMYASAAEgJunfD_BwE (accessed September 18, 2019).

A tsunami is a series of waves generated in a body of water by a pulsating or abrupt disturbance that vertically displaces water. Due to site's elevation, its distance (approximately 34 miles) from the Pacific Ocean, and the intervening presence of Santa Ana Mountains and Puente Hills; the site is not subject to a tsunami hazard.

Seiches are oscillations in enclosed bodies of water (e.g., lakes or water tanks) that are caused by a number of factors, most often wind or seismic activity. Lakes in seismically active areas such as Silverwood Lake, Lake Arrowhead, Big Bear Lake, and Puddingstone Lake are at risk from seiches. No bodies of water or enclosed water storage features are located on, upslope of, or in the vicinity of the Project site; therefore, the site is not subject to a seiche event hazard.

The Claremont General Plan General Plan EIR indicates the Project site is located within the inundation zone of the San Antonio Dam, and there is potential, however remote, that dam failure could occur due to its proximity to the Cucamonga Fault.[38] In December 2008, the USACE issued San Antonio Dam a Dam Safety Action Class II rating, which is given to dams where failure could begin during normal operations or be initiated as the consequence of an event.[39] Under a worst-case scenario during extremely heavy and persistent rainfall in conjunction with dam failure, the Project site could be covered in floodwaters between 7 and 8 feet deep, which could reach the Project site within 15 minutes of dam failure.[40] However, the San Antonio Dam was designed to withstand the strongest possible earthquake that could occur in the area, and flooding that would occur from a dam breach would be reduced by the number and capacity of settling basins that are located south of the dam and upslope of the Project site. Therefore, both the City of Claremont considers dam inundation to be an extremely remote possibility. Nevertheless, Claremont General Plan Policies 6-6.1 and 6-6.2 require the City to work with the USACE and Los Angeles County to ensure dam structures are upgraded as needed to best withstand earthquakes and prevent dam inundation and to encourage regular maintenance of flood-control facilities.

As stated previously, the current FEMA FIRM indicates the Project site is located within Flood Zone X: Area of Minimal Flood Hazard. However, because dam failure can have severe consequences, FEMA requires that all dam owners develop Emergency Action Plans (EAPs) for warning, evacuation, and post-flood actions, and development of potential flood inundation maps and facilitation of emergency response is the responsibility of the dam owner.[41] Therefore, through implementation of Claremont General Plan Policy 6-6.1, it is reasonable to conclude the Project site is adequately protected from potential dam inundation to the degree that other surrounding developed properties are protected. Additionally, the Project site would be developed with on-site drainage and anchoring methods to prevent floating structures. The proposed Project would be conditioned to meet these requirements, including compliance with State Civil Code Section 1103 through 1103.4 requiring notification to those potentially affected of the risk involved in locating within a flood hazard or dam inundation area.

38 *Chapter 6: Public Safety and Noise Element.* The City of Claremont General Plan. Figure 6-3 (San Antonio Dam Inundation). Adopted November 14, 2006.

39 *Dam Safety Program, San Antonio Dam.* United States Army Corps of Engineers, Los Angeles District. Published June 28, 2012. https://www.spl.usace.army.mil/Media/Fact-Sheets/Article/477345/dam-safety-program/ (accessed December 31, 2019).

40 *Section 5.7 Water Resources, City of Claremont General Plan Draft EIR.* City of Claremont. Page 5-92 and Figure 5-12 (San Antonio Dam Inundation). July 2006.

41 *City of Claremont 2015 Natural Hazards Mitigation Plan.* City of Claremont. Page 98. January 20, 2015.

These requirements would be confirmed through Claremont's plan review process in accordance with General Plan Policy 6-10.1.

The Project site is located outside of any known tsunami, or seiche zones, and within an area of minimal flood hazard. Additionally, the likelihood of Project inundation due to failure of the San Antonio dam is considered low. Through implementation of Claremont General Plan Policies 6-6.1, 6-6.2, and 6-10.1, impacts from flooding risks due to Project inundation would be **less than significant**. No mitigation is required.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant.**

4.7.5.5 Water Quality Control Plan and Sustainable Groundwater Management Plan

Threshold	Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As detailed in Sections 4.7.5.1 (Water Quality Standards and Waste Discharge) and 4.7.5.2 (Groundwater), the proposed Project would comply with the requirements of the Cities of Claremont and Upland respective NPDES MS4 Permits pursuant to the CWA and California's Porter-Cologne Act through implementation of **Standard Conditions and Regulations HYD-1** through **HYD-3.** Additionally, pursuant to the Groundwater Management Act,[42] the Six Basins Judgment defines adjudication for the Upper Claremont Heights Basin and the Pomona Basin underlying the Project site. The Watermaster calculates the operating safe yield based on fluctuating hydrologic conditions to ensure safe operating yield and avoidance of groundwater over-extraction.[43] Therefore, the Project does not conflict with the stated purpose or provisions of the Sustainable Groundwater Management Act (refer to Section 4.7.2.2). **No impacts** would occur, and no mitigation is required.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. No impacts would occur.

4.7.6 Cumulative Impacts

The cumulative area of analysis for the proposed Project is the Santa Ana Watershed because flows from the site ultimately discharge into the Prado Flood Control Basin and Santa Ana River approximately 11.5 miles downstream of the Project site. Cumulatively, development within this Watershed would result in an increase in impervious surfaces, changes in the type and density of land use, and corresponding changes in the amount and characteristics of runoff. Increased impervious surfaces are likely to alter existing hydrology and increase potential pollutant loads. However, all future development in the City and throughout the Santa Ana RWQCB would be required to comply with the applicable requirements of the NPDES permit program and water quality standards defined

[42] California Water Code, §§ Sections 10750–10756

[43] *Final Draft, 2015 Urban Water Management Plan – Claremont.* Golden State Water Company. Pages 6-6 and 6-7. July 2016.

by local, regional, State and federal agencies. Continued growth is anticipated to occur in the City and surrounding areas, and all new development and significant redevelopment would be required to minimize its individual impacts to water quality and pollutant transport through implementation of BMPs detailed in Project-specific LID Plans and Water Quality Management Plans. Since all new developments would be required to mitigate for impacts to water quality on a Project- and site-specific basis while accounting for both on-site and off-site hydromodification impacts, the Project would not result in a cumulatively considerable impact related to water quality and/or hydrology.

Cumulatively, continued development within the Six Basins area would put additional pressure on water supplies. The site is located at the interface between the Upper Claremont Heights Basin and the Pomona Basin. Recharge for the Upper Claremont Heights Basin and Pomona Basin occurs from deep percolation, subsurface inflow, and artificial recharge through spreading basins.[44] Additionally, pursuant to the Sustainable Groundwater Management Act,[45] the Six Basins Judgment defines adjudication for these basins, and the Watermaster calculates the operating safe yield based on fluctuating hydrologic conditions to ensure safe operating yield and avoidance of groundwater over-extraction.[46] Therefore, the Project does not conflict with the stated purpose or provisions of the Groundwater Management Act (refer to Section 4.7.2.2).

Through preservation of the site's existing drainage pattern and implementation of the underground Contech retention/infiltration system on site designed to exceed the site's DCV in accordance with the City's NPDES MS4 Permit, storm flows would be ultimately conveyed to the same areas where groundwater recharge in the Upper Claremont Heights Basin and the Pomona Basin predominantly occurs. Furthermore, these basins are subject to adjudication through the Six Basins Judgment to ensure safe operating yield and avoidance of groundwater over-extraction.

Where and when demand necessitates, GSWC plans to use a variety of water sources, including imported water from the State Water Project through purchase from the MWD, to serve its customers. The GSWC's participation in the Six Basins Judgment and ability to import water prevents significant cumulative groundwater depletion in its service area, as groundwater extraction by the GSWC would not exceed the safe yields adjusted annually by the Watermasters of each adjudicated basin.

MWD's 2015 Urban Water Management Plan provides information about MWD's regional supply reliability and projected demands.[47] Based on information provided by EMWD and other member agencies, MWD concludes that it is able to meet projected demands for all member agencies through 2040, even during dry periods. Under extreme conditions, water supplies could be allocated using the MWD Water Supply Allocation Plan to preserve supplies in storage by requiring a reduction in demand by member agencies, including the GSWC, pursuant to SB 1168 and 1319, and AB 1739.

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44 *Final Draft, 2015 Urban Water Management Plan, Claremont.* Golden State Water Company. Page 6-4. July 2016.

45 California Water Code, §§ Sections 10750–10756

46 *Final Draft, 2015 Urban Water Management Plan – Claremont.* Golden State Water Company. Pages 6-6 and 6-7. July 2016.

47 *2015 Urban Water Management Plan.* Tables 2-4, 2-5, and 2-6. The Metropolitan Water District of Southern California. June 2016.

The proposed Project would make an incremental contribution to production of urban pollutants, but the site-specific water quality BMPs would help ensure that these contributions would not make a significant contribution to any cumulatively considerable regional water quality impacts.

The drainage system for the proposed Project would be designed so that landscape features and infiltration basin BMPs capture and treat peak flows from post-development runoff prior to discharge into the San Antonio Channel and conveyance downstream to receiving waterbodies. Because the volume and velocity of storm water flows from the Project site would not increase, improvements to downstream drainage systems are not required under the proposed Project. It is reasonable to conclude that drainage improvements on the adjacent (downstream) 70-acre Sports Park site (refer to Figure 3.3) would be sufficiently designed, installed, and maintained under the scope of that project to handle all drainage entering, generated, and exiting from that area pursuant to the City's NPDES MS4 Permit. Because off-site flows from the north that currently enter the proposed Project site would not comingle with on-site storm water flows, and on-site flows would be conveyed to an on-site retention/infiltration system designed to exceed the site's DCV in accordance with the City's NPDES MS4 Permit, continuation of the drainage pattern consistent with the Los Angeles County's *Low Impact Development Standards Manual*[48] would not result in a cumulatively considerable impact to water quality, drainage, or hydrology. No mitigation is required.

[48] *Low Impact Development Standards Manual.* County of Los Angeles Department of Public Works. February 2014.

4.8 LAND USE AND PLANNING

This section identifies land use impacts to the environment that may result from the proposed development. This section analyzes the consistency of the proposed Project with the goals and policies identified in the City of Claremont General Plan and Zoning Code. It also evaluates the compatibility of the Project with existing land uses and its consistency with other regional plans.

The analysis contained in this section is based on the following reference documents:

- *Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites,* ACTA, July 2017 (Appendix E2).
- *City of Claremont General Plan,* adopted November 2006, last revised October 2009;
- *Municipal Code,* City of Claremont, codified through October 2019;
- *Final 2008 Regional Comprehensive Plan,* SCAG, adopted October 2008; and
- *Regional Transportation Plan 2016–2040 Sustainable Communities Strategy,* SCAG, adopted April 2016.
- State of California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011.

4.8.1 Existing Setting

4.8.1.1 On-site Land Uses

The Project site is currently an undeveloped vacant lot. As of 2019, approximately 2 acres within the southwest corner of the site were being utilized as a construction staging and laydown yard for the unrelated Foothill Boulevard (Route 66) Rehabilitation Project. Additionally, an area near the southeast corner of the site was utilized as a pull-off and turnaround area for construction traffic along the westbound shoulder of Foothill Boulevard.

The Project site has a General Plan land use designation of Commercial and a zoning designation of Commercial Highway (CH).

The City of Claremont has not adopted the Cable Airport Land Use Plan for the Cable Airport located approximately 1,800 feet northeast of the site. The Los Angeles County Airport Land Use Commission does not have an adopted airport land use plan for Cable Airport; as such, the proposed Project is subject to regulations of the *California Airport Land Use Planning Handbook* (*2011 Handbook*) as the site is within 2 miles of a public use airport. The Project site is located within Safety Zone 2 and Safety Zone 4 of the *2011 Handbook*. The *2011 Handbook* defines "Suburban" as "Areas characterized by low-rise (1–2 story) development and surface parking lots."[1] Based on the nature of existing surrounding development, the Project site and surroundings are considered "Suburban" for the purposes of airport land use compatibility per the *2011 Handbook*.

[1] *California Airport Land Use Planning Handbook.* State of California Department of Transportation, Division of Aeronautics. Page 4-18. October 2011.

The Project site, together with the 3 acres of land adjacent and east within the City of Upland, was entitled in July 2009 for development as a commercial use with 70,800 square feet of office uses in four two-story buildings and 14,000 square feet of retail in two single-story buildings in Claremont, with an additional 26,700 square feet of retail in two single-story buildings in Upland.[2]

4.8.1.2 Off-site Land Uses

In the City of Claremont, adjacent uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses is adjacent to the northwest, and multifamily[3] residential uses are located farther northwest of the site beyond Claremont Boulevard. The property located due north of the site is partially vacant, with a portion occupied by Holy Infant Home Care administrative offices. The site of a proposed 70-acre sports park is located south of the site, across Foothill Boulevard. The Claremont Colleges and the College Park [mixed-use] Specific Plan are located approximately 0.33 and 0.50 mile southwest and south of the site, respectively. A vacant 3-acre area of land adjacent to the east boundary of the Project site within the City of Upland is proposed to be developed with 48 townhomes in the future. Adjacent land uses across Monte Vista Avenue in the City of Upland consist of Commercial/Industrial Mixed-Use to the east and Highway Commercial and Specific Plan (Harvest at Upland) to the southeast. The end of Cable Airport Runway 6/24 is located approximately 0.35 mile (1,800 feet) east of the approximate center of the Project site.[4]

Foothill Boulevard (Route 66) fronting the southern border of the Project site is currently subject to major renovations to incorporate a *complete streets* schema. Complete Streets are streets designed and operated to enable safe use and support mobility for all users, including people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists, or public transportation riders.[5] Improvements include protected bicycle lanes, center medians, shorter curb corner radii, elimination of free-flow right-turn lanes, angled face-out parking, street trees, planter strips and groundcover, and improved pedestrian and public transit accommodations. According to the Claremont General Plan, Foothill Boulevard through the City is intended to function as a key commercial corridor for the City.[6]

The existing on-site and adjacent off-site land uses are summarized in Table 4.8.A and are identified in previously referenced Figure 3.3. Photographs depicting the site are provided in previously referenced Figure 3.2b.

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2 *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* City of Claremont. July 20, 2009.

3 Multifamily residential uses include townhomes, apartments, and condominiums between 15.1 dwelling units (du) per acre (ac) and 22 du/ac (Residential 22).

4 Letter dated December 16, 2019, in Response to the Notice of Preparation for The Commons, SCH# 2019110341. California Department of Transportation, Division of Aeronautics – M.S. #40. (Appendix A2).

5 *United States Department of Transportation.* Complete Streets. October 26, 2015. https://www.transportation.gov/mission/health/complete-streets (accessed November 15, 2019).

6 *City of Claremont General Plan*. Land Use, Community Character, and Heritage Preservation Element. Page 2-67. November 2006, last updated October 2009.

Table 4.8.A: Existing On-site and Adjacent Off-site Land Uses and Land Use Designations

	Current Use	General Plan	Zoning
On site	Vacant and Construction Staging	Commercial	Commercial Highway (CH)
North	Vacant and Office	Business Park	Business/Industrial Park (B/IP)
South	Vacant (approved Sports Park)	Institutional	Institutional Education (IE)
East	Vacant	Business/Residential Mixed-Use (B/R-MU) in the City of Upland	Business/Residential Mixed-Use (B/R-MU) in the City of Upland
West	Armstrong Garden Center	Commercial	Commercial Highway (CH)

Sources: City of Claremont General Plan Land Use Plan. Figure 2-3. Last updated February 11, 2014
City of Claremont Zoning Map. Adopted February 25, 2014.
City of Upland General Plan Land Use. Figure LU-1. September 14, 2015.
City of Upland Zoning Code Update Map. September 14, 2015.

4.8.1.3 Claremont General Plan Land Use and Zoning Designations

The prevailing planning documents for the proposed Project is the Claremont General Plan. This General Plan is the blueprint for future growth and development for the City of Claremont. The General Plan identifies the City's goals with respect to both built and natural environments and establish the policies and implementation measures to achieve the stated goals.

Claremont General Plan. As identified in the Claremont General Plan Land Use Plan and detailed in Table 4.8.A, the Project site is currently designated Commercial. The Commercial designation "… provides opportunities for a broad range of retail, professional office, and service-oriented businesses, including supermarkets, theaters, restaurants, and specialty retail stores. Drive-through businesses are prohibited. The Commercial category accommodates uses that typically attract vehicular traffic. This designation applies to properties along Foothill Boulevard, Indian Hill Boulevard, and the east end of Base Line Road."[7]

Claremont Zoning. Claremont's zoning designations generally follow its General Plan land use designations for the Project site. As identified on Claremont's Zoning Map and detailed in Table 4.8.A, the Project site is zoned Commercial Highway.

4.8.1.4 NOP/Scoping Comments

The City received five comment letters in response to the Notice of Preparation (NOP) circulated publically between November 19 and December 20, 2019, concerning the proposed Project's potential impacts associated with land use and planning. Table 1A in the Executive Summary and

[7] Ibid. Page 2-13.

Appendix A2 detail all the comments received during the NOP review period. The main issues of these comments include:

- The local agency shall refer the proposed action to the Los Angeles County Airport Land Use Commission for a consistency determination in accordance with the California Public Utilities Code, Section 21676(b).
- In the absence of an airport land use compatibility plan for the Los Angeles County portion of the Airport Influence Area for Cable Airport in the City of Upland, the Los Angeles County Airport Land Use Commission will use the *2011 Handbook*, as published by the California Department of Transportation for a consistency determination.
- The analysis in the Environmental Impact Report should refer to pertinent sections of Upland's 2015 Cable Airport Land Use Compatibility Plan regarding noise contours and compatibility zones for the San Bernardino County portion of the Project Site.
- The Project site is within Safety Zones 2 and 4 for Cable Airport as defined in the *2011 Handbook*, which generally recommends avoiding all residential, multistory, and high-density and intensity land uses within Safety Zone 2 and limiting residential uses to low density in Safety Zone 4.
- Some form of restrictions on land use is essential, including limiting the number of persons in an area and limiting the area covered by occupied structures, to protect people and property on the ground from the risks of near-airport aircraft accidents.
- The Project site is inappropriate for a residential development because of its location along non-residential corridors (Foothill Boulevard and Monte Vista Avenue) surrounded on all sides by non-residential uses.
- The proposed Project lacks connectivity being located in an area zoned for commercial uses.
- The analysis in the Environmental Impact Report should include a consistency analysis of the proposed Project in relation to the goals of the SCAG 2016 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS).

On December 18, 2019, the City of Upland responded to the NOP through a letter describing the inconsistencies between the proposed Project and various planning documents pertaining to Upland's jurisdiction. Specifically, the City of Upland indicated that the proposed Project is not consistent with the Cable Airport Land Use Compatibility Plan and "materially conflicts with the surrounding character of established professional/office enterprises and ownership

The following comments related to land use were received during the Public Scoping Meeting held at Claremont City Hall on September 24, 2018:

- Consider a land swap between the Cities of Upland and Claremont to place the proposed Project entirely within one jurisdiction.
- A local resident questioned if the decision to develop the site for mixed-use as opposed to the previously-approved commercial use is irreversible.
- Concern about community character, social cohesion, and walkability.

- Proposed building setbacks and density on site.

The analysis presented in Section 4.8.5, below, addresses the NOP comment letters and public scoping meeting comments in accordance with CEQA.

4.8.2 Existing Policies and Regulations

4.8.2.1 Federal Regulations

There are no federal regulations that apply to the Project with regard to land use and planning.

4.8.2.2 State Regulations

California Government Code Section 65450. Section 65450 et seq. of the California Government Code authorizes cities to prepare, adopt, and administer Specific Plans for portions of their jurisdictions as a means of implementing the City's General Plan. All Specific Plans must comply with Sections 65450–65457 of the Government Code.

California Constitution, Article XI, Section 7. Article XI, Section 7, of the California State Constitution gives cities and counties the authority to regulate land use. California State Planning and Land Use Law (Government Code Section 65000 et seq.) sets forth minimum standards for the regulation of land use at the city and county level.

California Government Code Section 65584. The Regional Housing Needs Assessment (RHNA) is mandated by State Housing Law as part of the periodic process of updating local housing elements of the General Plan. The RHNA quantifies the need for housing within each jurisdiction during specified planning periods. The RHNA for San Bernardino and Los Angeles Counties is developed by SCAG and allocates to cities and the unincorporated counties their "fair share" of the region's projected housing needs. The projected housing needs in the RHNA are categorized by income levels (very low, low, moderate, and above moderate income) established by the U.S. Department of Housing and Urban Development (HUD), and local governments may report Accessory Dwelling Units (ADU) as progress toward RHNA pursuant to Government Code Section 65400 based on their actual or anticipated affordability. The 5th Cycle RHNA Allocation Plan, which covers the planning period from January 2014 to October 2021, was adopted by SCAG on October 4, 2012.

Assembly Bill (AB) 68/AB 881. ADUs are additional living quarters on the same lot as a primary dwelling unit. While California laws have paved the way for increased ADU development, some cities have enacted ordinances that render ADU development infeasible or cost prohibitive. The Cities of Claremont and Upland administer the development of ADUs in accordance with Claremont Municipal Code Chapter 16.333 and Upland Municipal Code Section 17.05.020; however, AB 68/AB 881 prohibits local agencies from adopting ADU ordinances that impose minimum lot size requirements for ADUs; set certain maximum ADU dimensions; and/or require replacement of off-street parking when a "garage, carport or covered parking structure" is demolished or converted to construct the ADU. Notably, AB 68/AB 881 allows for an ADU as well as a "junior" ADU where certain access, setback, and other criteria are met; this has been referred to the "tripelex-ation" of single-family zoning. AB 68/AB 881 has also explicitly identified opportunities for ADUs in multifamily buildings, including storage rooms, boiler rooms, etc., where building standards are met. New enforcement mechanisms have also been added, and the

Department of Housing and Community Development (HCD) may now notify the Attorney General's Office of any violations of these new provisions.

As detailed in Section 3.0 of this EIR, the Project may be developed with up to 20 percent of the proposed dwelling units to include ADUs site-wide. Based on the proposed 110 primary residences (27 single-family residences, 68 townhomes, and 15 residential flats), an additional 22 ADUs on the Project site are expected to contribute incrementally to the density and intensity of the proposed land uses. Additionally, it is speculative to anticipate any number of additional residents that would be generated from the inclusion of ADUs on the Project site due to unknown market conditions.

California Public Utilities Code Section 21676 (Airport Land Use Commission). Projects located within zones administered by airport land use compatibility plans must comply with project-specific conditions imposed by the Airport Land Use Commission with jurisdiction over such airports.

California Airport Land Use Planning Handbook. The October *2011 California Airport Land Use Planning Handbook* (*2011 Handbook*) was prepared to provide guidance for conducting airport land use compatibility planning as required by Article 3.5, Airport Land Use Commissions, Public Utilities Code (PUC) Sections 21670 – 21679.5. Article 3.5 outlines the statutory requirements for Airport Land Use Commissions (ALUC) including the preparation of an Airport Land Use Compatibility Plan (ALUCP) and also mandates that the Division of Aeronautics create a handbook that contains the identification of essential elements for the preparation of an ALUCP. *2011*The *2011 Handbook* is intended to (1) provide information to ALUCs, their staffs, airport proprietors, cities, counties, consultants, and the public; (2) identify the requirements and procedures for preparing effective compatibility planning documents; and (3) define exemptions where applicable.

The *2011 Handbook* provides guidance for meeting the baseline safety and compatibility requirements of the FAA and Division of Aeronautics; however, ALUCs may choose to be more restrictive than California's guidance when local conditions warrant. The Division of Aeronautics does not have the authority to adopt land use development standards; whereas ALUCs are statutorily permitted (i.e., they have the option and the authority) to include building standards, height restrictions, and land uses in their Airport Land Use Compatibility Plans. When an ALUC chooses to establish development standards in an ALUCP to prevent airport noise and safety hazards, it is indirectly setting development standards for local government because local government general and specific plans must be consistent with the ALUCP, per Section 21670.1(c)(2)(D) of the PUC and Government Code Section 65302.3(a), unless the conclusion of the overrule process allows otherwise.

In the case of the proposed Project, the *2011 Handbook* provides guidance to the City of Claremont in lieu of the CALUCP. Since the CALUCP is only applicable to those jurisdictions within Upland and San Bernardino County, the Los Angeles County Airport Land Use Commission would use the *2011 Handbook* for a consistency determination for the Los Angeles County (i.e., City of Claremont) portion of the Airport Influence Area for Cable Airport.

4.8.2.3 Regional/Local Regulations

Southern California Association of Governments (SCAG) Plans. SCAG (the designated Metropolitan Planning Organization [MPO] for the Counties of Ventura, Orange, San Bernardino, Riverside,

Imperial, and Los Angeles) is federally mandated to develop plans for transportation, growth management, hazardous waste management, and air quality. SCAG's main responsibilities under State and federal law are preparing the Regional Transportation Plan (RTP) and the RHNA. While SCAG does not have formal regulatory authority and cannot directly implement land use decisions, SCAG guides land use planning for the southern California region through intergovernmental coordination and consensus building.

Regional Comprehensive Plan (RCP). The SCAG prepared the 2008 RCP to serve as a framework to guide decision-making with respect to the growth and changes that can be anticipated in the region in the coming years. The RCP is a major advisory plan prepared by the SCAG that addresses important regional issues like housing, traffic/transportation, water, and air quality. The RCP serves as an advisory document to local agencies in the southern California region for their information and voluntary use for preparing local plans and handling local issues of regional significance.

The RCP identifies voluntary best practices to approach growth and infrastructure challenges in an integrated and comprehensive way. It also includes goals and outcomes to measure progress toward a more sustainable region. The RCP includes nine chapters, each based on specific areas of planning or resource management. Each of the nine chapters contains goals, policies, implementation, and strategies to achieve the SCAG's overall goals of improving the standard of living for all; improving the quality of life for all; and enhancing equity and access to government. Local governments are required to use the RCP as the basis for their own plans and are required to discuss the consistency of projects of "regional significance" with the RCP.[8]

Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). The 2016–2040 RTP/SCS adopted by SCAG on April 7, 2016, analyzed the region's transportation system, future growth projections, and potential funding sources in order in order to develop a long-term framework for transportation improvements and maintenance. The RTP/SCS replaces SCAG's Compass Blueprint Growth Vision[9] and includes policies and regulations set forth to ensure development within the SCAG regional area is within planned and forecast socioeconomic projections. As part of the RTP, SCAG developed an SCS, which was required by Senate Bill 375, the Sustainable Communities Act of 2008. The SCS is intended to combine land use and transportation planning with the overall goal of reducing greenhouse gas emissions generated by vehicle travel.

South Coast Air Quality Management District (SCAQMD). The SCAQMD is the regional agency responsible for the regulation and enforcement of federal, State, and local air pollution control regulations in the South Coast Air Basin (Basin), where the Project is located. The SCAQMD operates monitoring stations in the Basin, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain California Ambient Air Quality Standards (CAAQS)

[8] In accordance with *CEQA Guidelines* Section 15206(b)(1), the proposed project is of statewide, regional, and/or area-wide significance because it proposes an amendment to the Claremont General Plan to change the designation of the 6.5 acres of the site located within the City of Claremont from 'Commercial' to 'Mixed Use' with a 'Specific Plan Overlay.'

[9] *Sustainability Program.* Southern California Association of Governments. 2017. http://sustain.scag.ca.gov/Pages/Grants%20and%20Local%20Assistance/GrantsLocalAssistance.aspx. Accessed November 15, 2019.

and National Ambient Air Quality Standards (NAAQS) in the Basin. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

On March 3, 2017, the SCAQMD's governing board adopted the Final 2016 AQMP.[10] Based on General Plans for cities and counties in the Basin, demographic growth forecasts for various socioeconomic categories (i.e., population, housing, employment by industry) developed by the SCAG for its 2016 RTP/SCS were used in the 2016 AQMP. The 2016 AQMP reduction and control measures, which are outlined to mitigate emissions, are based on existing and projected land uses and development. The 2016 AQMP was submitted to the California Air Resources Board (CARB) on March 10, 2017.

A detailed discussion on the 2016 AQMP and an analysis on the proposed Project's consistency with the plan is provided in Section 4.1, Air Quality, since the 2016 AQMP is more specifically tailored to the environmental factors discussed in Section 4.1.

Los Angeles County Airport Land Use Commission. The Los Angeles County Airport Land Use Commission (LACALUC) adopts plans to protect and promote the safety and welfare of airport users and residents in the vicinity of public use airports. Specifically, these plans seek "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."[11] However, LACALUC jurisdiction is limited in scope, because the LACALUC has no authority over airport operations, and its recommendations are advisory to local jurisdictions such as the City of Claremont.

4.8.2.4 City of Claremont General Plan

The Claremont General Plan is the blueprint for future growth and development in the City. The Project includes a General Plan Amendment to change the land use designation of the site from "Commercial" to "Mixed Use" with a "Specific Plan Overlay." This designation allows for a mix of residential and compatible retail/service uses integrated as a cohesive development, or such uses developed side-by-side in a manner that encourages interaction between uses. The density and intensity of use designated as such may vary depending on the Specific Plan layout.

The proposed Project includes the development of 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on 6.5 acres (9.6 dwelling units per acre). To account for the proposed amendment to the Claremont General Plan, this analysis includes a determination of consistency between the proposed Project and the goals and policies of the Claremont General Plan regarding land use and planning,[12] as detailed in Section 4.8.5, Table 4.8.B.

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10 *Final 2016 Air Quality Management Plan.* South Coast Air Quality Management District. March 2017. http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15 (accessed November 18, 2019).

11 *Los Angeles County Airport Land Use Commission*. Los Angeles County Department of Regional Planning. http://planning.lacounty.gov/aluc (accessed November 18, 2019).

12 General Plan goals and policies regarding other environmental factors (e.g., air quality, biology, hazards, transportation, and noise) are listed in their respective sections of this EIR and analyzed therein as applicable to the proposed project.

4.8.2.5 City of Claremont Municipal Code

The Claremont Municipal Code establishes detailed zoning districts and regulations based on the General Plan. The Claremont Zoning and Development Code (Title 16) serves as the primary implementation tool for the General Plan. Whereas the General Plan is a policy document that sets forth direction for development decisions, the Zoning Code is a regulatory document that establishes specific standards for the use and development of all properties in the City.

The Zoning Code typically regulates development intensity using a variety of methods, such as setting limits on building setbacks, yard landscaping standards, and building heights. The Zoning Code also indicates which land uses are permitted in the various zones. The Claremont Municipal Code includes all of the City's zoning ordinance provisions and has been supplemented over time to include other related procedures such as subdivision regulations, environmental review procedures, and an advertising and sign code. Municipal Code regulations and maps must be consistent with the General Plan land uses, policies, and implementation programs.

The Project proposes to change the zoning on the site to "SP16 - Specific Plan Area 16." It is the intent of the City's Specific Plan district to provide greater specificity and flexibility in carrying out the General Plan of the City. This district is for areas that are subject to a Specific Plan adopted under Article 8 of Chapter 3 of Title 7 of the Government Code (Section 65450 and following), Chapter 16.081 (SP Specific Plan District), and Chapter 16.318 (General Plan Amendments) of the Claremont Municipal Code.

4.8.3 Thresholds of Significance

The City of Claremont has not established local CEQA significance thresholds as described in Section 15064.7 of the State *CEQA Guidelines*. For this reason, this Draft EIR incorporates the CEQA checklist included in Appendix G of the State *CEQA Guidelines* to determine the significance of environmental impacts. Appendix G of the *CEQA Guidelines* recognizes the following significance thresholds related to land use.

Based on these significance thresholds, potential impacts to land use could be considered significant if the proposed Project would result in the following:

- Physically divide an established community; and/or
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

4.8.4 Methodology Used to Assess Impacts

The focus of the land use analysis is on land use impacts that would result from implementation of the Project. Land use conflicts are identified and evaluated based on existing land uses, land uses proposed as part of the Project, land use designations, and standards and policies related to land use. Land use compatibility is based on the intensity and patterns of land uses proposed in order to determine whether the Project would result in incompatible uses or impacts to sensitive receptors (e.g., residences, medical facilities, or schools).

Section 15125 (d) of the *CEQA Guidelines* requires EIRs to "discuss any inconsistencies between the proposed project and applicable general plans and regional plans." The objective of such a discussion is to find ways to modify a project, if warranted, to eliminate any identified inconsistencies with relevant plans and policies, and thereby avoid creating an impact to the environment that consistency with the plan would otherwise mitigate. The evaluation of the potential land use impacts associated with implementation of the proposed Project is based primarily on the Claremont and Upland General Plans, Zoning Codes, and Municipal Codes. Where applicable, the proposed Project's consistency with SCAG's (a) Regional Comprehensive Plan; (b) Regional Transportation Plan; and (c) Sustainable Communities Strategy Plan related to the RTP also are discussed below. However, the proposed Project's consistency with other regional and local plans (e.g., AQMP, CALUCP, and Santa Ana Region Basin Plan) are discussed in detail respectively in this EIR Sections 4.1-Air Quality, 4.6-Hazards and Hazardous Materials, and 4.7-Hydrology and Water Quality.

4.8.5 Impact Analysis

4.8.5.1 Physically Divide an Established Community

Threshold	Would the Project physically divide an established community?

The proposed Project would result in mixed-use development on a vacant site. The site encompasses approximately 6.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue and includes 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats.

The Project site is bound to the south by Foothill Boulevard and to the east by a vacant, 3acre area of land in Upland that is proposed be developed with 48 townhomes in the future. Further east, beyond the 3acre vacant parcel bordering the Project site is Monte Vista Avenue. The Project site will have access to Monte Vista Avenue via a driveway across that vacant parcel. Vacant land recently proposed for a 70-acre sports park is located south of the site across Foothill Boulevard, and Commercial/Industrial Mixed-Use is located to the east across Monte Vista Avenue. Adjacent uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses is located adjacent to the northwest, and multifamily[13] residential uses are located farther northwest of the site beyond Claremont Boulevard. The property due north of the site is partially vacant, with a portion occupied by Holy Infant Home Care administrative offices.

The nearest residential uses are the multifamily uses approximately 475 feet to the northwest and the Harvest at Upland [low-density multifamily] Specific Plan approximately 500 feet to the southeast across both Foothill Boulevard and Monte Vista Avenue. The proposed Project would not physically divide the nearby residential communities to the northwest or southeast, nor would it obstruct future development of the Harvest at Upland Specific Plan. Furthermore, the proposed Project would not obstruct future development of the 3-acre vacant parcel in Upland, adjacent to the eastern boundary of the site. Existing residential uses are already separated from the site by adjacent commercial and office uses and major roadways (i.e., Foothill Boulevard and Monte Vista Avenue). The properties

[13] Multifamily residential uses include townhomes, apartments, and condominiums between 15.1 dwelling units (du) per acre (ac) and 22 du/ac (Residential 22).

immediately surrounding the site are either developed or slated for future development and act as a physical barrier to the Project site.

Proposed improvements to the public right-of-way along the southern site boundary fronting Foothill Boulevard would facilitate access between the Project site and the commercial uses to the west. Public sidewalks would be constructed along the Foothill Boulevard frontage of the site in areas where no pedestrian infrastructure currently exists. Additionally, the Central and Linear Parks on the site would include benches and picnic tables near the proposed retail uses to draw people to the site. Since the proposed Project includes a mixed-use development in an area currently comprising commercial, office, and residential uses currently divided by the vacant, underutilized Project site, the proposed Project would facilitate residential and commercial connectivity in the area instead of physically divide an established community.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. The Project would have **no impact** related to physical division of established communities.

4.8.5.2 Conflict with Applicable Land Use Plans, Policies, or Regulations

Threshold	Would the proposed Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Local Plans. Pursuant to *CEQA Guidelines* Section 15125 (d), this Draft EIR section includes an evaluation of the consistency of the proposed Project with pertinent goals and policies of relevant adopted local plans. The City of Claremont approved the following local plans, which are applicable to the proposed Project: (a) City of Claremont General Plan; and, (b) the 2011 California Airport Land Use Planning Handbook (in lieu of a Los Angeles County Airport Land Use Compatibility Plan for Cable Airport). The following subsections (a) and (b) evaluate the proposed Project's consistency with these various local plans.

a. City of Claremont General Plan

The proposed General Plan Amendment would amend the land use designations for the site within the City of Claremont from commercial to "Mixed Use" with a "Specific Plan Overlay." This designation allows for a mix of residential and compatible retail/service uses integrated as a cohesive development. Locating the residential and commercial uses side-by-side encourages interaction between the uses. Figure 3.4 depicts the existing and proposed General Plan land designations.

The proposed zone change of the Project site to "SP16 - Specific Plan Area 16" would provide greater specificity and flexibility in carrying out Claremont's General Plan. Implementation of the General Plan Amendment and Zone Change would accurately define the residential land uses, as proposed, in order to facilitate a more streamlined development scheme integrating the residential uses into the surrounding community pursuant to Article 8 of Chapter 3 of Title 7 of the Government Code (Section 65450 and following), Chapter 16.081 (SP Specific Plan District), and Chapter 16.318 (General Plan

Amendments) of the Claremont Municipal Code. Figure 3.5 depicts the Project's existing and proposed zoning districts.

The Specific Plan (Appendix I) has been prepared and established under the authority granted to the City of Claremont.[14,15] The Specific Plan proposes to implement the City of Claremont objectives and policies by presenting detailed direction for future development, and to establish development regulations and implementation mechanisms applicable to the properties located within the Specific Plan area. The Specific Plan identifies the standards, procedures, and guidelines necessary for the orderly and efficient development within the Specific Plan area. The Specific Plan has been prepared in accordance with the provisions of the California Government Code Section 65451, which stipulate that a specific plan contain text and diagrams detailing: land use, public facilities, development standards, implementation mechanism(s), and General Plan consistency. Additionally, the Specific Plan details design elements to be implemented during development.

The provisions of the Specific Plan replace Title 16 of the Claremont Zoning and Development Code regarding the use, development, and entitlement of properties. Where the Specific Plan is silent with regard to any land use regulations, the provisions of Title 16 of the Claremont Zoning and Development Code would apply. However, the standards and guidelines identified in the Specific Plan shall take precedence over the general standards and guidelines contained in the Claremont Zoning and Development Code.

The proposed change in land use designations requiring an amendment to Claremont's General Plan is expected to result in a less intense occupation of the site than under the approved commercial land use. The Project site was previously entitled for development as a commercial use, which would generate approximately 300 employees within Claremont and would result in a negligible increase in population even if every employee were to move to the area.[16]

The latest statistical figures published by SCAG for the City of Claremont assumes an average household size assume of 2.6 persons per housing unit,.[17] Sixty-two dwelling units are proposed on the Project site; therefore, the proposed Project could increase Claremont's population by approximately 162 persons.[18] Additionally, development of 5,000 square feet of retail in Claremont would add approximately 10 employees to the City.[19] If the proposed increase in population from the Project (162 residents and 10 employees = 172 persons) were compared to the anticipated population increase from the approved land use (300 persons), development of the site would result in fewer

[14] California Government Code, Title 7, Division 1, Chapter 3, Article 8, and Section 65450, and pursuant to Chapter 16.081 of the Claremont Municipal Code.

[15] The Commons Specific Plan as proposed only covers the portion of the project within Claremont.

[16] *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* Page 45. City of Claremont. July 20, 2009.

[17] *Profile of the City of Claremont.* Southern California Association of Governments Local Profiles Report 2019. May 2019.

[18] 2.6 persons/dwelling unit × 62 units = 161.2 persons in Claremont.

[19] *Employment Density Study Summary Report*. Table 4B. Southern California Association of Governments. October 31, 2001. (5,000 square feet of proposed retail ÷ 511 square feet of retail/services in Los Angeles County per employee = 9.78 employees.)

people on site under the proposed General Plan amendment and conversion of the land use from commercial to mixed-use.

In conjunction with the reduced land use intensity, the proposed Project would generate less traffic than would development under the approved land use. For example, development of the site as a commercial center would generate 1,732 average daily trips, with 159 trips occurring during the a.m. peak hour and 165 trips occurring during the p.m. peak hour.[20] However, Table 4.10.F of this Draft EIR indicates the Project with the proposed General Plan Amendment and conversion of the land use from commercial to mixed-use is forecast to generate 1,089 daily trips, with 118 trips occurring during in the a.m. peak hour and 88 trips occurring in the p.m. peak hour. This comparative reduction in vehicle traffic would correspondingly reduce emissions of criteria pollutants and greenhouse gas emissions when compared to the approved land use. It should be noted, however, that for purposes of measuring traffic impacts, the impacts are assessed against the baseline, not the previously entitled project.

The Specific Plan proposes to implement the City of Claremont objectives and policies by presenting detailed direction for future development, and to establish development regulations and implementation mechanisms applicable to the properties located within the Specific Plan area. In accordance with Section 65451(b) of the California Government Code, the Project includes a discussion on its consistency with the City of Claremont General Plan, as detailed in Table 4.8.B.[21]

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
Land Use, Community Character, and Heritage Preservation	
Goal 2-1: Make Claremont a model for the application of sustainable development practices.	
Policy 2-1.1: Encourage sustainable development that incorporates green building best practices and involves the reuse of previously developed property and or vacant sites within a built-up area.	**Consistent:** The Project site is vacant and is surrounded by developed uses and vacant land. The Specific Plan includes both sustainable guidelines and sustainable development standards to ensure that the Project would include green building best practices. These guidelines and standards include a minimum requirement for EV charging stations above existing CalGreen requirements, the requirement that every building provide solar panels, and guidelines for energy-efficient construction.
Policy 2-1.3: Encourage development that incorporates green building practices to conserve natural resources as part of sustainable development practices.	**Consistent:** The Specific Plan includes both sustainable guidelines and sustainable development standards to ensure that the Project would include green building practices. Furthermore, the Project would be required to comply with California Building Energy Efficiency Standards and CalGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11). Combined, all developments within the Specific Plan area would recycle at least 60 percent of the construction waste generated from the construction activities, include solar panels on all buildings, and provide a minimum of 10 percent of

[20] *Demographics & Growth Forecast (Appendix).* 2016–2040 Southern California Association of Governments Regional Transportation Plan-Sustainable Communities Strategy. Table 11. Adopted April 7, 2016.

[21] The policies presented in this section are ones that pertain to land use. The various subchapters (4.1 to 4.12) of this EIR include general plan consistency analysis for those policies that pertain to the specific resource topics (i.e., Biology, Air Quality, Cultural Resources, Noise, Hazardous Materials, etc.) of the various subchapters in this EIR.

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
	the EV charging station for non-residential uses. All residential dwelling units would be wired for EV charging within the garages.
Policy 2-1.4: Avoid development of isolated residential areas in the hillsides or other areas where such development would require significant infrastructure investment adversely impact biotic resources and or create adverse visual impact.	**Consistent:** The Project includes a mix of residential, commercial, and open spaces uses on a vacant site within a developed area along a major transportation corridor. The Project is not located in a hillside area. All utilities to service the site exist within Foothill Boulevard, and no significant infrastructure investment is needed to implement the Project.
Goal 2-2: Preserve the City's distinctive residential character by maintaining land use patterns that strengthen our neighborhoods.	
Policy 2-2.1: Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes and located in all areas of the City**.**	**Consistent:** The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. The Specific Plan allows for up to 62 dwelling units at the edge of the City. The Project includes a variety of dwelling units including single-family detached, attached for-sale townhomes, and apartments above a commercial space that may be for rent or for sale. This mix of housing types and densities within the development would provide residential dwelling opportunities at multiple price points that are oriented towards individuals at different life stages. Accessory dwelling units are permitted, which could add units that may be more affordable to certain economic groups.
Policy 2-2.2: Promote neighborhood identity and conservation of individual neighborhood character.	**Consistent:** There are no residential dwelling units abutting or adjacent to the Project site and therefore there is no existing residential neighborhood identity to conserve. The Project would establish a new identity in the area by developing a community with a contemporary "Transitional" architectural style complimented by the landscape theme. This architecture is influenced by modern architectural styles, combined with traditional elements such as pitched roofs. Refer to Chapter 5, Design Guidelines of the Specific Plan for more details.
Policy 2-2.5: Prohibit the creation of gated streets.	**Consistent:** The Project includes a mix of residential, commercial, and open spaces uses. Some of the pedestrian entrances along Foothill Boulevard would contain pedestrian gates and an on-site vehicle gate would control public access to the adjacent commercial use to the north; however, there would be no vehicular gates separating the Project site from any public streets.
Goal 2-3: Accommodate a range of land uses that meet the economic, environmental, educational, and social needs of the City while remaining sensitive to the community's residential character.	**Consistent:** The Project provides a mix of different land uses including over 1 acre of park/open space in Claremont. These facilities would feature different programming that would serve as a social magnet for the Project's residents, as well as the community at large. The Project would also comply with all applicable water conservation and water quality requirements, including the use of low-water trees and shrubs and by providing water quality basins, thereby providing an environmental benefit to the City. The City would also receive increased property tax revenue from the Project, as well as sales tax revenue from the 5,000 square feet of retail. The allowable retail uses within the Specific Plan have been carefully selected to those uses that would be consistent with the desired character and/or generate sales tax revenues for the City. With no existing residential uses adjacent to

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
	Specific Plan area, the Project is not expected to adversely affect the community's residential character.
Goal 2-5: Maintain and enhance Claremont's unique character.	
Policy 2-5.1: Insist on excellence in architectural design of new construction in City.	**Consistent:** Chapter 5 of the Specific Plan includes design guidelines that address architecture, landscaping, and other public realm elements to ensure The Commons would develop as a high-quality mixed-use community with a distinct and identifiable architectural character. The desired character (Transitional architectural design) is unique to the City and would provide a new gateway into the City. The conceptual project was reviewed by the Claremont Architectural Commission and was commended as well-designed.
Policy 2-5.3: Continue to require public art as part of new development projects.	**Consistent:** The Project will comply with the City's Public Art requirements either by providing on-site artwork or by paying the in-lieu fee. The City's Art guidelines recommends art at the corner of Monte Vista and Foothill, and while the applicant is prepared to install art at this location, this location is within the City of Upland and thus will require approval by the City of Upland.
Goal 2-6: Create activity nodes as important destination areas, with an emphasis on public life within the community.	**Consistent:** The Specific Plan includes pedestrian amenities, parks open to the public, attractive streetscapes, shade trees, lighting, and 5,000 square feet of retail/restaurant uses. These amenities are organized in and around the Park Plaza, an open space area situated in between the mixed-use building and the single-family homes, as well as the central park, an open space spine situated in between the single-family and townhomes. These open spaces are carefully designed to serve as destination areas where people may gather to participate in retail or recreational activities. These spaces are open to the public.
Goal 2-7: Create distinctive gateways at all entry points into Claremont.	
Policy 2-7.1: Encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City.	**Consistent:** The Project includes a unique Transitional architectural style, as well as a proposed mixed-use building that would feature as a backdrop for the entry gateway statement. The Specific Plan includes art guidelines to provide guidance for the installation of murals, mosaics, etc. as the Project evolves over time. The Specific Plan's Conceptual Landscape Plan depicts a landscape treatment along Foothill Boulevard that includes street trees, accent trees, and other plantings to complete the entry theme.
Goal 2-9: Make roads comfortable safe accessible and attractive for use day and night.	
Policy 2-9.1: Provide crosswalks and sidewalks along streets that are accessible for people with disabilities and people who are physically challenged.	**Consistent:** Currently, the site only has a partial sidewalk along Foothill Boulevard that ends before the County line and a sidewalk along Andrew Drive at the rear. The Project includes the installation of a sidewalk along the entirety of Foothill Boulevard, plus street trees, which would be required to meet all accessibility requirements in order to promote usability for all people, including those with disabilities. The sidewalk along Andrew Drive would remain. The Project would include accessible paths of travel to the retail building, the parks, and accessible units throughout the Specific Plan area.
Policy 2-9.2: Provide lighting for walking and nighttime activities where appropriate.	**Consistent:** Lighting would include pedestrian-mounted fixtures located throughout the Park Plaza and Central Park, building-mounted fixtures throughout the buildings within the Specific Plan area, and

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
	decorative sconces at select locations. All proposed internal sidewalks and sidewalks along the public rights-of-way would be lit per adopted City standards, including Section 16.154.030 of the Claremont Municipal Code.
Goal 2-10: Maintain and expand where possible the system of neighborhood connections that attach neighborhoods to larger roadways.	
Policy 2-10.1: Provide sidewalks where they are missing and provide wide sidewalks where appropriate with buffers and shade so that people can walk comfortably.	**Consistent:** Currently, the site has a 5-foot wide partial sidewalk along Foothill Boulevard that ends before the County line and a 5-foot wide sidewalk along Andrew Drive at the rear. The proposed Project includes the continuation of the 5-foot wide sidewalk along the entirety of Foothill Boulevard as well as the planting of street trees. Additionally, the pedestrian improvements along Foothill Boulevard would include amenities such as benches, streetlights, and enhanced landscaping. The sidewalk along Andrew Drive would remain.
Goal 2-11: Promote community identity and local history by encouraging context-sensitive design and development.	**Consistent:** The architecture theme for the Project has been carefully selected to represent an upscale blend of modern and traditional architectural, inspired in part by the Kravis Center and the Kube at the Claremont Colleges. This design is intended to provide a unique identity to the community, as well as function as a gateway into the Project from the east. The site plan also includes placing the higher-density uses closer to Foothill Boulevard, with the lower-density uses further away from Foothill Boulevard and closer to the undeveloped area to the north. The retail use and mixed-use building is located closer to Foothill Boulevard to act as a buffer from the proposed single-family homes. This also brings retail to Foothill Boulevard, in keeping with the existing commercial pattern of the Boulevard. Surrounding uses in Claremont include an industrial use, some vacant land, and a nursery, which are not sensitive uses that necessitate special contextual treatments.
Goal 2-12: Create distinctive places throughout Claremont.	
Policy 2-12.2: Provide benches, streetlights, public art, and other amenities in public areas to attract pedestrian activities.	**Consistent:** Public art, such as a sculpture, would be provided along Foothill Boulevard. Benches, chairs, and other amenities such as a bocce ball court are proposed throughout the Project. At least 15 sets of tables and 10 benches would be provided throughout the public park areas. Streetlights would be provided per adopted City requirements, and 20 pedestrian-scaled light fixtures would be provided throughout the open spaces and other pedestrian areas. Additionally, the improvements along the southern frontage of the Project site along Foothill Boulevard would incorporate a complete streets treatment, including physically divided bicycle and pedestrian routes with benches, streetlights, public art, enhanced landscaping, and street trees in accordance with the Foothill Boulevard Master Plan.
Policy 2-12.3: Encourage new developments to incorporate drought tolerant and native landscaping that is pedestrian friendly, attractive, and consistent with the landscaped character of Claremont.	**Consistent:** Low-water use and plantings (refer to Specific Plan Table 5-1), would be selected to meet or exceed applicable water conservation requirements (including Section 16.131.040, Landscape Water Use Standards). Accent plantings and canopy trees are indicated in the Conceptual Landscape Plan and would contribute to the pedestrian street scene by providing both visual interest and walkway shade. Furthermore, the proposed design minimizes the use

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
	of turf throughout the Specific Plan area, with the exceptions occurring at portions of the Central Park and Park Plaza intended to be used more by families and children.
Policy 2-12.4: Encourage all new development to preserve the natural topography of a site and existing mature trees.	**Consistent:** The site is generally flat and does not consist of any hills or topographic features. The proposed grade would maintain the same general drainage of the site (from the north to the southwest). Although some eucalyptus trees within the Foothill Boulevard right-of-way may be removed to implement the Specific Plan, these trees would be replaced by over 50 newly installed trees, including new street trees.
Policy 2-12.7: Encourage streetscape design programs for commercial frontages that create vibrant places, which support walking, bicycling, transit, and sustainable economic development.	**Consistent:** The Project includes up to 5,000 square feet of new retail uses along Foothill Boulevard. Signage for the retail spaces would face Foothill Boulevard. The Specific Plan would provide a sidewalk along the entire Foothill Boulevard frontage, where it does not currently exist. The sidewalk would include new street trees adjacent to Foothill Boulevard, as well as accent trees and plantings on the other side of the sidewalk, creating a vibrant pedestrian environment. Specific Plan Exhibit 5-1 depicts the location of racks to store bicycles when visiting the retail component.
Policy 2-12.8: Encourage the design and placement of buildings on lots to provide opportunities for natural systems such as solar heating and passive cooling.	**Consistent:** All buildings are located so not to obstruct another building's access to sunlight. The buildings are oriented on an access so that all sides of the home would get solar exposure at some point during the day while maximizing the use of space and maintaining separation of structures to achieve a cohesive yet diverse development pattern. Each house includes flat or low-sloping roofs angled to maximize solar orientation. Strategic building and tree placement promotes passive cooling.
Goal 2-13: Achieve a city-wide network of streetscapes that are interesting and attractive.	
Policy 2-13.1: Maintain and enhance the City's collection of street trees and improve Claremont's image of a "City with trees."	**Consistent:** The site itself does not have any trees, though there are approximately six eucalyptus trees inconsistently placed within the Foothill Boulevard right-of-way. These trees are not indicative of a pedestrian-friendly street scene. Although some of these street trees may be removed to implement the Project, plans include at least 3 new street trees closest to Foothill Boulevard and 16 new accent trees on the other side of the sidewalk to provide shade for pedestrians.
Goal 2-15: Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development.	
Policy 2-15.1: Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses.	**Consistent:** The Project includes a mix of residential, commercial, and open spaces uses within the Foothill Boulevard Corridor. This mix of uses and recreational opportunities promote walking and biking as viable means of sustainable transportation due to the potential for reduced overall vehicular trips. Improvements to the existing sidewalk (inclusive of new street trees) further enhance a connection to Foothill Boulevard.
Policy 2-15.2: Make Foothill Boulevard a distinct place that lets people know when they have entered or exited the City.	**Consistent:** The Project is at the entry to Claremont along Foothill Boulevard from the east. The Project includes unique architecture, as well as a proposed mixed-use building that would feature as a backdrop for the entry gateway statement to announce arrival into the City.

Table 4.8.B: City of Claremont General Plan Consistency Analysis

Claremont General Plan Goals and Policies	General Plan Consistency Analysis
Community Mobility	
Goal 4-3: Establish and maintain a comprehensive system of pedestrian ways and bicycle routes that provides viable options to travel by automobile.	
Policy 4-3.1 Promote walking throughout the community. Install sidewalks where missing and make improvements to existing sidewalks for accessibility purpose. Particular attention should be given to needed sidewalk improvement near schools and activity centers.	**Consistent:** The Project includes up to 5,000 square feet of new retail uses and up to 62 dwelling units within the Foothill Boulevard corridor. Direct pedestrian, bicycle, and vehicular connectivity to Foothill Boulevard and internally with the residential component of the Project would further facilitate accessibility. Improvements to the existing sidewalk (inclusive of new street trees) further enhance this connection. The proposed Project includes the installation of a sidewalk along the entirety of Foothill Boulevard, where one does not exist. The sidewalk along Andrew Drive would remain.
Open Space, Parkland, and Conservation and Air Quality	
Goal 5-9: Provide a variety of park facilities that meet the diverse needs and interests of the community.	
Policy 5-9.1: Develop a high-quality network of parks and open spaces that meet the needs of families, young adults, senior, children, and disable individuals.	**Consistent:** The Project features a walkable community linked via a Central Park open to the public and oriented to promote social interaction among residents, visitors, and employees, and would bolster the City's network of parks by contributing new recreational space that is easily accessible. The proposed conceptual landscape program includes a more formal Central Park designed with walking trails, benches, and a bocce ball court that is envisioned to be used more by adults and seniors. In addition, the Park Plaza, a second park space farther west, includes a turf area next to the mixed-use building that is intended to be used more by families and children. Paths within the park would include accessible walkways serving disabled individuals.
Housing	
Goal 8-3: Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community.	**Consistent:** The Project provides a range of housing types from single-family housing to townhome and "flat" multifamily housing targeted for young professional families, educators, and empty nesters. The Project also includes a commercial component as a means of providing neighborhood-serving retail near housing to facilitate a pedestrian-friendly environment. The Project would include affordable housing on-site that meets the provisions of the City's Inclusionary Housing Ordinance. Accessory dwelling units are permitted on this site, although none has been proposed within the Project.

Source: The Commons Specific Plan. Section 7.0: General Plan Consistency. September 2019.

As detailed in Table 4.8.B, The Commons Specific Plan is developed generally consistent with the Claremont General Plan as a means of implementing its goals and policies pursuant to Section 65450 et seq. of the California Government Code. Additionally, The Commons Specific Plan details design elements to be implemented during development and identifies the standards, procedures, and guidelines necessary for the orderly and efficient development within the Specific Plan area in accordance with the provisions of the California Government Code Section 65451, which stipulate that a specific plan contain text and diagrams detailing land use, public facilities, development standards, implementation mechanism(s), and General Plan consistency.

Table 6-5 of the City of Claremont General Plan Public Safety and Noise Element indicates the maximum acceptable exposure for new residential development is 60 a-weighted decibels (dBA) community noise equivalent level (CNEL) from aircraft related noise. Because the Project is proposed within the 60–65 dBA CNEL noise contour of the City of Claremont (refer to Figure 6-7 of the City of Claremont General Plan Public Safety and Noise Element), it is incompatible with the noise level standards of the Claremont General Plan related to airport operations and aircraft noise. However, the proposed Project includes a General Plan Text Amendment revising Footnote 3 of Table 6-5 within Claremont's Public Safety and Noise Element of the General Plan, which currently reads: "Regarding aircraft related noise, the maximum acceptable exposure for new residential development is 60 dBA CNEL." As currently annotated, the Claremont General Plan would prohibit development of the proposed residential uses of the Project site. To encourage the development of housing stock for all segments of the community, the Project proposes an amendment to Footnote 3 of Table 6-5 as follows (<u>double underline</u> text represents the proposed General Plan Text Amendment):

> Regarding aircraft related noise, the maximum acceptable exposure for new residential development is 60 dB CNEL. <u>However, in order to promote the development of housing urgently needed during the current California housing crisis and to meet the City's current Regional Housing Needs Assessment (RHNA), residential uses located in a mixed-use development where there is a mix of residential housing types including multi-family housing, are allowed maximum noise level exposures up to 70 dBA CNEL (SB 330, Skinner. Housing Crisis Act of 2019, signed into law October 9, 2019).</u>

Implementation of this General Plan Text Amendment, as part of the proposed Project, would ensure that the proposed Project is consistent with the requirements of the Claremont General Plan pertaining to external residential noise exposure from Cable Airport operations.

Overall, the proposed Project will be consistent with the Claremont General Plan and impacts will be **less than significant**.

b. 2011 California Airport Land Use Planning Handbook (in lieu of a Los Angeles County Airport Land Use Compatibility Plan for Cable Airport in Claremont)

The proposed Project is located within the Cable Airport influence area; however, the Los Angeles County Airport Land Use Commission has not adopted an Airport Land Use Compatibility Plan for the Cable Airport within Los Angeles County. As such, the *2011 California Airport Land Use Planning Handbook* is applicable to the Claremont portion of the proposed Project site.

The proposed Project is located within Safety Zone 2 and Safety Zone 4 as defined by the *2011 Handbook*. Figure 4C of the *2011 Handbook* indicates development of residential units should be avoided in Safety Zone 2 unless it is part of an infill project, or if residential densities in a Suburban area do not exceed 1 dwelling unit per 10 to 20 gross acres. The proposed Project is not considered an infill project due to the undeveloped properties to the south, east, and parts to the north, and, as stated in Section 4.8.1, above, the Project site and surroundings are considered Suburban. The Project site in Safety Zone 2 as defined by the *2011 Handbook* would have an estimated residential density of 40 dwelling units per 3.41 acres of land (11.73 dwelling units per 1 gross acre). The Project site would develop residential units, residential flats, and the majority of the Central Park within Safety Zone 4

as defined by the *2011 Handbook*. The residential uses located in Safety Zone 4 are allowable on a limited basis if they are low density (below 1 dwelling unit per 2 to 5 gross acres). This portion of the Project site would have an estimated residential density of 22 dwelling units per 3.09 acres (7.1 dwelling units per 1 gross acre), which is far greater than the low density standard.

An Airport Individual Risk Analysis (Appendix E2) was prepared for the Project and concluded that there is a 27 in 1 million chance of resident injuries or deaths to occur on the site from a Cable Airport accident. Although this risk is low, it does not preclude the possibility that injuries or death could occur on the Project site from development in Safety Zone 2 or Safety Zone 4 as defined by the *2011 Handbook*. **Mitigation Measures 4.6.1A** through **4.6.1C** would be implemented to warn residents of potential safety hazards and excessive noise levels due to residing near Cable Airport; however, these mitigation measures would not preclude the potential of an airplane crash occurring on the Project site and injuring or killing residents/employees.

Per the *2011 Handbook*, airport land use compatibility planning recognizes the objectives of the local municipal agency (in this case the City of Claremont) which has ultimate authority for land use planning and regulations; the airport operator, which has responsibility for airport planning; and the ALUC, (in this case the LACALUPC) which has statutory authority for preparation of airport land use compatibility plans and review of local land use plans and actions. Once the proposed Project has been reviewed, the LACALUPC's may approve or disapprove (as they have not yet adopted an ALUCP for Cable Airport) the Project submitted for review. Absent having an adopted ALUCP for Cable Airport, LACALUPC's authority to approve a land use action, regulation, or permit is limited by the law (PUC Section 21675.1(c)).

As the proposed Project would adhere to the *2011 Handbook* requirements in lieu of an ALUCP for Cable Airport, the proposed Project would be consistent with this applicable airport planning document. As such, implementation of the proposed Project would result in a **less than significant impact.**

Regional Plans. Pursuant to *CEQA Guidelines* Section 15125 (d), this Draft EIR section includes an evaluation of the consistency of the proposed Project with pertinent goals and policies of relevant adopted regional plans. The SCAG approved the following regional plans, which are applicable to the proposed Project: (a) RCP; (b) RTP; (c) and SCS Plan related to the RTP. The following subsections (a) through (c) evaluate the proposed Project's consistency with these various SCAG plans.

c. Regional Comprehensive Plan (RCP)

The RCP's overall goal is to reinvigorate the region's economy, avoid social and economic inequities and the geographical dislocation of communities, and to maintain the region's quality of life. The document is described as a regional policy framework for future land use decisions in the SCAG area that respects the need for strong local control, but that also recognizes the importance of regional comprehensive planning for issues of regional significance. The RCP is laid out much like a General Plan and organizes recommended policies into nine chapters.

The highlight of each chapter is the regional strategy that addresses the RCP's vision for that resource area. As such, each chapter includes three levels of recommendations for the region:

- *Goals.* Each goal will help define how sustainability is defined for that resource area.
- *Outcomes.* These focus on quantitative targets that define progress toward meeting the RCP's Goals. Where possible, they are clearly defined (e.g., a 20% reduction in greenhouse gas emissions from 2007 levels), capable of being monitored with existing or reasonably foreseeable resources, and have a strong link to sustainability goals.
- *Action Plan.* This critical part of the RCP lays out a comprehensive implementation strategy that recommends how the region can systematically move to meet the RCP's quantitative Outcomes and achieve its Goals, Guiding Principles, and Vision. Each Action Plan contains:
    - *Constrained Policies.* This includes a series of recommended near-term, feasible policies that stakeholders should consider for implementation. For example, the RCP calls on the SCAG to adopt policies that reflect its role as a planning agency, council of governments, and metropolitan planning organization. The RCP also recommends voluntary policies for consideration by local governments and other key stakeholders.
    - *Strategic Initiatives.* This encompasses longer-term strategies that require significant effort to implement but are necessary to achieve the RCP's desired Goals and Outcomes. For example, identifying technological breakthroughs that can reduce air pollution from the transportation sector requires both commitment and time. Most of these initiatives are not constrained and will require political will, enabling legislation, new funding sources, and other key developments to become a reality. In most cases, this tier of strategies is the key to achieving the region's sustainability Goals and Outcomes.

Other policies contained within the 2008 RCP were either not applicable to the proposed Project or are directed at the SCAG and actions that the SCAG would undertake at the regional level that would not pertain directly to the proposed Project. Policies within the RCP that are applicable to the proposed Project were identified and are discussed below.

Land Use and Housing Chapter

Goal *Focusing growth in existing and emerging centers and along major transportation corridors.*

Consistent. The site is currently vacant and generally surrounded by developed commercial, residential and institutional uses. Regional access to the City of Claremont and Project site is provided from State Route 210, Interstate 10, and Foothill Boulevard, the latter which runs east-west along the southern border of the Project site and provides direct access to the site. Additionally, the Montclair and Claremont Metrolink Stations are located approximately 1 mile and 1.5 miles, respectively, south and southwest of the site.

The existing roadway system and infrastructure surrounding the site would be utilized to the maximum extent possible, and the proposed Project would install improvements and/or pay necessary fees to facilitate the continuation of satisfactory operation. The proposed Project is consistent with this SCAG policy in that it is proposed in an existing commercial, residential, and institutional area with access to a major transportation corridor of the City of Claremont and would be connecting to the existing utilities underlying the arterial roadways.

Goal *Providing new housing opportunities, with building types and locations that respond to the region's changing demographics.*

Consistent. The Project provides a range of housing types from single-family housing to townhome and "flat" multifamily housing targeted for young professional families, educators, and empty nesters with access to a major transportation corridor. The Project also includes a commercial retail component as a means of providing neighborhood-serving retail near housing to facilitate a pedestrian-friendly environment.

The Project would allow for affordable housing on site that meets the provisions of the City of Claremont's Inclusionary Housing Ordinance. The City of Claremont administers the development of accessory dwelling units (ADUs) in accordance with Claremont Municipal Code Chapter 16.333; however, AB 68/AB 881 prohibits local agencies from adopting ADU ordinances that impose minimum lot size requirements for ADUs; set certain maximum ADU dimensions; and/or require replacement off-street parking when a "garage, carport or covered parking structure" is demolished or converted to construct the ADU. Notably, AB 68/AB 881 allows for an ADU as well as a "junior" ADU where certain access, setback, and other criteria are met, and it is anticipated that up to 20 percent of the proposed dwelling units on the Project site could include ADUs.

Goal *Targeting growth in housing, employment, and commercial development within walking distance of existing and planned transit stations.*

Consistent. The Project includes a mix of residential, commercial retail, and open spaces uses within an existing vacant site within the City of Claremont. Specifically, the Project includes up to 5,000 square feet of new retail uses and up to 62 dwelling units within the Foothill Boulevard corridor. This mix of uses and recreational opportunities promote walking and biking as viable means of sustainable transportation due to the potential for reduced overall vehicular trips. The Specific Plan includes direct pedestrian, bicycle, and vehicular connectivity to Foothill Boulevard and internally with the residential component of the Project. Furthermore, improvements to the existing sidewalk (inclusive of new street trees) further enhance this connection.

Two bus stops served by Foothill Transit Route 292 are located less than 500 feet to the southwest of the site, and the Montclair and Claremont Metrolink Stations are located approximately 1 mile and 1.5 miles, respectively, south and southwest of the site. Transit service is reviewed and updated by Metrolink and Foothill Transit periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments, which may lead to either enhanced or reduced service where appropriate. The Project would not alter the location or frequency of bus or rail transportation in the area, but it would support the demand for transit services in the Project vicinity. Therefore, the proposed Project would be consistent with this SCAG policy.

Goal *Inject new life into underused areas by creating vibrant new business districts, redeveloping old buildings, and building new businesses and housing on vacant lots.*

Consistent. The site is currently vacant and includes a mix of residential, commercial retail, and open spaces uses within an existing vacant site within the City of Claremont. The proposed Project would introduce new residential and commercial retail uses on an economically underutilized, vacant lot. Therefore, the proposed Project would be consistent with this SCAG policy.

Outcome *Significantly increase the number and percentage of new housing units and jobs created within the Compass Blueprint 2% Strategy Opportunity Areas by 2012 and improve the regional jobs-housing balance. (Tracking the number of new units will measure the region's progress in accommodating forecast growth. The percentage of housing and jobs developed within the Opportunity Areas will indicate the locational efficiency of growth.)*

Consistent. The City of Claremont is forecast to have a 2020 jobs/housing ratio of 1.52 compared to 1.33 for Los Angeles and 1.30 for the entire SCAG region.[22,23] Therefore, Claremont may be considered generally "jobs rich" and "housing poor" relative to Los Angeles and the greater SCAG region. By 2040, Claremont's projected jobs-to-housing ratio of 1.49 would exceed both Los Angeles and SCAG's jobs-to-housing ratios of 1.32 and 1.29, respectively, as detailed in Table 4.8.C, below. Therefore, Claremont would be relatively "jobs rich" and "housing poor," and additional housing would be required to fulfill the employment demand and balance the jobs-to-housing ratio at the local level.

A high jobs/housing ratio generally equates to an influx of commuters to the City of Claremont to work, resulting in longer commutes and increased freeway congestion and air pollution, and reduced quality of life for commuters. Direct population increases are generally associated with residential developments. The 62 dwelling units proposed in Claremont could increase the City's population by approximately 162 persons. Additionally, development of 5,000 square feet of retail as part of the proposed Project would add approximately 10 employees to the City of Claremont. This additional housing in the City of Claremont would contribute toward a more balanced jobs/housing ratio in the region, especially when compared to the approved entitlements for commercial uses that, if constructed as approved, would contribute additional jobs to an area that is projected to need housing instead of employment.

Finally, the RHNA[24] for Los Angeles County is developed by SCAG and allocates to cities and unincorporated Counties their "fair share" of the region's projected housing needs. The 5th Cycle RHNA Allocation Plan, which covers the planning period from January 2014 to October 2021, was adopted by SCAG on October 4, 2012, and concludes Claremont would need to accommodate a total of 373 residential units in various income categories during this time, including 98 very low-income, 59 low-income, 64 moderate-income, and 152 above moderate-income housing units.[25] The proposed Project would generate 62 housing units comprising single-family residences, townhomes, and "flat" multifamily units in Claremont, to serve prospective residents of various incomes in an area projected to be "jobs rich" and "housing poor." Therefore, the Project is consistent with the desired regional outcome of this SCAG policy.

Policy LU-4 *Local governments should provide for new housing consistent with State Housing Element law, to accommodate their share of forecast regional growth.*

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22 SCAG's Draft 2016 RTP/SCS Growth Forecast by Jurisdiction. http://www.scag.ca.gov/Documents/2016DraftGrowthForecastByJurisdiction.pdf (accessed December 31, 2019).

23 SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Commons Specific Plan (SCAG No. IGR9734). Letter dated December 19, 2019 (Appendix A2).

24 Mandated by State Housing Law (Government Code §65584).

25 *Ibid.*

Consistent. The RHNA[26] for Los Angeles County is developed by SCAG and allocates to cities and unincorporated Counties their "fair share" of the region's projected housing needs. The 5th Cycle RHNA Allocation Plan, which covers the planning period from January 2014 to October 2021, was adopted by SCAG on October 4, 2012, and concludes Claremont would need to accommodate a total of 373 residential units in various income categories during this time, including 98 very low-income, 59 low-income, 64 moderate-income, and 152 above moderate-income housing units.[27] The proposed Project would generate 62 housing units comprising single-family residences, townhomes, and "flat" multifamily units to serve prospective residents of various incomes in an area projected to be "jobs rich" and "housing poor." Therefore, the Project is consistent with the desired regional outcome of this SCAG policy.

Policy LU-6.2 *Developers and local governments should integrate green building measures into project design and zoning such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, Energy Star Homes, Green Point Rated Homes, and the California Green Builder Program.*

Consistent. The Project would be required to comply with California's CALGreen building regulations as implemented through the requirements of the Uniform Building Code (UBC) Title 24. The UBC Title 24 is 1) "the most stringent, environmentally friendly building codes in the U.S.;" and 2) "CALGreen is a comprehensive, far-reaching set of regulations which mandate environmentally advanced building practices and regulations designed to conserve natural resources and reduce greenhouse gas emissions, energy use, and water use."

In addition, in compliance with the CALGreen building regulations, the Project proposes to incorporate the following sustainable design features to further reduce its environmental footprint, including:

- Building design to reduce energy consumption by complying with the most current version of Title 24 energy conservation standards;
- Reserve a minimum of 10 percent of parking spaces for EV vehicles with installed and operating EV charging facilities;
- Solar panel installations on every residential building;
- Channelizing street runoff into landscape areas and infiltration basins instead of storm drains;
- Use of recycled and/or locally sourced building materials to the extent feasible;
- Reduction in the use of impervious surfaces throughout the Project;
- Provide for internal circulation via bicycles and walking; and
- Incorporate space for recycling bins in residential units, in or near kitchens in order to reduce waste deposited to landfills.

Therefore, the proposed Project is consistent with this SCAG policy.

[26] Mandated by State Housing Law (Government Code §65584).
[27] *Ibid.*

Open Space and Habitat Chapter

Policy OSC-8 *Local governments should encourage patterns of urban development and land use, which reduce costs of infrastructure and make better use of existing facilities.*

Consistent. The proposed Project is adjacent to existing developed areas that are presently served by various existing water, sewer, storm drainage, electrical, natural gas, and transportation services. During the construction of the Project and as needed throughout the process, necessary utility and roadway improvements would be installed or extended to the site from adjacent existing facilities. The supply of electricity and natural gas is demand-responsive, and the Project applicant would be required to meet the service requirements of these utility providers. By maximizing the use of existing facilities, the costs of expanding infrastructure would be minimized. Because the proposed Project is located in close proximity to existing commercial and residential uses requiring a similar type of infrastructure, it is consistent with this growth management policy.

Policy OSC-12 *Developers and local governments should promote water-efficient land use and development.*

Consistent. The proposed Project is required to implement water-efficient landscaping design on site. A major design concept of the proposed Project is water conservation through the careful selection and maintenance of drought-tolerant landscaping. The Conceptual Landscape Plan must meet the Model Water Efficient Landscape Ordinance (MWELO) and indicate a plant selection which includes a mixture of drought-tolerant and native plant species irrigated by spray and drip irrigation. Therefore, the proposed Project would be consistent with this SCAG policy.

Water Chapter

Policy WA-11 *Developers and local governments should encourage urban development and land uses to make greater use of existing and upgraded facilities prior to incurring new infrastructure costs.*

Consistent. The proposed Project is located in the immediate vicinity of infrastructure for water, sewer, storm drainage, electrical, natural gas, and transportation facilities. During construction of the Project, and as needed throughout the process, necessary utility and roadway improvements would be installed or extended to the site from adjacent existing facilities. The availability of this nearby infrastructure would reduce the cost to public agencies that would provide services to the site. The proposed Project would be developed in an area where such infrastructure is accessible. Furthermore, the Project applicant would pay all applicable development fees for the necessary infrastructure and public service improvements, including those associated with water, sewer, drainage, roadways, fire, and police; therefore, the proposed Project is consistent with this policy.

Policy WA-12 *Developers and local governments should reduce exterior uses of water in public areas, and should promote reduced use in private homes and businesses by shifting to drought-tolerant native landscape plants (xeriscaping), using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives.*

Consistent. The proposed Project would be required to implement water-efficient landscaping design (i.e., drought-tolerant landscaping) on site. The Project proposes the use of drought-tolerant

landscaping to maximize water conservation. Landscape watering would be tailored to suit specific plant community needs and include a shut-off feature to prevent irrigation during rain events. Features proposed by the Project to reduce water include low-flow toilets and faucet aerators. To promote infiltration of on-site runoff, storm water treatment systems to be considered include, but are not limited to bioswales, bio-retention cells, rain gardens, native mixed grasses, pervious paving systems, packaged storm treatment units, and storm water infiltration systems. In addition, the Project would comply with the latest Green Building Code requirements for water conservation. Therefore, the proposed Project is consistent with this SCAG policy.

Energy Chapter

Policy EN-10 *Developers and local governments should integrate green building measures into project design and zoning such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, Energy Star Homes, Green Point Rated Homes, and the California Green Builder Program. Energy-saving measures that should be explored for new and remodeled buildings include:*

- *Using energy-efficient materials in building design, construction, rehabilitation, and retrofit.*
- *Encouraging new development to exceed Title 24 energy efficiency requirements.*
- *Developing Cool Communities measures including tree planting and light-colored roofs. These measures focus on reducing ambient heat, which reduces energy consumption related to air conditioning and other cooling equipment.*
- *Utilizing efficient commercial/residential space and water heaters. This could include the advertisement of existing and/or development of additional incentives for energy-efficient appliance purchases to reduce excess energy use and save money. Federal tax incentives are provided online at http://www.energystar.gov/index.cfm?c=Products.pr_tax_credits.*
- *Encouraging landscaping that requires no additional irrigation; utilizing native, drought-tolerant plants can reduce water usage up to 60 percent compared to traditional lawns.*
- *Encouraging combined heating and cooling (CHC), also known as cogeneration, in all buildings.*
- *Encouraging neighborhood energy systems, which allow communities to generate their own electricity.*
- *Orienting streets and buildings for best solar access.*
- *Encouraging buildings to obtain at least 20 percent of their electric load from renewable energy.*

Consistent. The Project would comply with California's "CALGreen" building regulations and the UBC Title 24 energy conservation standards which are considered the most stringent, environmentally friendly building codes in the U.S. In addition, the strategies listed in Section 4.4 Energy and Section 4.5 Greenhouse Gas Emissions and Global Climate Change of this EIR are considered to be greenhouse

gas emission reduction strategies, which include green building measures. These strategies are either part of the Project, required mitigation measures, or requirements under local or State ordinances. Since the Project would incorporate these strategies into Project design and operation, the proposed Project is consistent with this SCAG policy.

Air Quality Chapter

Goal *Reduce emissions of criteria pollutants to attain federal air quality standards by prescribed dates and state ambient air quality standards as soon as practicable.*

Consistent. As detailed in Section 4.1, Air Quality, implementation of the proposed Project would not exceed SCAQMD regional thresholds for any criteria pollutants (Tables 4.1.G and 4.1.J). Therefore, the proposed Project is consistent with this policy.

Goal *Reverse current trends in greenhouse gas emissions to support sustainability goals for energy, water supply, agriculture, and other resource areas.*

Consistent. As detailed in Table 4.5.C of Section 4.5, Greenhouse Gas Emissions and Global Climate Change, the estimated GHG emissions from Project implementation would not exceed the SCAQMD Tier 3 Efficiency Metric Threshold (3,000 $MTCO_2e$ per year). Therefore, the proposed Project is consistent with this goal.

Goal *Minimize land uses that increase the risk of adverse air pollution-related health impacts from exposure to toxic air contaminants, particulates (PM_{10}, $PM_{2.5}$, ultrafine), and carbon monoxide.*

Consistent. The proposed Project would generate less traffic than would development under the approved land use. For example, development of the site as a commercial center would generate 1,732 average daily trips, with 159 trips occurring during the a.m. peak hour and 165 trips occurring during the p.m. peak hour.[28] However, Table 4.10.F of this EIR indicates the Project with the proposed General Plan Amendment and conversion of the land use from commercial to mixed-use is forecast to generate 1,089 daily trips, with 118 trips occurring during in the a.m. peak hour and 88 trips occurring in the p.m. peak hour. This reduction in vehicle traffic would correspondingly reduce emissions of criteria pollutants and greenhouse gas emissions when compared to the approved land use.

As detailed in Section 4.1, Air Quality, implementation of the proposed Project would not exceed SCAQMD regional thresholds for PM_{10}, $PM_{2.5}$, carbon monoxide, nitrogen dioxide, and/or nitrogen oxides emissions (Table 4.1.K and Table 4.1.L). Therefore, the proposed Project is consistent with this policy.

Solid Waste Chapter

Policy SW-14 *Developers and local governments should integrate green building measures into project design and zoning including, but not limited to, those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, Energy Star Homes, Green Point Rated Homes, and the California Green Builder Program.*

[28] *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* Page 50. City of Claremont. July 20, 2009.

Construction reduction measures to be explored for new and remodeled buildings include:

- *Reuse and minimization of construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.*
- *An ordinance that requires the inclusion of a waste management plan that promotes maximum C&D diversion.*
- *Source reduction through (1) use of building materials that are more durable and easier to repair and maintain, (2) design to generate less scrap material through dimensional planning, (3) increased recycled content, (4) use of reclaimed building materials, and (5) use of structural materials in a dual role as finish material (e.g., stained concrete flooring, unfinished ceilings).*
- *Reuse of existing building structure and shell in renovation projects.*

Building lifetime waste reduction measures that should be explored for new and remodeled buildings include:

- *Development of indoor recycling program and space;*
- *Design for deconstruction; and*
- *Design for flexibility through use of moveable walls, raised floors, modular furniture, moveable task lighting, and other reusable components.*

Consistent. The City of Claremont Community Services Department provides trash collection and recycling services to all residents and businesses in Claremont. Solid waste would be transferred to the Puente Hills Material Recovery Facility (MRF)/Transfer Station. From the MRF the non-recyclable material would be transferred to permitted landfills.

According to Department of Resources Recycling and Recovery (CalRecycle), the business sector generates more than half of the solid waste in California (approximately 68 percent of waste disposed). While significant commercial recycling already occurs, much of the commercial sector waste disposed in landfills is clean enough to be recycled. CalRecycle recently adopted Assembly Bill 341, implementing a mandatory commercial recycling requirement for medium-to-large businesses and multifamily complexes. Per the California Green Building Standards Code (CALGreen), all new residential, commercial, and mixed use construction projects in Claremont are required to divert a minimum of 65 percent of construction and demolition (C&D) waste from landfill disposal. In accordance with the United States EPA, the generation rate of solid waste is 4.4 pounds per day per person.[29] The proposed Project is expected to increase the area population by 162 residents. The Project would generate approximately 712.8 pounds per day of solid waste (130.1 tons per year) for the residential portion of the Project site. The CalRecycle uses a solid waste generation rate of 0.046 pound per square foot per day for commercial/retail uses.[30] Based on 5,000 square feet of commercial uses in the Claremont portion of the proposed Project, 230 pounds per day would be generated by

[29] United States Environmental Protection Agency. https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf accessed October 1, 2019.

[30] CalRecycle. https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates/ accessed October 1, 2019.

the commercial portion of the Project. The total solid waste generated by the proposed Project would be approximately 942.8 pounds per day or 172.1 tons per year.

In accordance with Claremont Municipal Code Section 8.08.250 (Garbage Accumulations Prohibited), and Senate Bill 1018,[31] the proposed Project would require coordination with the Claremont waste haulers to develop collection of solid waste and recyclable materials for the Project on a common schedule as set forth in applicable local, regional, and State programs. Recyclable materials that could be recycled by the Project include paper products, glass, aluminum, and plastic.

Additionally, the proposed Project would be required to comply with applicable elements of AB 1327, Chapter 18 (California Solid Waste Reuse and Recycling Access Act of 1991) and other applicable local, State, and federal solid waste disposal standards, thereby ensuring that the solid waste stream to regional landfills are reduced in accordance with existing regulations. Therefore, the proposed Project is consistent with this policy.

Transportation Chapter

Goal *A more efficient transportation system that reduces and better manages vehicle activity.*

Consistent. The proposed Project would result in the development of mixed-use residential and commercial uses in close proximity to existing roadways, commercial uses and regional college campus. In addition, the Project proposes sidewalks, bicycle staging area, and landscaping treatments to provide for pedestrian and bicycle access throughout the site. The proposed pedestrian improvements along the Foothill Boulevard frontages would connect the site to surrounding developed land uses. Additionally, the site includes more than 1 acre of park/open space use.. The type of uses proposed and their proximity to each other allow for increased pedestrian and bicycle activity, reducing the need for vehicle travel. Finally, the Project site is located within 500 feet of Foothill transit bus stops for Route 292 and approximately one mile north of the Montclair Metrolink Train Station along the San Bernardino Line that serves both Claremont and Upland and connects to Metrolink and transit centers in other cities. Therefore, the Project is consistent with this transportation goal.

Security and Emergency Preparedness Chapter

Goal *Ensure transportation safety, security, and reliability for all people and goods in the region.*

Inconsistent. Please refer to the consistency analysis provided above in the subsections titled "Local Plans (a-d)". Overall the proposed Project would not ensure transportation safety, security and reliability for all people and goods in the region. As such, the proposed Project would be inconsistent with this goal.

Economy Chapter

Goal *Enable business to be profitable and competitive (locally, regionally, nationally, and internationally).*

[31] For businesses that generate 4 cubic yards or more of commercial solid waste per week.

Consistent. The proposed Project would add approximately 162 residents and 10 jobs in close proximity to shopping and work places. Through the addition of the proposed Project, Claremont would also expand their economic competitiveness with other areas in the region by introducing residents to nearby shopping opportunities. Therefore, the proposed Project is consistent with this goal.

Goal *Promote sustained economic health through diversifying the region's economy, strengthening local self-reliance and expanding competitiveness.*

Consistent. As previously stated, the proposed Project would add 5,000 square feet of retail space and 10 jobs to the area. Additionally, the Project would enable Claremont to be more self-reliant by providing residences in close proximity to goods and services within the City. Through the addition of the proposed Project, Claremont would expand their economic competitiveness with other areas in the region by bringing residents that are anticipated to raise the median income level for the area, thereby encouraging new business. Therefore, the proposed Project is consistent with this goal.

d. Regional Transportation Plan (RTP)

The 2016–2040 RTP adopted by the SCAG on April 7, 2016, contains a set of existing socioeconomic projections used as the basis for the SCAG's transportation planning efforts. They include projections of population, housing, and employment at the regional, County, sub-regional, jurisdictional, Census tract, and transportation analysis zone levels. The RTP includes policies and regulations set forth to ensure development within the SCAG regional area is within planned and forecast socioeconomic projections. Goals established within the RTP include the following:

1. Align the plan investments and policies with improving regional economic development and competitiveness (discussed in Section 4.8.5 *Land Use and Planning*, above);
2. Maximize mobility and accessibility for all people and goods in the region (discussed in Section 4.10 *Transportation*);
3. Ensure travel safety and reliability for all people and goods in the region (discussed in Section 4.6 *Hazards and Hazardous Materials,* Section 4.10 *Transportation,* and Section 4.12 *Wildfire*);
4. Preserve and ensure a sustainable regional transportation system (discussed in Section 4.10 *Transportation*);
5. Maximize the productivity of our transportation system (discussed in Section 4.10 *Transportation*);
6. Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking) (discussed in Section 4.1 *Air Quality* and Section 4.10 *Transportation*);
7. Actively encourage and create incentives for energy efficiency, where possible (discussed in Section 4.1 *Air Quality,* Section 4.4 *Energy,* and Section 4.5 *Greenhouse Gas Emissions and Global Climate Change*);
8. Encourage land use and growth patterns that facilitate transit and active transportation (discussed in Section 4.8.5 *Land Use and Planning*, above and Section 4.10 *Transportation*);

9. Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies[32] (discussed in Section 4.10 *Transportation*).

The proposed Project is mostly consistent with the RTP in that it would be required to adhere to the Claremont General Plan and Municipal Code governing transportation systems. The General Plan contains objectives and policies that aim to minimize traffic congestion, provide adequate transportation facilities, and require development to pay its share of costs. The goals and policies identified in the General Plans resemble those of the RTP that address mobility, traffic safety, environmental concerns, and land use consistency as the major traffic study factors to identify existing traffic conditions and to assess the future effects on area traffic patterns/flow.

Please refer to the consistency analysis provided above in the subsections titled "Local Plans (a-d)". Overall the proposed Project would be inconsistent with the goals of the RTP that address safety.

e. Sustainable Communities Strategy (SCS) Plan

As part of the adoption of the 2016 RTP, SCAG developed an SCS, which was required pursuant to SB 375. According to SB 375, each metropolitan planning organization shall prepare a Sustainable Communities Strategy, including the requirement utilizing the most recent planning assumptions considering local general plans and other factors. The Sustainable Communities Strategy shall:

1. Identify the general location of uses, residential densities, and building intensities within the region;
2. Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth;
3. Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region;
4. Identify a transportation network to service the transportation needs of the region;
5. Gather and consider the best practically available scientific information regarding resource areas and farmland in the region;
6. Consider the State housing goals specified in Sections 65580 and 65581;
7. Set forth a forecast development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission reduction targets approved by the State Board; and
8. Allow the regional transportation plan to comply with the Federal Clean Air Act.

[32] SCAG does not yet have an agreed-upon security performance measure.

The SCS and the 2016 RTP contain new regional growth projections for each city in the Southern California region. Table 4.8.C contains the population and employment forecasts for the City of Claremont, as well as Los Angeles County and the entire SCAG region.

As indicated in Table 4.8.C, the Project area is expected to experience an increase in employment at a rate disproportionate with (e.g., higher than) anticipated population growth, which generally equates to an influx of commuters to the City to work, resulting in longer commutes and increased freeway congestion and air pollution, and reduced quality of life for commuters.

The 2016–2040 RTP/SCS contains a number of "Performance Measures"[33] that are used to evaluate various regional land use plan alternatives, with the objective being an improvement over the No Project (i.e., no SCS) baseline. These measures are applied on a regional basis and are not necessarily applicable to individual projects. However, a general discussion of consistency with the relevant measures is provided in Table 4.8.D.

Table 4.8.C: SCAG Population, Housing, and Employment Projections for 2020 and 2040

	City of Claremont		Los Angeles County		Adopted SCAG Region Wide Forecasts	
	Year 2020	2040 Projection	Year 2020	2040 Projection	Year 2020	2040 Projection
Population	36,300	39,400	10,326,200	11,514,800	19,663,000	22,091,000
Households	12,200	13,200	3,493,700	3,946,600	6,458,000	7,325,000
Employment	18,500	19,700	4,662,500	5,225,800	8,414,000	9,441,000
Increase 2020–2040	9% (Population) 8% (Housing) 6% (Employment)		11.5% (Population) 12.9% (Housing) 12.1% (Employment)		12% (Population) 13% (Housing) 12% (Employment)	
Jobs-Housing-Ratio	1.52	1.49	1.33	1.32	1.30	1.29

Sources: *Demographics & Growth Forecast (Appendix).* 2016–2040 SCAG RTP-SCS. Table 11. Adopted April 7, 2016.
SCAG's Draft 2016 RTP/SCS Growth Forecast by Jurisdiction. http://www.scag.ca.gov/Documents/2016DraftGrowthForecastByJurisdiction.pdf (accessed April 13, 2020).
SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Commons Specific Plan (SCAG No. IGR9734). Letter dated December 19, 2019. (Appendix A2).

Table 4.8.D: Discussion of RTP/SCS Performance Measures

Performance Measure	Definition	Consistency of Proposed Project
Share of growth in High Quality Transit Areas (HQTAs)[1]	Increase share of the region's growth in households and employment in HQTAs	**Consistent.** The Project is located adjacent to a SCAG-defined HQTA. Local transit has numerous bus routes and the Metrolink San Bernardino Line that serve both Claremont and Upland and connect to Metrolink and transit centers in other cities.

[33] *High Quality Transit Areas (HQTA) 2045 – SCAG Region.* Southern California Association of Governments. June, 2019. http://gisdata-scag.opendata.arcgis.com/datasets/43e6fef395d041c09deaeb369a513ca1_1?geometry=-117.706%2C34.105%2C-117.665%2C34.111. Accessed December 23, 2019.

Table 4.8.D: Discussion of RTP/SCS Performance Measures

Performance Measure	Definition	Consistency of Proposed Project
Land consumption	Reduce additional land needed for development that has not previously been developed or otherwise affected, including agricultural land, forest land, desert land, and other virgin sites.	**Consistent.** The SCAG plan calls for reducing the amount of virgin land converted to development, as compared to the "No Project" condition. The Project would develop vacant land previously utilized as a lumber yard and also contained several outbuildings in the mid-to-late 1940s (refer to Section 4.3). Concrete foundations from at least three former buildings are in the western portion of the site.
Average distance for work or non-work trips	Decrease the average distance traveled for work or non-work trips separately.	**Inconsistent.** The Project includes mixed-use residential and retail uses on vacant land, which would increase the overall vehicle miles traveled (VMT) for residents of both the Project and the City compared to the existing region VMT as described in Section 4.10 of this EIR. However, developing housing in an area projected to be "housing poor" is expected to result in opportunities for local residents to obtain jobs closer to their homes and potentially reduce the distance residents would travel to and from work. Additionally, the proposed Project would generate less traffic than would development under the approved land use. For example, development of the site as a commercial center would generate 1,732 average daily trips, with 159 trips occurring during the a.m. peak hour and 165 trips occurring during the p.m. peak hour.[34] Table 4.10.F of this EIR indicates the Project with the proposed General Plan Amendment and conversion of the land use from commercial to mixed-use is forecast to generate 1,089 daily trips, with 118 trips occurring during in the a.m. peak hour and 88 trips occurring in the p.m. peak hour. This is roughly a 66 percent decrease in vehicle trips. However, since the proposed Project would exceed VMT compared to the VMT in the region, the Project would be inconsistent with this RTP/SCS performance measure.
Percentage of work trips less than 3 miles.	Increase the share of total work trips that are fewer than 3 miles.	**Inconsistent:** The Project includes mixed-use residential and retail uses on vacant land, which would increase the overall VMT for residents of both the Project and the City compared to the existing VMT in the region. However, developing housing in an area projected to be "housing poor" is expected to result in opportunities for local residents to obtain jobs closer to their homes and potentially reduce the distance residents would travel to and from work. Additionally, the proposed Project is expected to generate roughly 66 percent fewer vehicle trips when compared to the approved land use. The proposed would still result in an increase in VMT when compared to the VMT of the region. Since the proposed Project would exceed VMT compared to the VMT in the region, the Project would be inconsistent with this RTP/SCS performance measure.

[34] *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* Page 50. City of Claremont. July 20, 2009.

Table 4.8.D: Discussion of RTP/SCS Performance Measures

Performance Measure	Definition	Consistency of Proposed Project
Work trip length distribution.	Reduce the statistical distribution of work trip length in the region.	**Inconsistent.** The Project includes mixed-use residential and retail uses on vacant land, which would increase the overall VMT for residents of both the Project and the City compared to the existing VMT of the region. However, developing housing in an area projected to be "housing poor" is expected to result in opportunities for local residents to obtain jobs closer to their homes and potentially reduce the distance residents would travel to and from work. Additionally, the proposed Project is expected to generate roughly 66 percent fewer vehicle trips when compared to the approved land use. The proposed would still result in an increase in VMT when compared to the VMT of the region. Since the proposed Project would exceed VMT compared to the VMT in the region, the Project would be inconsistent with this RTP/SCS performance measure.
Criteria pollutants and greenhouse gas emissions.	Reduce CO, NOx, $PM_{2.5}$, PM_{10}, VOC, and per capita greenhouse gas emissions (CO_2).	**Consistent.** As detailed in Section 4.1, *Air Quality,* implementation of the proposed Project would not exceed South Coast Air Quality Management District (SCAQMD) regional thresholds for any criteria pollutants (Tables 4.1.G and 4.1.J). As detailed in Table 4.5.C of Section 4.5, *Greenhouse Gas Emissions and Global Climate Change*, the estimated greenhouse gas (GHG) emissions from Project implementation would not exceed the SCAQMD Tier 3 Efficiency Metric Threshold (3,000 $MTCO_2e$ per year). Therefore, the Project is consistent with this policy.
Annual household transportation cost.	Reduce annual household spending on transportation costs of vehicle ownership, operation, and maintenance, and public transportation.	**Consistent:** Developing housing in an area projected to be "housing poor" is expected to result in opportunities for local residents to obtain jobs closer to their homes and potentially reduce the distance residents would travel to and from work. Two bus stops served by Foothill Transit Route 292 are located less than 500 feet to the southwest of the site, and the Montclair and Claremont Metrolink Stations are located approximately 1 mile and 1.5 miles, respectively, south and southwest of the site.
Percentage of jobs within 15 minutes' walk of transit.	Increase the number of jobs within 15 minutes' walk of public transportation.	**Consistent.** The proposed Project would generate approximately 10 jobs through development of 5,000 square feet of retail uses. Two bus stops served by Foothill Transit Route 292 are located less than 500 feet to the southwest of the site, and the Montclair and Claremont Metrolink Stations are located approximately 1 mile and 1.5 miles, respectively, south and southwest of the site.

Source: *Performance Measures (Appendix).* 2016-2040 SCAG RTP-SCS, Table 2 and Exhibit 1. Adopted April 7, 2016.
1 High Quality Transit Areas refer to transportation corridors within ½ mile of a major transit route that feature peak commute period service frequencies of 15 minutes or less.

As detailed in Table 4.8.D, the proposed Project is inconsistent with the SCAG RTP/SCS performance measures.

Mitigation Measures. No mitigation measures are warranted.

Impact Conclusion: The proposed Project is generally consistent with the intent and overall goals of the indicated local and regional plans. Therefore, impacts related to conflict with applicable plans, policies, and/or regulations adopted for the purpose of avoiding or mitigating an environmental effect are **less than significant.**

4.8.6 Cumulative Impacts

The area for consideration of cumulative land use and planning impacts is southern California, similar to the boundaries of the various regional plans described previously (generally Los Angeles and Orange Counties and the western urban portions of Riverside and San Bernardino Counties). As discussed in Section 4.8.5, the Project would not have significant project-related impacts related to dividing an existing community, and it would not result in significant impacts from conflict with the Claremont General Plan and *2011 Handbook* in Claremont

The various SCAG regional plans were based on the existing General Plan and Zoning land uses as indicated in Table 4.8.A. The proposed Project is generally consistent with SCAG's goals and policies related to employment generation and regional air quality.

Related projects within the City of Claremont and City of Upland (including the 3-acre parcel in Upland adjacent to the eastern boundary of the Project site where 48 townhomes are proposed to be developed in the future) may result in significant and unavoidable impacts if these projects were located within restricted development areas of Cable Airport. As is the case for the proposed Project, each related project would be required to conduct project-specific impact analyses to determine the potential for incompatibility of land uses, for example, from exposure of residents to safety hazards or excessive noise from nearby airports. Since the proposed Project would not affect land uses of properties it would not occupy, the proposed Project would not combine with other projects to result in a cumulatively considerable impact related to physical division of communities or land use incompatibility with the Claremont General Plan, or *2011 Handbook*. Furthermore, the proposed Project represents a shift in land use designation for the site (i.e., commercial to mixed-use) and would introduce more housing in an area projected to be "jobs-rich" and "housing-poor." Therefore, the proposed Project would reduce the ongoing imbalance of jobs to housing in the region that would otherwise be perpetuated by cumulative commercial and industrial projects, so impacts related to land use and planning would not be cumulatively considerable.

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4.9 NOISE AND VIBRATION

This section examines potential short-term and long-term noise impacts on noise-sensitive uses in the Project area. This assessment includes a discussion of potential construction-related noise, temporary and/or permanent increase in ambient noise levels in the vicinity of the Project area; exposure of people to excessive noise levels, groundborne vibration, or groundborne noise levels. Additional analysis related to airport noise is also discussed in this section. The analysis contained in this section is based on the Project-specific technical report, which is provided as Appendix G to this EIR:

- *Noise and Vibration Impact Analysis, The Commons Project, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California,* LSA Associates, Inc. December 2019.

4.9.1 Characteristics of Sound

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

4.9.1.1 Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike linear units (e.g., inches or pounds), decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) is 10 times more intense than 1 dB, 20 dB is 100 times more intense than 1 dB, and 30 dB is 1,000 times more intense than 1 dB. Thirty decibels (30 dB) represent 1,000 times as much acoustic energy as 1 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single-

point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations) the sound decreases 3 dB for each doubling of distance in a hard site environment. Similarly, line sources with intervening absorptive vegetation or line sources that are located at a great distance to the receptor would decrease 4.5 dB for each doubling of distance, which is consistent with information provided in the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108).

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours), and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The two Cities use the CNEL noise scale for long-term noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak operating conditions and addresses the annoying aspects of intermittent noise. L_{max} is often used together with another noise scale or noise standards in terms of percentile noise levels in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level (i.e., half the time the noise level exceeds this level, and half the time it is less than this level). The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

The human perception of noise level increases can be described in three categories:

- *Inaudible/Not Perceptible:* Changes in noise levels of less than 1 dB are inaudible to the human ear and often referred to as not perceptible.
- *Potentially Audible/Barely Perceptible:* A potentially audible impact refers to a 1 dB to 3 dB change in noise levels. This range of noise levels has been found to be noticeable in low-noise environments.
- *Audible/Readily Perceptible:* An audible impact refers to a noticeable increase in noise for humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be readily perceptible in exterior environments. For reference, a 10 dB increase is experienced by humans as a doubling of sound or perceived to be twice as loud.

Only readily perceptible changes in existing ambient or background noise levels are considered potentially significant.

4.9.1.2 Physiological Effects of Noise

Exposure to prolonged high noise levels has been found to have effects on human health, including physiological and psychological effects to humans. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear (the threshold of pain). A sound level of 160–165 dBA would result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and is generally more concentrated in urban areas than in outlying, less developed areas. Table 4.9.A provides definitions of acoustical terms, and Table 4.9.B identifies common sound levels and their sources.

Table 4.9.A: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit of measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency (Hz)	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., number of cycles per second).
A-Weighted Sound Level (dBA)	The sound level obtained by use of A-weighting. The A-weighting filter deemphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted, unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.
Equivalent Continuous Noise Level (L_{eq})	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level (CNEL)	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level (L_{dn})	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Source: Harris, Cyril M., ed. 1991. *Handbook of Acoustical Measurements and Noise Control,* Third Edition.

Table 4.9.B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	—
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing

Source: Compiled by LSA Associates, Inc. (2015).

4.9.2 Fundamentals of Vibration

Vibration refers to groundborne noise and perceptible motion. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible. Typically, there is more adverse reaction to effects associated with the shaking of a building. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both groundborne vibration and noise from these sources are usually localized to areas within approximately 100 feet from the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet.[1] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface would be smooth enough that groundborne vibration from street traffic would not exceed the impact criteria; however, the construction of the project could result in groundborne vibration that may be perceptible and annoying.

Groundborne vibration has the potential to disturb people and damage buildings. Although it is very rare for typical construction activities to cause even cosmetic building damage, it is not uncommon for construction processes (e.g., blasting and pile driving) to cause vibration of sufficient amplitudes to damage nearby buildings.[2] Groundborne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

Where L_v is the vibration velocity in decibels (VdB), "V" is the RMS velocity amplitude, and "V_{ref}" is the reference velocity amplitude, or 1×10^{-6} inches per second (in/sec) used in the United States.

Factors that influence groundborne vibration and noise include the following:

- *Vibration Source:* Vehicle suspension, wheel types and condition, railroad track/roadway surface, railroad track support system, speed, transit structure, and depth of vibration source.
- *Vibration Path:* Soil type, rock layers, soil layering, depth to water table, and frost depth.
- *Vibration Receiver:* Foundation type, building construction, and acoustical absorption.

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground compared to when the source is at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock.

Experience with groundborne vibration indicates that (1) vibration propagation is more efficient in stiff clay soils than in loose sandy soils and (2) shallow rock seems to concentrate the vibration energy close to the surface and can result in groundborne vibration problems at large distances from a railroad track. Factors such as the layering of the soil and the depth to the water table can have significant effects on the propagation of groundborne vibration. Soft, loose, sandy soils tend to

[1] Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. September. Website: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf (accessed November 2019).

[2] Ibid.

attenuate more vibration energy than hard rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

4.9.3 Existing Setting

The existing noise environment includes traffic noise on Foothill Boulevard, Monte Vista Avenue, Andrew Drive, and other local streets in the Project vicinity. Noise from motor vehicles is generated by engine vibrations, interaction between tires and the road, and exhaust systems. Cable Airport operations also contribute to the existing ambient noise levels in Project vicinity.

4.9.3.1 Vehicular Traffic Noise

The guidelines in the FHWA 1977 Highway Traffic Noise Prediction Model (FHWA RD-77-108) were used to evaluate traffic-related noise conditions along roadway segments in the Project vicinity. The resultant noise levels are weighted and summed over a 24-hour period to determine the CNEL values. Existing traffic volumes were obtained from the *Traffic Impact Analysis* prepared for the proposed Project. The standard vehicle mix for Southern California roadways was used for all roadway segments. Table 4.9.C provides the existing traffic noise levels for roadways within the Project area. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn.

As shown in Table 4.9.C, traffic noise levels along Foothill Boulevard adjacent to the Project are moderate and the 65 and 60 dBA CNEL noise contours extend to 88 feet and 185 feet, respectively, from the roadway centerline. Traffic noise levels along Monte Vista Avenue adjacent to the Project are also moderate and the 65 and 60 dBA CNEL noise contours extend to 94 feet 185 feet, respectively, from the roadway centerline.

Table 4.9.C: Existing Traffic Noise Levels Without Project

Roadway	ADT	Centerline to 70 dBA CNEL (feet)	Centerline to 65 dBA CNEL (feet)	Centerline to 60 dBA CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Foothill Boulevard West of Claremont Boulevard	18,020	< 50	94	196	66.7
Foothill Boulevard between Claremont Boulevard and Driveway 1	16,120	< 50	87	182	66.2
Foothill Boulevard between Driveway 1 and Driveway 2	16,455	< 50	88	185	66.3
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	16,460	< 50	88	185	66.3
Foothill Boulevard East of Monte Vista Avenue	17,800	59	113	236	67.5
Monte Vista Avenue North of Claremont Boulevard	16,320	< 50	88	184	66.2

Table 4.9.C: Existing Traffic Noise Levels Without Project

Roadway	ADT	Centerline to 70 dBA CNEL (feet)	Centerline to 65 dBA CNEL (feet)	Centerline to 60 dBA CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue-Driveway 3	11,800	< 50	87	180	66.0
Monte Vista Avenue between Marylind Avenue-Driveway 3 and Driveway 4	11,785	< 50	91	182	65.3
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	11,910	< 50	94	185	65.0
Monte Vista Avenue South of Foothill Boulevard	13,700	< 50	101	202	65.6
Claremont Boulevard South of Foothill Boulevard	9,210	< 50	63	127	63.6
Claremont Boulevard North of Foothill Boulevard	8,280	< 50	60	119	63.2
Claremont Boulevard West of Monte Vista Avenue	5,590	< 50	< 50	94	61.2

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.
ADT = Average Daily Trips dBA = A-weighted decibels

4.9.3.2 Aircraft Noise

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. Cable Airport is the closest airport to the proposed Project. The closest source of aircraft noise is Cable Airport, which is located approximately 1,540 feet east of the Project. According to the City of Claremont General Plan, the Project site is currently exposed to Cable Airport operational noise ranging between 60 to 65 dBA CNEL.[3]

4.9.3.3 Existing Ambient Noise Levels based on Short- and Long-Term Noise Monitoring

One short-term (20-minute) noise level measurement and three long-term noise measurements (24-hours) were conducted on October 22 through 23, 2019, to determine the existing ambient noise level in the Project area. The existing ambient noise levels ranged between 60.1 to 72.6 dBA CNEL in the

[3] For planning purposes pertaining to compatibility, the CNEL is appropriate for airport-related noise. The CNEL describes aircraft-related sound level in A-weighted decibels that areas near the airport are exposed over the course of an average day of the year. Single events (such as aircraft landing or departing from Cable Airport) would generate noise levels that are higher than the CNEL. Noise generated by Cable Airport already exceeds the City of Claremont CNEL standards on the Project site and single-event noise from Cable airport operations would be higher than the CNEL. Therefore, providing single-event noise levels from Cable airport operations is not warranted.

Project area, which is considered normal for an urban area of a City.[4] Figure 4.9.1 shows short-term and long-term noise monitoring locations.

4.9.3.4 Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest residences are located approximately 475 feet northwest (within the City of Claremont) and 500 feet southeast (within the City of Upland) of the Project. Non-sensitive land uses adjacent to the Project site include vacant land with a portion occupied by Holy Infant Home Care administrative offices to the north, office park to the east, commercial to the southeast, vacant land to the south, Armstrong Garden Center and an ARCO gas station to the west, and a business park to the northwest.

4.9.3.5 NOP/Scoping Comments

The California Department of Transportation (Caltrans) Division of Aeronautics provided an NOP Comment Letter (dated December 16, 2019) raising issues about noise compatibility between the Cable Airport operations and the uses of the Project. The comments indicated that the *California Airport Land Use Planning Handbook* should be used to analyze potential noise impacts in the EIR.

4.9.4 Regulatory Framework

4.9.4.1 Federal Regulations

Federal Transit Administration. Vibration standards included in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018) are used in this analysis for groundborne vibration impacts on human annoyance.

4.9.4.2 State Regulations

There are no State regulations related to noise and vibration that are applicable to the proposed Project.

4.9.4.3 Local Regulations

City of Claremont General Plan Noise Element. The maximum exterior and interior noise standards specified in Table 6-5 of the City's General Plan Noise Element (see Table 4.9.D) are used as a guideline to evaluate the acceptability of the noise generated by traffic. These standards are for assessment of long-term vehicular traffic noise impacts. As shown in Table 4.9.D, the City has a maximum exterior noise standard of 65 dBA CNEL for residential uses and a maximum exterior noise standard of 70 dBA CNEL for commercial and office uses. In addition, the City has a maximum interior noise standard of 45 dBA CNEL for residential uses. Table 4.9.J in Section 4.9.7 evaluates the Project's consistency with Claremont's General Plan goals and policies related to noise.

[4] Please refer to the Noise Impact Analysis Tables O and P showing the results of the short- and long-term noise monitoring that was conducted in the project area.



LSA

LEGEND

- Project Site
- Receptor
- Short-Term Monitoring Location
- Long-Term Monitoring Locations

0 75 150
FEET

SOURCE: Google (2019), KTGY (9/9/19)

I:\CCT1801.01\GIS\MXD\EIR\NoiseMon_SensitiveReceptorLocs.mxd (4/16/2020)

FIGURE 4.9.1

The Commons

Noise Monitoring and Sensitive Receptor Locations

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Table 4.9.D: Claremont Land Use/Noise Guidelines

Property Receiving Noise		Maximum Noise Level (dBA L_{dn} or CNEL)	
Type of Use	**Zoning Designation**	**Interior**	**Exterior[3]**
Residential	Hillside	45	65
	Rural		
	Very Low		
	Low Medium		
	Medium	45	65/70[1]
	High	45	70[1]
Commercial and Office	Professional Commercial	—	70
	Neighborhood		
	Limited		
	Major		
	Highway		
	Freeway		
	Professional Office	50	70
Business Park	Business Park	55	75
Public/Institutional	Schools	50	65
	All Others	50	70
Open Space	Active Open Space	—	70
	Passive Open Space	—	70/65[2]

Source: City of Claremont. Chapter 6, Noise Element (2009).

[1] Maximum exterior noise level up to 70 dBA CNEL are allowed for multiple-family housing.

[2] Where quiet is a basis for the land use.

[3] Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dBA CNEL.

City of Claremont Municipal Code. Section 16.154.020(D)(E) of the City's Municipal Code establishes noise level standards for various land use categories affected by stationary noise sources and not noise from mobile sources or aircraft. Land use categories in the City are defined in three noise zones, as listed below. Tables 4.9.E and 4.9.F provide the City's exterior and interior noise standard based on the noise zone and the time period, respectively.

1. Noise Zone 1: All single, double and multiple family residential properties.
2. Noise Zone 2: All commercial properties.
3. Noise Zone 3: All manufacturing or industrial properties.

Section 16.154.020(F) of the City Municipal Code states that noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property, or during authorized seismic survey provide that activities take place between the hours of 7:00 a.m. and 8:00 p.m. weekdays and Saturdays, excluding national holidays and noise levels as measured on residential properties do not exceed 65 dBA for a cumulative period of more than 15 minutes in any one hour, 70 dBA for a cumulative period of more than 10 minutes in any one hour, 79 dBA for a cumulative period of more than 5 minutes in any one hour or 80 dBA at any time and any vibration created does not endanger the public health, welfare, and safety. Only construction, repair, remodeling, and

grading activity that does not exceed the noise levels set by Section 16.154.020(D) may occur on Sundays and national holidays.

Table 4.9.E: City of Claremont Exterior Noise Level Standards from Stationary Noise Sources

Noise Zone	Time Interval	15 minutes[1] (dBA)	10 minutes[2] (dBA)	5 minutes[3] (dBA)	Anytime[4] (dBA)
1	7:00 AM to 10:00 PM	60	65	74	75
	10:00 PM to 7:00 AM	55	60	69	70
2	7:00 AM to 10:00 PM	65	70	79	80
	10:00 PM to 7:00 AM	60	65	74	75
3	Anytime	70	75	84	85

Source: City of Claremont Municipal Code Section 16.154.020(D).
Note: Per the Claremont Municipal Code Section 16.154.020(D), it shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted above. Each of the noise limits above shall be reduced by 5 dBA for noise consisting of impulse or simple tone noise. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured.

[1] 15-minute noise standard. Basic noise level for a cumulative period of more than 15 minutes in any one hour.
[2] 10-minute noise standard. Basic noise level plus 5 dBA for a cumulative period of more than 10 minutes in any one hour.
[3] 5-minute noise standard. Basic noise level plus 14 dBA for a cumulative period of more than 5 minutes in any one hour.
[4] Anytime noise standard. Basic noise level plus 15 dBA at any time.

Table 4.9.F: City of Claremont Interior Noise Level Standards from Stationary Noise Sources

Noise Zone	Type of Land Use	Time Interval	Allowable Interior Noise Level (dBA)
All	Residential	7:00 AM to 10:00 PM	47
		10:00 PM to 7:00 AM	37

Source: City of Claremont Municipal Code Section 16.154.020(E).
Note: Each of the noise limits above shall be reduced by 5 dBA for noise consisting of impulse or simple tone noise. It shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted above. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured.

Section 16.154.020(H) of the City Municipal Code states that the noise standards specified in Section 16.154.020 (D and E) for noise levels generated by air conditioning or refrigeration system or associated equipment shall be increased by 5 dBA. In addition, no person shall cause the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. the following day in such a manner as to cause a noise disturbance across a residential real property boundary or within Noise Zone 1.

Section 16.154.020(J) of the City Municipal Code states that it shall be unlawful for any person to create, maintain or cause any ground vibration which is perceptible without instruments at any point

on any affected property adjoining the project on which the vibration source is located. The perception threshold shall be presumed to be more than 0.05 inches per second (in/sec) RMS vertical velocity (PPV).

4.9.5 Thresholds of Significance

4.9.5.1 Noise

As stated in the State *CEQA Guidelines Appendix G*, a project would normally have a significant effect on the environment related to noise if the following were to occur:

- Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Result in the generation of excessive groundborne vibration or groundborne noise levels.
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

In this analysis, the Project would have a significant noise impact if it exceeds the stationary source noise criteria for the City of Claremont as specified in the City's General Plan and Municipal Code Noise Ordinance.

For the Project, a significant off-site traffic noise impact would occur if **both** of the following conditions occur:

- Long-term project traffic would cause a noise level increase of 3 dBA or more on a roadway segment adjacent to a noise-sensitive land use. Noise-sensitive land uses include the following: residential (single-family, multifamily, and mobile home); transient lodging (e.g., hotels and motels); nursing homes; hospitals; schools; and parks, playgrounds, and recreation areas.
- The resulting "future with project" noise level exceeds the noise standard for sensitive land uses as identified in the City of Claremont General Plan.

4.9.5.2 Vibration

The criteria to assess groundborne vibration[5] and noise impacts are based on the maximum levels for a single event. Vibration standards included in the FTA *Transit Noise and Vibration Impact Assessment* (2006) are used in this analysis for groundborne vibration impacts on human annoyance, as shown in Table 4.9.G. These criteria account for variation in project types as well as the frequency of events, which differ widely among projects. It is logical that when there would be fewer events per day, it should take higher vibration levels to evoke the same community response. This is accounted for in the criteria by distinguishing between projects with frequent and infrequent events, in which the term

[5] Groundborne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration and PPV is used to characterize potential for damage.

"frequent events" is defined as more than 70 events per day. Table 4.9.H lists the potential vibration building damage criteria associated with construction activities.

Table 4.9.G: Groundborne Vibration and Groundborne Noise Impact Criteria for General Assessment

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 µin/sec)			Groundborne Noise Impact Levels (dB re 20 µPa)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]	N/A[5]	N/A[5]	N/A[5]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: Table 8-1, *Transit Noise and Vibration Impact Assessment* (FTA 2006).

[1] Frequent events are defined as more than 70 vibration events of the same source per day.
[2] Occasional events are defined as between 30 and 70 vibration events of the same source per day.
[3] Infrequent events are defined as fewer than 30 vibration events of the same kind per day.
[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
[5] Vibration-sensitive equipment is generally not sensitive to groundborne noise.

µin/sec = micro-inches per second
µPa = micro-Pascals
dB = decibels
dBA = A-weighted decibels
FTA = Federal Transit Administration
HVAC = heating, ventilation, and air-conditioning
N/A = not applicable
VdB = vibration velocity decibels

Table 4.9.H: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_V (VdB)[1]
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: Table 12-3, *Transit Noise and Vibration Impact Assessment* (FTA 2006).

[1] RMS vibration velocity in decibels (VdB) are 1 µin/sec.

µin/sec = micro-inches per second
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

A vibration level of up to 102 VdB (equivalent to 0.5 in/sec PPV) (FTA 2006) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction building vibration damage criterion is 94 VdB (0.2 in/sec PPV). The PPV values for building damage

thresholds referenced above are also shown in Table 4.9.I includes additional building definition and vibration building damage thresholds.

Table 4.9.I: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources[1]	Continuous/Frequent Intermittent Sources[2]
Extremely fragile historic buildings, ruins, and ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

Source: Table 19, *Transportation and Construction Vibration Guidance Manual* (Caltrans 2013).

[1] Transient sources create a single isolated vibration event, such as blasting or drop balls.
[2] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Caltrans = California Department of Transportation in/sec = inches per second
PPV = peak particle velocity

4.9.6 Methodology Used for the Impacts Analysis

Potential noise and vibration impacts are commonly divided into two groups: short-term construction and long-term operational (stationary source and mobile vehicular noise). Short-term impacts are usually associated with noise and vibration generated by construction activities. Long-term impacts include effects on both surrounding land uses as well as noise-sensitive on-site uses, which can include stationary and traffic operations. For the purposes of this analysis, it is expected that the long-term operational noise impacts associated with the proposed Project would be a product of increased off-site traffic noise impacts and from on-site stationary noise sources. The evaluation of noise and vibration impacts associated with the proposed Project includes the following:

- Analysis of short-term construction noise and vibration levels at off-site noise-sensitive uses using the City of Claremont's Noise Ordinances and the construction vibration building damage and/or human annoyance criteria recommended by the FTA and Caltrans.
- Analysis of long-term potential noise impacts associated with off-site vehicular traffic using guidelines provided by the FHWA and on-site traffic noise impacts from nearby roads and noise impacts generated by aircraft operations at Cable Airport as compared to the City of Claremont and Caltrans pertinent noise standards.

4.9.7 Impact Analysis

Table 4.9.J evaluates the Project's consistency with Claremont's General Plan goals and policies related to noise.

Table 4.9.J: Claremont General Plan Consistency Analysis, Noise

General Plan Goals and Policies	General Plan Consistency Analysis
City of Claremont General Plan – Chapter 6 Public Safety and Noise Element	
Goal 6-12: Minimize the impact of excessive noise levels throughout the community, and adopt appropriate noise level requirements for all land uses.	
Policy 6-12.1: Use noise contour maps and noise/land use compatibility criteria in planning and development decisions.	**Consistent:** The proposed Project would not generate noise levels that exceed the City of Claremont noise thresholds for nearby land uses. According to the City of Claremont General Plan, the portion of the site within Claremont's jurisdiction is exposed to Cable Airport operational noise ranging from 60 to 65 dBA CNEL. The City of Claremont General Plan Noise Element, Table 6-5, indicates the following: "Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dBA CNEL." The proposed Project includes an action to implement a General Plan Text Amendment to its existing text regarding air traffic noise exposure to residential units within the influence area of Cable Airport. The General Plan Text Amendment action would include the following proposed change to note 3 of Table 6-5 of the General Plan: "Regarding air-craft related noise, the maximum acceptable exposure for new residential development is 60 dBA CNEL. However, in order to promote the development of housing urgently needed during the current California housing crisis and meet the City's current Regional Housing Needs Assessment (RHNA), residential uses located in a mixed-use development where there is a mix of residential housing types including multi-family housing, are allowed maximum noise level exposures up to 70 dB CNEL (SB 330, Skinner. Housing Crisis Act of 2019, signed into law October 9, 2019)." With approval of the Project, this General Plan Text Amendment would ensure the Project is consistent with Claremont General Plan Policy 6-12.1.
Policy 6-12.2: Develop standards and encourage private property owners to locate, screen, and/or buffer equipment in order to reduce noise impacts on surrounding areas.	**Consistent:** The proposed Project would include the use of stationary noise sources (i.e., truck deliveries/unloading/loading areas, surface parking lots, and residential/commercial HVAC systems). As discussed in the analysis below, these features would be located in areas where intervening buildings would reduce noise levels generated by the stationary sources. This type of design would be consistent with this policy as set forth by the City.
Policy 6-12.3: Minimize noise from property maintenance equipment, construction activities and other non-transportation noise sources by enforcing designated construction and maintenance hours.	**Consistent:** The construction contractor would comply with Section 16.154.020(F) of the City's Municipal Code, which exempts construction noise if the following occur: • Activities take place between the hours of 7:00 a.m. and 8:00 p.m. weekdays and Saturdays, excluding national holidays; and • Noise levels as measured on residential properties do not exceed 65 dBA for a cumulative period of more than 15 minutes in any 1 hour, 70 dBA for a cumulative period of more than 10 minutes in any 1 hour, and 79 dBA for a cumulative period of more than 5 minutes in any 1 hour or 80 dBA at any time. Abiding by the standards of the Claremont Municipal Code would ensure that nearby sensitive receptors are not exposed to construction noise levels that exceed residential interior and exterior limits. The Project would therefore be consistent with this policy.

Source: City of Claremont General Plan – Chapter 6 Public Safety and Noise Element (2009).

4.9.7.1 Noise Levels in Excess of Established Local Standards

Threshold	Would the proposed Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise Impacts. Two types of short-term noise impacts would occur during Project construction: (1) equipment delivery and construction worker commutes and (2) Project construction operations.

The first type of short-term construction noise would result from the transport of construction equipment and materials to the Project site and construction worker commutes. These transportation activities would incrementally raise noise levels on access roads leading to the site. Larger trucks used in equipment delivery are expected to generate higher noise impacts than trucks associated with worker commutes. Although there would be high single-event noise exposure potential at a maximum level of 84 dBA L_{max} from trucks passing at 50 feet, the effect on longer-term (hourly or daily) ambient noise levels would be small. The building construction phase would generate the highest daily construction vehicle trips. There would be up to 60 vehicles per hour or 119 vehicles per day from Project construction vehicle trips during the building construction phase. Roadways that would be used to access the Project site are Foothill Boulevard and Monte Vista Avenue, which have an estimated existing hourly/daily traffic volume of 1,612/16,120 and 1,179/11,785, respectively, near the Project site. Construction-related traffic would increase hourly traffic noise levels by up to 0.2 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the Project site would be less than significant.

The second type of short-term noise impact is related to noise generated during site preparation, grading, building construction, paving, and architectural coating on the Project site. Construction is undertaken in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the Project site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.9.K lists the maximum noise levels recommended for noise impact assessments for typical construction equipment based on a distance of 50 feet between the equipment and a noise receptor. Noise monitoring and sensitive receptor locations are identified in previously referenced Figure 4.9.1. Typical operating cycles for these types of construction equipment may involve 1 to 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings.

Typical noise levels range up to 88 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders.

Project construction is expected to require the use of bulldozers, graders, and water trucks/pickup trucks. Noise associated with the use of construction equipment is estimated to be between 55 dBA L_{max} and 85 dBA L_{max} at a distance of 50 feet from the active construction area for the grading phase. As shown in Table 4.9.K, the maximum noise level generated by each bulldozer is assumed to be approximately 85 dBA L_{max} at 50 feet. Each grader would generate approximately 85 dBA L_{max} at 50 feet. The maximum noise level generated by water trucks/pickup trucks is approximately 55 dBA L_{max} at 50 feet from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, the worst-case combined noise level during this phase of construction would be 88 dBA L_{max} at a distance of 50 feet from the active construction area. Based on a usage factor of 40 percent, the worst-case combined noise level during this phase of construction would be 82 dBA L_{eq} at a distance of 50 feet from the active construction area.

Table 4.9.K: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor[1]	Maximum Noise Level (L_{max}) at 50 feet[2]
Backhoe	40	80
Compactor (ground)	20	80
Compressor	40	80
Crane	16	85
Dozer	40	85
Dump Truck	40	84
Excavator	40	85
Flatbed Truck	40	84
Forklift	20	85
Front-End Loader	40	80
Grader	40	85
Impact Pile Driver	20	95
Jackhammer	20	85
Pickup Truck	40	55
Pneumatic Tools	50	85
Pump	50	77
Rock Drill	20	85
Roller	20	85
Scraper	40	85
Tractor	40	84
Welder	40	73

Source: *FHWA Highway Construction Noise Handbook,* Table 9.1 (FHWA 2006).

Note: The noise levels reported in this table are rounded to the nearest whole number.

[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

[2] Maximum noise levels were developed based on Spec 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.

CA/T = Central Artery/Tunnel
FHWA = Federal Highway Administration
L_{max} = maximum instantaneous noise level

Table 4.9.L shows the property lines of the closest existing land use adjacent to the Project and the projected construction noise level. As shown in Table 4.9.L, the manufacturing facility to the north and commercial uses to the west are located within 50 feet of the Project construction boundary and would be exposed to construction noise levels of 88 dBA L_{max} (84 dBA L_{eq}) or higher. The property lines of other land uses would be exposed to construction noise levels of 88 dBA L_{max} (84 dBA L_{eq}) or less. The proposed Project would be required to comply with the construction hours and days specified in the Cities of Claremont and Upland Municipal Codes. Construction noise levels at the closest residence in the City of Claremont would not exceed the City's exterior 15-minute, 10-minute, 5-minute, and anytime noise standard of 65, 70, 79, and 80 dBA, respectively.

Table 4.9.L: Summary of Construction Noise Levels

Land Use	Direction	Maximum Reference Noise Level (dBA L_{max})	Average Reference Noise Level (dBA L_{eq})	Reference Distance (feet)	Distance (feet)	Maximum Noise Level (dBA L_{max})	Average Noise Level (dBA L_{eq})
Residential	Northwest	88	86	50	475	68	64
Residential	Southeast	88	86	50	500	68	64
Manufacturing	North	88	86	50	>50	>88	>84
Office Park	East	88	86	50	100	82	78
Commercial	Southeast	88	86	50	190	76	72
Commercial	West	88	86	50	>50	>88	>84
Business Park	Northwest	88	86	50	50	88	84

Source: Compiled by LSA Associates, Inc. (2019).
Notes: For conservative analytical purposes, noise from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project generated noise since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

dBA L_{eq} = average A-weighted hourly noise level
dBA L_{max} = maximum A-weighted instantaneous sound level

Standard construction measures would be implemented and enforced by the City of Claremont during construction activities on the Claremont portion of the Project site. The measures are as follows:

- The construction contractor would limit construction activities to between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays, excluding national holidays. In addition, noise levels on residential properties shall not exceed 65 dBA for a cumulative period of more than 15 minutes in any one hour, 70 dBA for a cumulative period of more than 10 minutes in any one hour, 79 dBA for a cumulative period of more than 5 minutes in any one hour, or 80 dBA at any time.
- During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- The construction contractor shall locate equipment staging in areas that would create the greatest distance between construction-related noise sources and most noise-sensitive receptors nearest the project site during all project construction.
- The construction contractor shall place all stationary construction equipment so that the emitted noise is directed away from the sensitive receptors nearest the project site.

The implementation of these standard measures would further minimize construction noise impacts to nearby sensitive receptors. Project construction activities would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the City of Claremont General Plan or noise ordinance. Impacts would be **less than significant** and no mitigation measures are required.

Long-Term Off-site Operational (Traffic) Noise Impacts. Long-term impacts include effects on both surrounding land uses as well as noise-sensitive onsite uses, which can include stationary and traffic operations. The Project, as it is a mixed-use development, may include stationary sources of noise (e.g., truck delivery, commercial air conditioning units, and parking areas) that typically are identified as potential sources of stationary sources. It is anticipated that long-term operational noise generated by the proposed uses would be similar to those typically perceived in mixed use residential/ commercial areas. The primary long-term operational noise impacts associated with the proposed Project would be a product of increased traffic noise. The baseline scenarios and with Project scenarios are evaluated to determine potential traffic noise impacts on offsite sensitive land uses.

Guidelines included in the FHWA Highway Traffic Noise Prediction Model (FHWA RD-77-108) handbook were used to evaluate highway traffic-related noise conditions along roadway segments in the Project vicinity. The standard vehicle mix for Southern California roadways was used for traffic on these roadway segments. The modeled 24-hour CNEL levels are provided as follows:

- Table 4.9.M: Existing Traffic Noise Levels Without and With Project; and
- Table 4.9.N: Build-Out Year (2040) Traffic Noise Levels Without and With Project.

These noise levels represent the worst-case scenario, which assumes no shielding is provided between the traffic and the location where the noise contours are drawn. The specific assumptions used in developing these noise levels and model printouts are provided in Appendix G.

As shown in Tables 4.9.M and 4.9.N, the Project-related traffic noise increase would reach up to 0.2 dBA. Noise level increases less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, no long-term off-site traffic noise impacts would occur. No noise mitigation measures are required.

Long-Term On-site Operational (Traffic) Noise Impacts. Traffic noise levels at proposed on-site uses were assessed using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) based on the results shown in Tables 4.9.M and 4.9.N. Figure 4.9.1 (above) depicts the on-site sensitive receptors that were modeled under this analysis. Details of the noise calculation at each receptor location are provided in Appendix G. Table 4.9.O shows the existing and 2040 with Project traffic noise levels at each receptor location.

As shown in Table 4.9.O, residences and active/passive open space areas in the City of Claremont would not exceed the exterior noise standard of 70 dBA CNEL.

Table 4.9.M: Existing Traffic Noise Levels Without and With Project

Roadway Segment	Existing Without Project					Existing With Project					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Foothill Boulevard West of Claremont Boulevard	18,020	< 50	94	196	66.7	18,350	< 50	95	199	66.7	0.0
Foothill Boulevard between Claremont Boulevard and Driveway 1	16,120	< 50	87	182	66.2	16,360	< 50	88	184	66.2	0.0
Foothill Boulevard between Driveway 1 and Driveway 2	16,455	< 50	88	185	66.3	16,995	< 50	90	189	66.4	0.1
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	16,460	< 50	88	185	66.3	17,065	< 50	90	189	66.4	0.1
Foothill Boulevard East of Monte Vista Avenue	17,800	59	113	236	67.5	18,251	60	115	240	67.6	0.1
Monte Vista Avenue North of Claremont Boulevard	16,320	< 50	88	184	66.2	16,590	< 50	89	186	66.3	0.1
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/ Driveway 3	11,800	< 50	87	180	66.0	11,970	< 50	88	182	66.0	0.0
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	11,785	< 50	91	182	65.3	11,945	< 50	92	184	65.3	0.0

Table 4.9.M: Existing Traffic Noise Levels Without and With Project

Roadway Segment	Existing Without Project					Existing With Project					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	11,910	< 50	94	185	65.0	12,190	< 50	95	187	65.1	0.1
Monte Vista Avenue South of Foothill Boulevard	13,700	< 50	101	202	65.6	14,060	< 50	103	205	65.7	0.1
Claremont Boulevard South of Foothill Boulevard	9,210	< 50	63	127	63.6	9,210	< 50	63	127	63.6	0.0
Claremont Boulevard North of Foothill Boulevard	8,280	< 50	60	119	63.2	8,280	< 50	60	119	63.2	0.0
Claremont Boulevard West of Monte Vista Avenue	5,590	< 50	< 50	94	61.2	5,690	< 50	< 50	95	61.3	0.1

Source: Compiled by LSA Associates, Inc. (2019). Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.
Notes: For conservative analytical purposes, ADT from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project ADT under the "Existing with Project" since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet

Table 4.9.N: 2040 Traffic Noise Levels Without and With Project

Roadway Segment	2040 Cumulative Without Project					2040 Cumulative With Project						Significant?
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions	
Foothill Boulevard West of Claremont Boulevard	24,120	56	112	238	67.9	24,450	57	113	240	68.0	0.1	No
Foothill Boulevard between Claremont Boulevard and Driveway 1	21,500	< 50	104	220	67.4	21,740	< 50	105	222	67.5	0.1	No
Foothill Boulevard between Driveway 1 and Driveway 2	21,510	< 50	105	220	67.4	22,050	< 50	106	224	67.5	0.1	No
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	21,830	< 50	105	223	67.5	22,435	< 50	107	227	67.6	0.1	No
Foothill Boulevard East of Monte Vista Avenue	23,130	67	133	281	68.6	23,581	68	135	284	68.7	0.1	No
Monte Vista Avenue North of Claremont Boulevard	23,390	< 50	110	233	67.8	23,660	56	111	235	67.8	0.0	No
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/ Driveway 3	17,530	56	111	234	67.7	17,700	57	112	235	67.7	0.0	No

Table 4.9.N: 2040 Traffic Noise Levels Without and With Project

Roadway Segment	2040 Cumulative Without Project					2040 Cumulative With Project						Significant?
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions	
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	17,450	< 50	114	234	67.0	17,610	63	115	236	67.0	0.0	No
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	17,890	67	118	239	66.8	18,170	67	119	242	66.8	0.0	No
Monte Vista Avenue South of Foothill Boulevard	23,100	74	137	282	67.9	23,460	75	138	285	68.0	0.1	No
Claremont Boulevard South of Foothill Boulevard	11,960	< 50	74	150	64.8	11,960	< 50	74	150	64.8	0.0	No
Claremont Boulevard North of Foothill Boulevard	10,330	< 50	68	137	64.1	10,330	< 50	68	137	64.1	0.0	No
Claremont Boulevard West of Monte Vista Avenue	7,230	< 50	< 50	110	62.3	7,330	< 50	< 50	111	62.4	0.1	No

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 feet of the roadway centerline should be evaluated with site-specific information.
For conservative analytical purposes, ADT from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project ADT under the "2040 Cumulative with Project" since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet

Table 4.9.O: Existing and 2040 with Project Traffic Noise Levels

Receptor No.	Use	City	Exterior Noise (dBA CNEL)					Noise Increase (dBA)[1]	Allowable Noise Increase (dBA)	Exceed Allowable Noise Increase?	Interior Noise (dBA CNEL)			
			Aircraft Noise	Existing Noise Level	2040 Plus Project Noise Level	Exterior Noise Standard	Exceed Noise Standard?				Windows and Doors Closed	Exceed?	Windows and Doors Open	Exceed?
F-1	Flat	Claremont	60	68	70	70	No	1	—	—	**58**	**Yes**	**46**	**Yes**
F-2	Flat	Claremont	60	64	66	70	No	0	—	—	**54**	**Yes**	42	No
F-3	Flat	Claremont	60	61	64	70	No	0	—	—	**52**	**Yes**	40	No
F-4	Flat	Claremont	60	59	63	70	No	0	—	—	**51**	**Yes**	39	No
F-5	Flat	Claremont	60	59	63	70	No	1	—	—	**51**	**Yes**	39	No
F-6	Flat	Claremont	60	57	62	70	No	0	—	—	**50**	**Yes**	38	No
F-7	Flat	Claremont	60	58	63	70	No	1	—	—	**51**	**Yes**	39	No
F-8	Flat	Claremont	60	60	64	70	No	1	—	—	**52**	**Yes**	40	No
F-9	Flat	Claremont	60	61	64	70	No	0	—	—	**52**	**Yes**	40	No
T-2.1	Townhome	Claremont	60	62	66	70	No	2	—	—	**54**	**Yes**	42	No
T-2.2	Townhome	Claremont	60	58	63	70	No	1	—	—	**51**	**Yes**	39	No
T-2.3	Townhome	Claremont	60	56	62	70	No	0	—	—	**50**	**Yes**	38	No
T-3-1	Townhome	Claremont	60	63	66	70	No	1	—	—	**54**	**Yes**	42	No
T-3-2	Townhome	Claremont	60	58	63	70	No	1	—	—	**51**	**Yes**	39	No
T-3-3	Townhome	Claremont	60	56	62	70	No	0	—	—	**50**	**Yes**	38	No
T-4.1	Townhome	Claremont	60	57	62	70	No	0	—	—	**50**	**Yes**	38	No
T-7.1	Townhome	Claremont	60	56	62	70	No	1	—	—	**50**	**Yes**	38	No
T-89.1	Townhome	Claremont	60	61	65	65	No	2	2	No	**53**	**Yes**	41	No
T-89.2	Townhome	Claremont	60	58	63	65	No	1	3	No	**51**	**Yes**	39	No
R-1	Single-Family	Claremont	60	55	61	65	No	0	—	—	**49**	**Yes**	37	No
R-2	Single-Family	Claremont	60	54	61	65	No	0	—	—	**49**	**Yes**	37	No
R-3	Single-Family	Claremont	60	55	62	65	No	1	—	—	**50**	**Yes**	38	No
R-4	Single-Family	Claremont	60	52	61	65	No	0	—	—	**49**	**Yes**	37	No
R-5	Single-Family	Claremont	60	52	61	65	No	0	—	—	**49**	**Yes**	37	No
R-6	Single-Family	Claremont	60	52	61	65	No	0	—	—	**49**	**Yes**	37	No
R-7	Single-Family	Claremont	60	53	61	65	No	0	—	—	**49**	**Yes**	37	No
R-8	Single-Family	Claremont	60	52	61	65	No	0	—	—	**49**	**Yes**	37	No
R-9	Single-Family	Claremont	60	53	61	65	No	0	—	—	**49**	**Yes**	37	No
R-10	Single-Family	Claremont	60	52	61	65	No	0	—	—	**49**	**Yes**	37	No
R-11	Single-Family	Claremont	60	53	61	65	No	0	—	—	**49**	**Yes**	37	No
R-12	Single-Family	Claremont	60	54	62	65	No	1	—	—	**50**	**Yes**	38	No
R-13	Single-Family	Claremont	60	54	62	65	No	1	—	—	**50**	**Yes**	38	No
P-1	Central Park	Claremont	60	62	65	70	No	1	—	—	—	—	—	—
P-2	Central Park	Claremont	60	62	65	70	No	1	—	—	—	—	—	—
P-3	Central Park	Claremont	60	61	65	70	No	1	—	—	—	—	—	—
P-4	Central Park	Claremont	60	58	63	70	No	1	—	—	—	—	—	—
P-5	Central Park	Claremont	60	59	63	70	No	0	—	—	—	—	—	—
P-6	Central Park	Claremont	60	58	63	70	No	1	—	—	—	—	—	—
P-7	Central Park	Claremont	60	58	63	70	No	1	—	—	—	—	—	—

Table 4.9.O: Existing and 2040 with Project Traffic Noise Levels

Receptor No.	Use	City	Exterior Noise (dBA CNEL)					Noise Increase (dBA)[1]	Allowable Noise Increase (dBA)	Exceed Allowable Noise Increase?	Interior Noise (dBA CNEL)			
			Aircraft Noise	Existing Noise Level	2040 Plus Project Noise Level	Exterior Noise Standard	Exceed Noise Standard?				Windows and Doors Closed	Exceed?	Windows and Doors Open	Exceed?
P-8	Central Park	Claremont	60	60	63	70	No	0	—	—	—	—	—	—
P-9	Central Park	Claremont	60	57	62	70	No	0	—	—	—	—	—	—
P-10	Central Park	Claremont	60	56	62	70	No	0	—	—	—	—	—	—
P-11	Linear Park	Claremont	60	56	62	70	No	1	—	—	—	—	—	—
P-12	Linear Park	Claremont	60	55	62	70	No	1	—	—	—	—	—	—
P-13	Linear Park	Claremont	60	56	62	70	No	1	—	—	—	—	—	—
P-14	Linear Park	Claremont	60	56	62	70	No	1	—	—	—	—	—	—
P-15	Linear Park	Claremont	60	56	62	70	No	1	—	—	—	—	—	—
P-16	Linear Park	Claremont	60	56	63	70	No	1	—	—	—	—	—	—

Source: Compiled by LSA Associates, Inc. (2019).
[1] Bold represents exceedance of exterior or interior noise standards.

Based on the United States Environmental Protection Agency *Protective Noise Levels*, *Condensed Version of EPA Levels Document* (1978), with a combination of exterior walls, doors, and windows, standard construction for Southern California (warm climate) residential buildings would provide more than 24 dBA in exterior-to-interior noise reduction with windows closed and 12 dBA or more with windows open (the national average is 25 dBA with windows closed and 15 dBA with windows open). Table 4.9.O shows the interior noise levels with windows and doors open and closed. As shown in Table 4.9.O, all flats and townhomes in the City of Claremont would exceed the interior noise standard of 45 dBA CNEL with windows and doors open. Therefore, mechanical ventilation such as air conditioning installed on the flats and townhomes on the Project site, as described in **Mitigation Measure 4.9.1A** would be required so that windows and doors can remain closed for a prolonged period of time. **Mitigation Measure 4.9.1B** would also be implemented to ensure that interior noise levels of residential units on the Project site are not exceeded with design techniques implemented.
Long-Term Off-Site Stationary Noise Impacts. The proposed Project would include activities with stationary sources that would have the potential to generate off-site noise increases and nearby sensitive receptors. These stationary noise sources include truck deliveries and truck unloading activities, heating, ventilation, and air conditioning (HVAC) equipment, and surface parking lot activities.

The proposed Project would include truck deliveries and truck unloading activities associated with the retail uses on the southwestern corner of the Project in the City of Claremont. Truck delivery and truck unloading activity operations for the proposed Project would generate a noise level of 65 dBA L_{max} at 50 feet. Although a typical truck unloading process takes an average of 15 to 20 minutes, the maximum loading and unloading noise level occurs in a much shorter period of time, in a few minutes (at most 5 minutes) over each truck delivery. The truck unloading area is surrounding by proposed on-site buildings and it is assumed that these intervening buildings would provide a minimum noise reduction of 5 dBA. As such, noise levels generated by truck deliveries and truck unloading activities would not exceed the City of Claremont's daytime exterior noise standards of 65 dBA and 70 dBA for residential and commercial/business land uses, respectively. Also, noise levels would not exceed the City's anytime exterior noise standard of 75 dBA for manufacturing uses. The City of Claremont's nighttime noise standards would not be exceeded because the Project would be required to comply with Section 16.154.020(H) of the City of Claremont Municipal Code states, which prohibits nighttime (10:00 p.m. and 7:00 a.m.) truck deliveries and truck unloading activities.

The Project would have HVAC units. The HVAC equipment could operate 24 hours per day. HVAC equipment would generate noise levels of 66.6 dBA L_{eq} at 5 feet. The closest residences to the northwest and southeast of the Project have intervening buildings that would provide a minimum noise reduction of 5 dBA. As such, noise levels generated by proposed on-site HVAC equipment would not exceed the City of Claremont's daytime and nighttime exterior noise standards of 60 dBA and 55 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Claremont's daytime and nighttime exterior noise standards of 65 dBA and 60 dBA, respectively, for commercial and business park uses. Noise levels would not exceed the City of Claremont's anytime exterior noise standard of 70 dBA for manufacturing uses.

The proposed Project would include a surface parking lot for the retail component of the Project on the southwest portion of the site. Noise generated from parking activities includes vehicles traveling

at slow speeds, engine start-up noise, car door slams, car horns, car alarms, and tire squeals. Representative parking activities would generate approximately 60 to 70 dBA L_{max} at 50 feet. Noise levels generated from parking activities are intermittent in nature.

All of the adjacent land uses to the Project have intervening buildings that would provide a minimum noise reduction of 5 dBA except for the adjacent commercial west of the Project. As such, noise levels generated by on-site surface parking activities associated with the retail component of the Project would not exceed the City of Claremont's maximum daytime and nighttime exterior noise standards of 75 dBA and 70 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Claremont's maximum daytime and nighttime exterior noise standards of 80 dBA and 75 dBA, respectively, for commercial and business park uses. Noise levels would not exceed the City of Claremont's maximum anytime exterior noise standard of 85 dBA for manufacturing uses.

Therefore, no off-site noise impacts from on-site truck delivery and truck unloading activity, HVAC operation, or surface parking activities would occur. Impacts would be **less than significant** and no mitigation measures are required.

Mitigation Measures. No construction mitigation measures are required. The following operational mitigation measures shall be implemented to reduce potentially significant impacts:

4.9.1A Prior to the issuance of building permits, the Project applicant shall submit evidence to the City of Claremont for review and approval that air conditioning units would be installed in all proposed structures on site.

4.9.1B Prior to the issuance of building permits and once final architectural plans are available showing exterior wall detail and window types, the Project applicant shall prepare and submit to the City of Claremont for review and approval a Final Acoustic Report confirming that the interior living spaces of all residential dwelling units would meet the Claremont's interior noise standard of 45 dBA CNEL with windows and doors closed. Additionally, the Final Acoustic Report shall include analysis that confirms that aircraft-related interior noise levels would be no greater than 40 dBA CNEL with windows and doors closed for interior living spaces of all residential units within the proposed Project.

Construction Noise Impacts Conclusions. Noise levels generated by Project construction would not exceed the City of Claremont standards and provisions for exterior and interior noise levels at sensitive receptors. As such, impacts would be **less than significant**.

Long-Term Off-site Operational (Traffic) Noise Impacts Conclusions. Project-related traffic noise at off-site sensitive receivers would result in noise increases up to 0.2 dBA. Noise level increases less than 3 dBA are not perceptible to the human ear in an outdoor environment. Additionally, implementation of the Project would not, in itself, result in noise levels at sensitive receptors exceeding City of Claremont noise level thresholds for residential uses. Impacts would be **less than significant**.

Long-Term On-site Operational (Traffic) Noise Conclusions. All of the flats and townhomes on the Project site would exceed the interior noise standard of 45 dbA CNEL for residential uses with windows

and doors open. Implementation of **Mitigation Measures 4.9.1A** and **4.9.1B** would ensure interior noise levels of residential units on the Project site do not exceed Claremont's interior residential noise level thresholds. Impacts would be **less than significant** with implementation of **Mitigation Measures 4.9.1A** and **4.9.1B**.

Long-Term Off-Site Stationary Noise Impacts. The on-site stationary noise sources of the proposed Project (residential/commercial HVAC systems, surface parking lot, and truck deliveries unloading/ loading) would not expose off-site sensitive receptors to noise levels exceeding interior and exterior City of Claremont standards and provisions. Impacts would be **less than significant.**

4.9.7.2 Groundborne Vibration/Groundborne Noise Impacts

Threshold	Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction-related Vibration Impact. Based on the *Transit Noise and Vibration Impact Assessment* (FTA 2006) and as previously identified in Table 4.9.F, a minimum of 90 VdB (or 0.12 in/sec PPV) is required to cause any potential building damage. FTA guidelines show that a vibration level of up to 102 VdB (equivalent to 0.5 in/sec PPV) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. The closest existing structures to the Project site are approximately 25 feet west of the site.

For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 feet (as shown in Table 4.9.P). The closest building to the Project construction boundary is a commercial building structure located west is approximately 30 feet from the Project construction boundary.

As shown in Table 4.9.P, the commercial building structure to the west would experience vibration levels of up to 85 VdB (0.068 PPV [in/sec]). Although this vibration level has the potential to result in community annoyance because the vibration levels exceed the FTA's community annoyance threshold of 84 VdB for non-sensitive uses, the vibration level would not result in building damage because vibration levels would not exceed the FTA vibration damage threshold of 94 VdB (0.2 PPV [in/sec]) for structures constructed of non-engineered timber. Other nearby building structures surrounding the Project construction boundary would experience vibration levels of up to 69 VdB (0.011 PPV [in/sec]) or lower and would not result in community annoyance or damage. As excessive groundborne vibration or groundborne noise levels would not exceed FTA standards during Project construction, impacts would be **less than significant** and no mitigation is required.

Table 4.9.P: Summary of Construction Vibration Levels

Land Use	Direction	Equipment/ Activity	Reference Vibration Level (VdB) at 25 ft	Reference Vibration Level (PPV) at 25 ft	Distance to Nearest Building Structure (ft)	Maximum Vibration Level (VdB)	Maximum Vibration Level (PPV)
Manufacturing	North	Large Bulldozers	87	0.089	115	67	0.009
		Loaded Trucks	86	0.076	115	66	0.008
Office Park	East	Large Bulldozers	87	0.089	100	69	0.011
		Loaded Trucks	86	0.076	100	68	0.010
Commercial	Southeast	Large Bulldozers	87	0.089	195	60	0.004
		Loaded Trucks	86	0.076	195	59	0.003
Commercial	West	Large Bulldozers	87	0.089	30	85	0.068
		Loaded Trucks	86	0.076	30	84	0.058
Business Park	Northeast	Large Bulldozers	87	0.089	120	67	0.008
		Loaded Trucks	86	0.076	120	66	0.007

Source: Compiled by LSA Associates, Inc. (2019).

Note: The FTA-recommended building damage threshold is 94 VdB (0.2 PPV [in/sec]) for non-engineered timber and masonry structures.

Operational Vibration Impact. The proposed residences and commercial uses would not generate vibration. In addition, vibration levels generated from Project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, no vibration impacts from Project-related traffic on the adjacent roadways would occur. As excessive groundborne vibration or groundborne noise levels would not exceed FTA standards during Project operation, impacts would be **less than significant** and no mitigation is required.

Mitigation Measures. No mitigation is required.

Impact Conclusion. As excessive groundborne vibration or groundborne noise levels would not exceed FTA standards during Project construction and operation, impacts would be **less than significant.**

4.9.7.3 Public/Private Airport Noise

Threshold	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The California Supreme Court in its ruling on *California Building Industry Assn. v. Bay Area Air Quality Management District* (CBIA)[6] has established that "… agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions." In certain instances, a project may exacerbate the environmental hazards or conditions that already exist and, in those instances, an agency must analyze the potential impact of such hazards on future residents.

Pursuant to CBIA, the following discussion details an existing environmental condition's effect on proposed on-site uses and is considered an environmental impact discussion under CEQA. This discussion of the existing noise condition, the Project's exposure to this condition, and Project features to alleviate on-site exposure to this condition is provided as public information.

Pursuant to CBIA, the following discussion details an existing environmental conditions effect (Cable Airport operational noise) on proposed on-site uses and is considered an environmental impact discussion under CEQA. This discussion of the existing noise condition, the Project's exposure to this condition, and the Project features (if applicable) to alleviate on-site exposure to this condition are provided below as public information.

Public Airport Noise. The Project site is in close proximity to Cable Airport and is exposed to single-event noise increases caused by aircraft departures from and landings at the airport

Cable Airport Noise at Exterior Residential Uses within Claremont: The City of Claremont does not recognize the Cable Airport Land Use Compatibility Plan that was adopted by the City of Upland. Therefore, in lieu of this plan, the impact analysis for future residents occupying the site and being exposed to Cable Airport noise is based on the *2011 Handbook*. Noise generated by the operation of aircraft is primarily measured in terms of the cumulative noise levels of all aircraft operations to, from, and around an airport. In California, the cumulative noise level metric established by State regulations is the CNEL.[7] The basic California guidance sets a CNEL of 65 dB as the maximum noise level generated by an airport that is normally compatible with urban residential land uses.[8] However, the current Claremont General Plan indicates that the maximum acceptable exposure from aircraft-related noise for new residential development is 60 dBA CNEL.[9]

As part of the proposed Project, a General Plan Text Amendment would be requested to update existing text in the general plan pertaining to the "... maximum acceptable exposure from aircraft-related noise for new residential development is 60 dBA CNEL" to the following: "However, in order to promote the development of housing urgently needed during the current California housing crisis and to meet the City's current Regional Housing Needs Assessment RHNA, residential uses located in

6 *California Building Industry Assn. v. Bay Area Air Quality Management Dist*. (2015) 62 Cal. 4th 369, 377-378 (CBIA).
7 Caltrans, *California Airport Land Use Planning Handbook*, pg. 4-12.
8 Ibid.
9 City of Claremont, General Plan Public Safety and Noise Element, Table 6-5 Claremont Land Use/Noise Guidelines, table note 3, page 6-47.

a mixed-use development where there is a mix of residential housing types including multi-family housing, are allowed maximum noise level exposures up to 70 dBA CNEL."

Since the Claremont General Plan would be amended with the above text, it is reasonable to use this standard as a threshold limitation, rather than the guideline of 65 dB CNEL as presented in the *2011 Handbook*. The *Claremont General Plan Environmental Impact Report* provides a diagram (Figure 5-18) showing the noise contours of Cable Airport. Based on the Claremont General Plan EIR, the Claremont portion of the proposed Project is located within the 60 to 65 dBA CNEL contour of Cable Airport; as such, it can be assumed that the Claremont portion of the Project site is and would be exposed to Cable Airport operational noise levels ranging from 60 to 65 dBA CNEL.[10] Based on the noise contours of Cable Airport presented in the Claremont General Plan, single-family residential units, residential townhomes, and residential flats on the Claremont portion of the Project site would be exposed to noise levels from Cable Airport that would not exceed the exterior threshold standards that would be updated through the General Plan Text Amendment. Impacts would therefore be less than significant under CEQA and no mitigation is required.

Cable Airport Noise at Interior Residential Uses on the Project Site. Residential units on the Project site would be exposed to excessive interior noise levels due to Cable Airport Operations; however, implementation of **Mitigation Measures 4.9.1A** and **4.9.1B** would reduce interior noise levels to 40 dBA CNEL. As such, interior noise levels of residential units would not exceed the City of Claremont standards and impacts would be less than significant.

Mitigation Measures. Interior noise levels of residential units on the Project site would be reduced with implementation of **Mitigation Measures 4.9.1A** and **4.9.1B**.

Impact Conclusion. Impacts to the exterior areas of residential uses on the proposed Project site would be **less than significant**. Interior noise levels of the residential uses on the Project site would be **less than significant** with implementation of **Mitigation Measures 4.9.1A** and **4.9.1B.**

4.9.8 Cumulative Impacts

The cumulative area for noise impacts is the City of Claremont and City of Upland (including the 48 townhomes that may be developed in Upland on the 3 acres adjacent to the Project site). Construction crews commute to work sites so the transport of construction equipment, and materials to the Project area would incrementally increase noise levels on access roads leading to the site. Secondary sources of noise would include noise generated during excavation, grading, and building erection on the Project site. The net increase in Project site noise levels generated by these activities and other sources has been quantitatively estimated and compared to the applicable noise standards and thresholds of significance. Although it is not possible to predict if contiguous or nearby properties may be constructed at the same time and create cumulative noise impacts that would be greater than if developed at separate times. In the event that adjacent properties are developed at the same time as the proposed Project, adherence to the City of Claremont and City of Upland Municipal Code provisions (e.g., construction exemption) that regulate the timing construction activities would reduce

[10] City of Claremont, *Claremont General Plan Program Environmental Impact Report*, Figure 5-18 Cable Airport Noise Contours, pg. 5-123.

impacts pertaining to construction noise. The proposed Project would not be cumulatively considerable and would not contribute to a cumulative impact.

Operational noise resulting from occupation of the site would be typical of that experienced in similar mixed-use development and would include noise resulting from human activity and the operation of residential and commercial HVAC systems, landscaping equipment, surface parking lot activity, and truck deliveries and loading/unloading. On-site operational noises are individual noise occurrences and are not typically additive in nature. Adjacent properties could generate noises that would be additive in nature because of two important reasons. First, the noise sources would have to be adjacent or in close proximity to one another in order for the noises to intermingle. Second, the sensitive receptor or receptors would also have to be adjacent to or in close proximity to the noise generators. It is not possible to predict with reasonable certainty if cumulative development and the Project would generate noise at the same time and location(s) sufficient to create significant cumulative noise impact at sensitive receptors. Increasing traffic on local roadways would cumulatively increase traffic noise in the Project area, which would increase the potential for cumulatively significant noise levels at new and existing development. It is reasonable to conclude that each project would be required to identify and mitigate noise such that exterior and interior noise levels do not exceed established City of Claremont and City of Upland standards at any noise-sensitive use. Adherence to standard City of Claremont and City of Upland provisions that regulate noise and implementation of Project-specific mitigation for the proposed development as well as other identified cumulative projects would reduce cumulative long-term noise impacts. The proposed Project would not be cumulatively considerable and would not contribute to a cumulative impact.

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4.10 TRANSPORTATION

This section identifies and evaluates the existing and planned transportation and circulation conditions for the proposed Project and the surrounding area, and identifies circulation impacts that may result during, or subsequent to, the development of the proposed Project. The analysis examines the existing (2019) conditions and existing conditions with Project traffic, and the Project opening year (2021) with and without Project traffic conditions. The cumulative assessment considers current and future projects and Claremont's General Plan Buildout (2021)) conditions with the circulation system proposed in the General Plan Circulation Element.

The analysis contained in this section is based on the following technical study prepared for the proposed Project:

- *The Commons Project Traffic Impact Analysis, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California*, LSA Associates, Inc., October 2019 (Appendix H-1).
- *The Commons Project VMT Memorandum, City of Claremont Los Angeles County, California*, LSA Associates, Inc., April 2020 (Appendix H-2).

In addition to this technical study, the analysis contained in this section is also based on the following reference documents:

- *City of Claremont General Plan,* Community Mobility Element, adopted November, 2006, last revised 2009.

4.10.1 Existing Setting

The Project site is currently an approximately 6.5-acre undeveloped, vacant lot. The Project site is bounded by Marylind Avenue to the north, Foothill Boulevard to the south, and Andrew Drive to the west. To the east is a vacant parcel for which the applicant has applied for a separate project pursuant to SB 35. The Claremont project plans to access Monte Vista Avenue across this currently vacant parcel. Existing land uses in the Project vicinity include commercial centers to the north, west, and east across Monte Vista Avenue, and vacant, undeveloped land across Foothill Boulevard to the south. Access to the Project site is provided by a local network of major, secondary, and collector streets.

Regional access to the Project site is provided by State Route 210 (SR-210), which connects Los Angeles County and San Bernardino County in the east-west direction. Foothill Boulevard runs east-west along the southern boundary of the Project site. Additionally, State Route 66 (SR-66) runs along Foothill Boulevard from SR-210 in the City of La Verne to Interstate 215 (I-215) in San Bernardino.

The major roadways within the *Traffic Impact Analysis* study area are Foothill Boulevard and Monte Vista Avenue, which are both classified as Major Arterials in the City of Claremont General Plan and in the City of Upland General Plan, and Claremont Boulevard, which is classified as a Secondary Arterial in the City of Claremont General Plan.

Class II bike lanes are located on both sides of Monte Vista Avenue and Claremont Boulevard within the vicinity of the Project. As part of the City of Claremont Foothill Boulevard Master Plan

Improvements currently underway, Class I bike lanes would be added to the eastbound and westbound directions of Foothill Boulevard within the study area. The Project site is located approximately 0.9 mile from the Montclair Transit center, which provides access to five OmniTrans bus lines, seven Foothill Transit bus lines, one Riverside Transit Agency bus line, and Metrolink's San Bernardino Line.[1]

4.10.1.1 Existing Intersection Conditions

The Project study area includes the following intersections:

1. Claremont Boulevard/Foothill Boulevard (City of Claremont);
2. Driveway 1/Foothill Boulevard (City of Claremont);
3. Driveway 2/Foothill Boulevard (City of Claremont);
4. Monte Vista Avenue/N. Claremont Boulevard (City of Claremont);
5. Monte Vista Avenue/Marylind Avenue-Driveway 3 (City of Upland);
6. Monte Vista Avenue/Driveway 4 (City of Upland); and
7. Monte Vista Avenue/Foothill Boulevard (City of Upland).

Figure 4.10.1, Study Area Intersections, illustrates the locations of all study area intersections. Existing levels of service at study area intersections are identified in Table 4.10.A. All study area intersections currently operate at an acceptable level of service (LOS).

Table 4.10.A: Existing (2019) Intersection Levels of Service

Intersection	Jurisdiction	Control	LOS Standard	Existing Conditions			
				AM Peak Hour		PM Peak Hour	
				Delay (sec.)	LOS	Delay (sec.)	LOS
Claremont Blvd/Foothill Blvd	Claremont	Signal	E	32.6	C	30.3	C
Driveway 1/Foothill Blvd	Claremont	OWSC	E	10.2	B	10.9	B
Driveway 2/Foothill Blvd	Claremont	OWSC	E	*Does Not Exist*		*Does Not Exist*	
Monte Vista Ave/N. Claremont Blvd	Claremont	Signal	E	10.9	B	14.9	B
Monte Vista Ave/Marylind Ave-Driveway 3	Upland	OWSC	D	15.7	C	16.2	C
Monte Vista Ave/Driveway 4	Upland	OWSC	D	*Does Not Exist*		*Does Not Exist*	
Monte Vista Ave/Foothill Blvd	Upland	Signal	D	28.7	C	28.6	C

Notes:
OWSC = One-Way Stop Control
LOS = Level of Service
Source: Table 7-A, Existing Levels of Service, Traffic Impact Analysis (Appendix H)

[1] Foothill Transit. 2019. Montclair Transit Center. Website: http://foothilltransit.org/lines-and-schedules/transit-centers/montclair-transcenter/ (accessed 10/29/2019).



LSA

LEGEND

Project Location

Study Area Intersections

Project Driveway

N

0 225 450

FEET

SOURCE: Google (2019); KTGY (9/9/19)

I:\CCT1801.01\GIS\MXD\EIR\Intersections.mxd (4/21/2020)

FIGURE 4.10.1

The Commons

Study Area Intersections

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4.10.1.2 NOP/Scoping Comments

During the NOP comment period, a letter from the California Department of Transportation (Caltrans) was received with comments pertaining to traffic analysis associated with the Project. Comments received focused on the following:

- Include Interstate 10 (I-10) east/westbound on- and off-ramp intersections at Monte Vista Avenue and State Route 210 (SR-210) eastbound/westbound on- and off-ramp intersections at Base Line Road in the impact analysis.
- Future developments should incorporate multi-modal and complete street elements that would actively promote alternatives to car use and better manage existing parking assets.
- Reduction in the amount of parking whenever possible as abundant car parking enables and encourages driving.
- Consider reduction in vehicle speeds in order to benefit pedestrian and bicyclist safety.
- Transportation of heavy construction equipment and/or materials that requires use of oversized transport vehicles on State highways would need a Caltrans transportation permit.

Two traffic-related topics of concern were raised by members of the public during the Public Scoping Meeting. The first concern was a question regarding community cohesion and walkability. The second commenter asked if the Project would facilitate alternative modes of transportation.

4.10.2 Existing Policies and Regulations

4.10.2.1 Federal Regulations

There are no relevant federal regulations related to transportation applicable to the proposed Project.

4.10.2.2 State Regulations

Senate Bill 743. On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process that changes the methodology of a transportation impact analysis as part of CEQA requirements. SB 743 directed the California Office of Planning and Research (OPR) to establish new CEQA guidance for jurisdictions that removes the LOS method, which focuses on automobile vehicle delay and other similar measures of vehicular capacity or traffic congestion, from CEQA transportation analysis. Rather, vehicle miles traveled (VMT), or other measures that promote "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses," are now be used as the basis for determining significant transportation impacts in the State.

***State CEQA Guidelines* Section 15064.3, Subdivision (b).** In January 2018, the OPR submitted a proposal for comprehensive updates to the *State CEQA Guidelines* to the California Natural Resources Agency. The submittal included proposed updates related to the analysis of greenhouse gas (GHG) emissions, energy, transportation impacts pursuant to SB 743, and wildfires, as well as revisions to Section 15126.2(a) in response to the California Supreme Court's decision in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369. On December 28, 2018, the updated *State CEQA Guidelines* went into effect.

As part of the update to the *State CEQA Guidelines*, Section 15064.3 was added and codifies that project-related transportation impacts are typically best measured by evaluating the project's VMT. Specifically, subdivision (b) focuses on specific criteria related to transportation analysis and is divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology. Subdivision (b)(1) provides guidance on determining the significance of transportation impacts of land use projects using VMT; projects located within 0.5 mile of high quality transit should be considered to have a less than significant impact. Subdivision (b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT, such as pedestrian, bicycle, and transit projects, should be presumed to have a less than significant impact. Subdivision (b)(3) acknowledges that Lead Agencies may not be able to quantitatively estimate VMT for every project type; in these cases, a qualitative analysis may be used. Subdivision (b)(4) stipulates that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT. Although an agency may elect to be governed by the provisions of this section immediately, it is not required until July 1, 2020.

4.10.2.3 Local Regulations

City of Claremont General Plan. Table 4.10.B outlines the General Plan goals and policies that are applicable to the proposed Project relative to transportation and evaluates the consistency of the proposed Project to these General Plan goals and policies.

Table 4.10.B: City of Claremont General Plan Community Mobility Element Consistency Analysis

General Plan Goals and Targets	General Plan Consistency Analysis
Goal 4-1: Support efforts that will enhance the regional transportation network and benefit Claremont residents.	
Policy 4-1.1: Participate in regional transportation planning, and encourage systems that meet regional goals while protecting Claremont from external impacts.	**Consistent:** The Traffic Impact Analysis (TIA) for the proposed Project was prepared in accordance with the San Bernardino County Transportation Authority (SBCTA) *San Bernardino County Congestion Management Program (CMP) TIA Guidelines* (2016), the City of Claremont Community Mobility Element (2009), the City of Upland's TIA requirements, and the County of Los Angeles Department of Public Works *Traffic Impact Analysis Report Guidelines*, as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to CEQA. The Project TIA demonstrates that the proposed Project would not exceed General Plan LOS standards under any of the evaluated traffic conditions. The proposed Project would not introduce any significant or cumulatively significant traffic/transportation impacts to the City.
Policy 4-1.2: Work closely with Caltrans, the counties of Los Angeles and San Bernardino, and adjacent municipalities to minimize transportation problems, address cross-county transportation issues, and improve coordination of future improvements.	**Consistent.** The TIA for the proposed Project examined intersections within the jurisdiction of the City of Claremont (which is within the County of Los Angeles) and the City of Upland (which is within the County of San Bernardino). The proposed Project would not result in any significant impacts to intersections within the Project study area. Therefore, the proposed Project would not require any minimization measures to resolve transportation problems and issues across municipalities or neighboring agencies.

Table 4.10.B: City of Claremont General Plan Community Mobility Element Consistency Analysis

General Plan Goals and Targets	General Plan Consistency Analysis
Goal 4-2: Reduce traffic congestion while retaining the historic patterns and functions of City streets.	
Policy 4-2.1: Require new development to minimize traffic impacts created by the development and to incorporate mitigation measures which are acceptable to the City.	**Consistent.** The proposed Project would not create any significant impacts to traffic and transportation within the City. Therefore, no minimization or mitigation measures are required. Roadway and intersection improvements in and around the Project site would be designed and constructed to satisfy all City requirements for street widths, corner radii, intersection control, site access requirements, and internal circulation. As part of the City's standard plan check process, the final design of all roadways, intersections, and circulation within and adjacent to the Project site would be reviewed by and subject to approval by City staff to ensure required improvements are consistent with the established General Plan policies and fully conform to adopted guidelines and specifications. The review and approval of any such improvement would be completed prior to the issuance (as relevant) of any grading, construction, or occupancy permit.
Policy 4-2.2: Develop and maintain the local street network consistent with the Master Plan of Roadways, and support the objectives specified in this Element for Arrow Highway, Base Line Road, Bonita Avenue, First Street, Foothill Boulevard, Indian Hill Boulevard, Mountain Avenue, Sixth Street, San Jose Avenue, and Towne Avenue without reducing level of service.	**Consistent.** All components of the proposed Project and improvements associated with the proposed Project would be consistent with the Master Plan of Roadways and would support objectives specified in the Community Mobility Element for Foothill Boulevard (such as pedestrian safety and accessibility improvements). The proposed Project does not propose any changes or actions to other roadways identified in Policy 4-2.2. No Project components and improvements specific to Foothill Boulevard would reduce level of service. All intersections within the study area under the jurisdiction of the City of Claremont would continue to operate at an acceptable LOS under Existing with Project Traffic Conditions.
Policy 4-2.9: Evaluate the cumulative effects of development projects within the City so that required improvements to City streets are planned for, funded, and completed.	**Consistent.** As further discussed in Section 4.10.6, Cumulative Impacts, the cumulative impact of the proposed Project with approved/pending development in the Project area would be less than significant. All necessary improvements to City streets as part of the proposed Project and cumulative projects would be planned for and funded under their respective submittals.
Goal 4-3: Establish and maintain a comprehensive system of pedestrian ways and bicycle routes that provides viable options to travel by automobile.	
Policy 4-3.1: Promote walking throughout the community. Install sidewalks where missing and make improvements to existing sidewalks for accessibility purposes. Particular attention should be given to needed sidewalk improvements near schools and activity centers.	**Consistent.** The proposed Project would improve sidewalks along Foothill Boulevard, install curb cuts and at all Project access driveways and within the Project site, and install sidewalks throughout Project limits. Several sidewalks within Project limits would connect Project parking and residential areas to the Central Park, the Linear Park, and the retail center to provide ample accessibility to activity centers from within the Project site and to the Project site from adjacent areas.
Policy 4.3-5: Recognize and accommodate the pedestrian ADA access in Claremont's neighborhoods, and continue to make improvements to increase pedestrian safety.	**Consistent.** As previously discussed, the proposed Project would improve sidewalks along Foothill Boulevard, install curb cuts at all Project access driveways and within the Project site, and install sidewalks throughout Project limits. These Project features would promote walkability and non-motorized circulation in a safe and effective manner, and would specifically

Table 4.10.B: City of Claremont General Plan Community Mobility Element Consistency Analysis

General Plan Goals and Targets	General Plan Consistency Analysis
	allow for pedestrian Americans with Disabilities Act (ADA) access in the Project's neighborhoods and along Foothill Boulevard.
Policy 4-3.6: Improve the pedestrian environment on Arrow Highway, Base Line Road, Bonita Avenue, Foothill Boulevard, Indian Hill Boulevard, San Jose Avenue, and Sixth Street.	**Consistent.** As previously discussed, improvements are proposed to Foothill Boulevard within the Project limits. These improvements include curb cuts at all Project access driveways and landscaping along the sidewalk to provide a barrier between pedestrian traffic and vehicular traffic along Foothill Boulevard. The proposed Project does not interfere with the existing pedestrian environment on other roadways identified in Policy 4-3.6. Therefore, the proposed Project is consistent with Community Mobility Element Policy 4-3.6.
Policy 4.3-9: Strive to provide pedestrian pathways that are well shaded and pleasantly landscaped to encourage use.	**Consistent.** The proposed Project includes landscaping along all sidewalks and pedestrian access points. The interior of the Project site would feature pedestrian paths throughout all neighborhoods, parking areas, and recreation/open space that would be well shaded and pleasantly landscaped to encourage use.

Source: Community Mobility Element, City of Claremont General Plan, 2009.

4.10.3 Thresholds of Significance

CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

For the purpose of this analysis, Appendix G of the *CEQA Guidelines* has been used as the significance threshold for transportation. The Project would have a significant impact on transportation if it would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision(b).
- Substantially increased hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

4.10.4 Methodology Used to Assess Impacts

4.10.4.1 Level of Service

Roadway operations and the relationship between capacity and traffic volumes are generally expressed in terms of LOS, which is defined using the letter grades A through F and reflect the reality that conditions rapidly deteriorate as traffic approaches the absolute capacity of the roadway facility. Under such conditions, congestion is experienced. There is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays. This near-capacity situation is labeled LOS E. Beyond LOS E, capacity

has been exceeded, and arriving traffic would exceed the ability of the intersection to accommodate it. LOS can be characterized for the whole intersection, each intersection approach, and by each lane group.

The City of Claremont follows the *Highway Capacity Manual* (HCM) methodologies. Therefore, for purposes of this analysis, HCM methodology has been used to conduct LOS analysis to determine whether there is adequate performance at each of the study intersections. Table 4.10.C identifies the level of service criteria for unsignalized and signalized intersection analysis.

Table 4.10.C: Level of Service Criteria, Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: *Highway Capacity Manual* (6th Edition)

The majority of study area intersections fall under the jurisdiction of the City of Claremont. Based on the City of Claremont General Plan, the minimum acceptable LOS for a major arterial is LOS E and the minimum acceptable LOS for a rural secondary arterial is LOS D.

4.10.4.2 Traffic Impact Analysis Scope[2]

The TIA for the proposed Project was prepared in accordance with the City of Claremont Community Mobility Element (2009), and the County of Los Angeles Department of Public Works *Traffic Impact Analysis Report Guidelines*, as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to CEQA. The TIA scope of work was approved by City of Claremont staff via the Scoping Agreement Process.

Based on the scoping process, traffic operations in the vicinity of the proposed Project were assessed for the following eight traffic scenarios:

[2] SB 743, signed into law on September 27, 2013, began a process that changes transportation impact analysis conducted during CEQA compliance. These changes would include elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for land use projects and plans in California. Specifically, SB 743 requires OPR to amend the *CEQA Guidelines* to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." It is anticipated that regulatory language changes to CEQA would be adopted in 2018 by the Natural Resources Agency and that statewide implementation would occur on January 1, 2020. As the regulatory language has not yet been settled, the City (the CEQA Lead Agency) elected to not include a discussion of VMT analysis in the TIA prepared for the Project; however, VMT is addressed in this EIR.

- Existing Traffic conditions;
- Existing with Project Traffic conditions;
- Project Opening year (2021) without Project Traffic conditions;
- Project Opening year (2021) with Project Traffic conditions;
- Cumulative (2021) without Project Traffic conditions;
- Cumulative (2021) with Project Traffic conditions;
- Future Build-out year (2040) Traffic conditions; and
- Future Build-out year (2040) with Project Traffic conditions.

Traffic conditions were examined for the weekday daily, a.m., and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

The traffic impact study area was defined during the scoping agreement process includes seven intersections in the Cities of Claremont and Upland. Five of the intersections exist, while two of the intersections are planned with development of the Project. The new intersections would be Driveway 2/Foothill Boulevard (located in the City of Claremont) and Monte Vista Avenue/Driveway 4 (located in the City of Upland).

4.10.4.3 Project Trip Generation and Assignment

Trip generation for the proposed Project was developed using rates from the Institute of Transportation Engineers (ITE) *Trip Generation*, 10th Edition, for Land Use 210 – "Single-Family Detached Housing," Land Use 220 – "Multifamily Housing (Low-Rise), and Land Use 820 – "Shopping Center." As shown in Table 4.10.D, the proposed Project is forecast to generate 1,089 daily trips, with 118 trips occurring during in the a.m. peak hour and 88 trips occurring in the p.m. peak hour.

Table 4.10.D: Project Trip Generation Summary

Land Use		Unit	AM Peak Hour			PM Peak Hour			ADT
			In	Out	Total	In	Out	Total	
Retail	Trips/Unit	**5,000 SF**	0.58	0.36	0.94	1.83	1.98	3.81	37.75
	Trip Generation		56	35	91	28	31	59	784
	Internal Capture					(3)	(8)	(11)	145
	Total External Trips		56	35	91	25	23	48	639
	Pass-by-Trips		(19)	(12)	(31)	(10)	(11)	(21)	(267)
	Net External Trips		37	23	60	15	12	17	**372**
Multifamily Residential	Trips/Unit	**20 DU and Adjacent 48 DU**	0.11	0.35	0.46	0.35	0.21	0.56	7.32
	Trip Generation		9	29	38	29	17	46	608

Table 4.10.D: Project Trip Generation Summary

Land Use		Unit	AM Peak Hour			PM Peak Hour			ADT
			In	Out	Total	In	Out	Total	
Single-Family Detached	Trips/Unit	**27 DU**	0.19	0.56	0.74	0.62	0.37	0.99	9.44
	Trip Generation		5	15	20	17	10	27	255
Total Residential	Trip Generation	—	14	44	58	46	27	73	863
	Internal Capture		—	—	—	(7)	(5)	(12)	(146)
	Net External Trips		14	44	58	39	22	61	**717**
Total Trip Generation			**51**	**67**	**118**	**54**	**34**	**88**	**1,089**

SF: Square Feet; DU = Dwelling Units
Source: *The Commons Project Traffic Impact Analysis* (LSA 2019)
Trip rates are referenced from the Institute of Transportation Engineers *Trip Generation Manual,* 10th Edition (2017).
Note: For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

Generalized trip distribution patterns for the proposed Project were developed based on the regional roadway network and the locations of residential, employment, and commercial centers in relation to the proposed Project. Because the Project has two different land uses, separate trip distributions were developed for residential and retail uses.

4.10.4.4 Cumulative Opening Year 2021 Traffic Volume Development

CEQA Guidelines require that other reasonably foreseeable development projects that are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. Project opening year 2021 cumulative volumes were developed by adding traffic from approved/pending development projects to Project opening year without traffic volumes. A cumulative project list was developed through consultation with planning and engineering staff from the Cities and is summarized in Table 4.10.E.

Table 4.10.E: Cumulative Projects Summary

	Project Name[1]	Location[2]	Daily ADT
1	Claremont Colleges East Campus (Sports Complex)	South of Foothill Blvd. between Claremont Blvd. and Monte Vista Ave., Claremont	464
2	Meadow Park	South of Base Line, east of Town Ave., Claremont	348
3	Gable Crossing – TTM 68052	560 & 618 W. Base Line, Claremont	439
4	TTM 62814	365 San Jose Ave., Claremont	95
5	Doubletree Hotel/Old School House Specific Plan	North of Foothill Blvd. and west of Indian Hill Blvd., Claremont	922
6	Harvey Mudd College 2015 Master Plan Amendment	301 Platt Blvd., Claremont	156
7	Pomona College 2015 Master Plan	333 N. College Way, Claremont	611
8	Claremont Graduate University Master Plan	Bounded by Foothill Blvd., Dartmouth Ave., Seventh Street, and College Ave., Claremont	741

Table 4.10.E: Cumulative Projects Summary

	Project Name[1]	Location[2]	Daily ADT
9	Peppertree Square	Southwest corner of Indian Hill Blvd. and Arrow Highway, Claremont	143
10	Keck Graduate Institute	535 Watson Drive, Claremont	2,410
11	Knight's Inn Renovation	701 S. Indian Hill Blvd., Claremont	127
12	Keck Science Center Expansion	925 N Mills Ave., Claremont	1,823
13	Harvest – Arbor Square and Sunflower by Lennar	East of Monte Vista Ave., between Foothill Blvd. and 11th St., Upland	1,119
14	Enclave Specific Plan	South of Foothill Blvd., west of Monte Vista Ave., north of 11th St., Upland	3,304
15	Arrow Vista Village	S. Arrow, east side of Monte Vista Ave., Upland	218
16	760 Mesa Court	760 Mesa Court, Upland	439
17	Multistory Residential Apartments	Southwest corner of Arrow Highway and Monte Vista Ave., Montclair	1,545
18	Lazy Dog Restaurant	500 N. Montclair Plaza Lane, Montclair	812
19	Claremont McKenna College Master Plan	888 N. Columbia Ave., Claremont	390
20	The Magnolias by GFR Homes	Northeast corner of Foothill Blvd. and Madrid Way, Upland	271
21	Arrow Station	4974 Arrow Highway, Montclair	41
22	Montclair Expansion	5060 E. Montclair Plaza Lane	373
23	5566 Arrow Highway	5566 Arrow Highway, Montclair	474
24	ECI Fuel Systems	South side of 11th St., approximately 750 feet west of Benson Ave., Upland	774
25	Mt. San Antonio Gardens Master Plan	Between Harrison Avenue and Bonita Avenue	270
26	Metro Gold Line Station and Parking Facility (Montclair)	5091 Richton St., Claremont	3,110
27	North Montclair Downtown Specific Plan Amendments	Huntington ROW, Monte Vista Ave., Moreno St., and Central Ave., Montclair	22,994
28	SB35 48 Unit Housing Project	Northeast Corner of Foothill and Monte Vista, Upland	48
Total Daily Trip Generation		44,492	

[1] Cumulative projects provided/confirmed by City staff in September 2018.
[2] Cumulative Project locations are shown on Figure 4-3 of the *Traffic Impact Analysis* (Appendix H-1

4.10.4.5 Future Built-Out Year 2040 Traffic Volume Forecast

The Southern California Association of Governments (SCAG) Regional Transportation (RTP) Model was used to develop traffic volumes for the Future Buildout Year (2040) condition. The volumes for this condition include the full buildout of the North Montclair Downtown Specific Plan Amendment Project, which is included in the 2016 SCAG RTP Model.

4.10.4.6 Vehicle Miles Traveled (VMT)

The 2019 CEQA Guidelines was updated to remove vehicle delay and level of service from consideration under CEQA pertaining to transportation impacts. With the change in the 2019 CEQA Guidelines, transportation impacts are to be evaluated based on a project's effect on VMT. Lead

agencies are allowed to opt-in to the revised transportation guidelines at this time, but the new guidelines must be used starting on July 1, 2020. The City of Claremont, as the Lead Agency of the proposed Project, has opted to analyze transportation impacts using VMT for this Project, as the proposed Project is anticipated to be approved after the July 1, 2020 mandatory date.

The City of Claremont has not yet established thresholds related to VMT. However, State law provides guidance to evaluate a project's impact related to VMT through California Public Resources Code Section 15064.3(b)(4) which states in part: "A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure." The City of Claremont, as the Lead Agency of the Project, compared the Project VMT per capita compared with the regional VMT per capita as their approach to analyzing transportation impacts. The Project VMT per capita has been compared with the Region VMT per capita to determine whether the project will have a significant transportation impact.

Since the City of Claremont and CEQA do not have a threshold to compare against the Project's VMT to determine an impact on transportation, the OPR Technical Advisory (TA) "Transportation Impacts in CEQA" has been used. Since the proposed Project is mostly residential in nature, the following threshold from the OPR TA is applicable: "A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita." The SCAG RTP/SCS Transportation Analysis Model (SCAG RTP/SCS Model) was used to estimate both the regional and Project VMT. SCAG RTP/SCS socioeconomic database for base year 2012 scenario was updated with the Project's land uses to calculate the Project's VMT.

4.10.5 Impacts Analysis

4.10.5.1 Conflicts with a program, plan, ordinance, or policy addressing the circulation system

Threshold:	Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction. As described in Section 3.0, Project Description, construction equipment and vehicles would be staged on site. The Project would require temporary lane closures on Foothill Boulevard to allow for utility connections and improvements within the public right-of-way. The Project does not include any characteristics (e.g., permanent road closure or long-term blocking of road access) that would physically impair or otherwise interfere with transit, roadways, bicycle facilities, and/or pedestrian facilities in the Project vicinity, and Project construction would last for approximately 14 months.[3] The site-specific construction fleet would vary due to actual construction needs, but construction vehicle trips would derive from construction workers, vendor deliveries, and material hauling.

It is anticipated that the hauling of soil off site would not be required. The delivery and removal of heavy equipment is recommended to occur outside of the morning and evening peak hours in order to have nominal impacts to traffic and circulation near the vicinity of the Project. With time-of-day

[3] CalEEMod Estimates, 2019.

restrictions, it is anticipated that traffic impacts associated with the delivery and removal of heavy equipment are less than significant.

Construction employee trips are estimated based on the number of construction workers anticipated to be on site throughout the various stages of construction. Each construction worker is assumed to drive to and from the construction site each day. It is assumed that construction workers would arrive up to 30 minutes prior to the workday and would leave up to 30 minutes after the workday ends. It is anticipated that the majority of construction employees would arrive between 6:00 a.m. and 7:00 a.m., and depart between 3:30 p.m. and 4:30 p.m. Table 4.10.F shows estimated worker trips.

Table 4.10.F: Estimated Worker Vehicle Trips

Phase	Number of Trips Per Day	Number of Days	Trips
Site Preparation	18	10	180
Grading	15	20	300
Building Construction	90	230	20,700
Paving	15	20	300
Architectural Coating	18	20	360
Total Worker Trips Over 14-Month Construction Period			**21,840**

Source: CalEEMod Construction Estimates (LSA 2019), Appendix H

During all phases of construction, construction trips would be greater than the number of trips associated with the Project site in the existing condition. Although construction traffic would be less than traffic generated by Project operation, the Project would be required to adhere to all applicable City requirements and would implement recommendations outlined in the *California Manual on Uniform Traffic Control Devices* (Caltrans 2014, Revision 4) to reduce potential impacts on the local circulation system during Project construction. Among other things, this manual recommends early coordination with affected agencies to ensure that emergency vehicle access is maintained. Therefore, construction of the Project would result in **less than significant** traffic impacts related to potential conflicts with plans, programs, ordinances, or policies addressing the local circulation system during construction, and no mitigation would be required.

Project Operation.

City Program, Plan, or Ordinance: Roadway. Existing peak-hour traffic operations have been evaluated for the study intersections based on the analysis methodologies described above in Section 4.10.4. Previously referenced Table 4.10.A identifies the existing LOS for the study intersections. All study intersections currently operate at acceptable LOS during the a.m. peak hour and p.m. peak hour in the Existing Condition.

The TIA calculates the potential trip generation for the Project using rates established in the ITE *Trip Generation Manual* (10th Edition). As shown in previously referenced Table 4.10.D, the proposed

Project is anticipated to generate a total of approximately 1,089 vehicle trips per day, with 118 vehicles per hour during the a.m. peak hour, and 88 vehicles per hour during the p.m. peak hour.[4]

The resulting Project traffic volumes were added to existing traffic volumes, and the intersection LOS was calculated for the Existing with Project Traffic Condition. Table 4.10.G summarizes the intersection analysis results, which indicates that all intersections within the study area are anticipated to continue to operate at an acceptable LOS during peak hours with the addition of Project traffic.

Table 4.10.G: Existing and Existing With Project Intersection Levels of Service [1]

Intersection[1]	Jurisdiction	Control	LOS Standard	Without Project				With Project				Increase in Delay		Significant Impact
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
				Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	AM Peak Hour	PM Peak Hour	
Claremont Blvd/ Foothill Blvd	Claremont	Signal	E	32.6	C	30.3	C	32.6	C	31.3	**C**	0.0	1.0	No
Driveway 1/E Foothill Blvd	Claremont	OWSC	E	10.2	B	10.9	B	10.4	B	11.1	B	0.2	0.2	No
Driveway 2/E Foothill Blvd	Claremont	OWSC	E	*Does Not Exist*		*Does Not Exist*		10.5	B	11.1	B	N/A[2]	N/A[2]	No
Monte Vista Ave/ N Claremont Blvd	Claremont	Signal	E	10.9	B	14.9	B	11.4	B	15.5	B	0.5	0.6	No
Monte Vista Ave/ Marylind Ave- Driveway 3	Upland	OWSC	D	15.7	C	16.2	C	14.1	B	16.6	C	-0.9	0.4	No

[4] For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is adjacent to the Project.

Table 4.10.G: Existing and Existing With Project Intersection Levels of Service [1]

Intersection[1]	Jurisdiction	Control	LOS Standard	Without Project				With Project				Increase in Delay		Significant Impact
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
				Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	AM Peak Hour	PM Peak Hour	
Monte Vista Ave/ Driveway 4	Upland	OWSC	D	*Does Not Exist*		*Does Not Exist*		10.9	B	11.8	B			No
Monte Vista Ave/ E Foothill Blvd	Upland	Signal	D	28.7	C	28.6	C	28.8	C	29.5	C	0.1	0.9	No

OWSC = One-Way Stop Control
LOS = Level of Service
Source: Table 7-A, Existing Levels of Service, Traffic Impact Analysis (Appendix H)

1. Total trip generation includes 48 townhomes proposed to the east and adjacent to the proposed Project as a worst-case scenario.
2. The City of Claremont is the lead agency of proposed Project. The Intersection of I-10 Ramps/Monte Vista is located within the City of Montclair, while the Intersection of I-210 Ramps/Baseline is located within the City of Claremont. Both Montclair and Claremont belong to Los Angeles County, where Congestion Management Program (CMP) from Los Angeles County Metropolitan Transportation Authority (LAC MTA) applies. In CMP Appendix D, "Guidelines for CMP Transportation Impact Analysis," the CMP states that the TIA should analyze all monitored freeway on-ramps or off-ramps, where the proposed project would add 50 or more trips during either AM or PM weekday peak hours. According to the total project trip assignment (Figure 5-6 in TIA), the proposed project would not add 50 or more trips during AM/PM Peak Hours at I-10 Ramps/Monte Vista and I-210 Ramps/Baseline. Hence, additional freeway ramp analysis is not required and is not included in this analysis.

Conformance with the General Plan. The proposed Project would be required to comply with transportation related goals and policies in Claremont's General Plan (refer to previously referenced Tables 4.10.B and 4.10.C, for a list of goals and policies applicable to the proposed Project).

As previously stated, vehicular access to the Project site would be provided via four driveways, two of which would be located on the southern boundary of the Project site along Foothill Boulevard, and one of which would be located across the adjacent vacant parcel to the east and provide access from Monte Vista Avenue.

The Project would install two new full-access driveways along Foothill Boulevard and one along Monte Vista Avenue, and improve sidewalks along the Project limits along both of these roadways. Curb cuts would be installed at all Project driveways and throughout Project limits to promote walkability and the use of non-motorized transportation. As previously discussed, Class I bike lanes would be installed along Foothill Boulevard as part of a separate project. The proposed Project would not interfere with access to the Class I bike lanes and Project driveways would not disrupt non-vehicular (i.e., pedestrian and bicycle) circulation within the Project area. Landscaping would be installed along the edge of the sidewalk adjacent to Foothill Boulevard to improve walkability and pedestrian safety along this roadway. These improvements are consistent with the goals and standards of the City of Claremont

General Plan Community Mobility Element. As such, the proposed Project would not conflict with applicable provisions in the City's General Plan.

Congestion Management Program (CMP), Plan, or Ordinance: Roadway. The Project site is within the jurisdiction of Los Angeles County. According to the Los Angeles County MTA CMP *Guidelines for Transportation Impact Analysis*, a CMP analysis is required if the proposed Project would add 50 or more trips at CMP arterial monitoring intersections, including freeway on and off-ramp intersections during either the weekday a.m. or p.m. peak hours (of adjacent street traffic), or if the proposed Project would add 150 or more trips, in either direction, at mainline freeway monitoring locations during either the weekday a.m. or p.m. peak hours.

The proposed Project would not add 50 or more peak hour trips to any Los Angeles County CMP arterial monitoring intersections or mainline freeway monitoring locations. As such, a Los Angeles County CMP analysis is not required. Therefore, the proposed Project would not result in any conflicts with the Los Angeles County CMP, and no mitigation would be required.

City Program, Plan, or Ordinance: Transit, Bicycle, and Pedestrian. The proposed Project includes improvements to the public right-of-way along Foothill Boulevard that would enhance the pedestrian/non-motorized travel environment, such as landscaping to provide a barrier between roadway traffic, and improvements to safety and ADA accessibility. The proposed Project would provide pedestrian and non-motorized travel crossings at all Project driveways. The Project site's internal circulation system would include similar improvements that would safely and pleasantly integrate pedestrian and non-motorized travelers with vehicular traffic. Therefore, the proposed Project would not interfere with transit, bicycle, or pedestrian connectivity. In addition, the Project incorporates pedestrian and bicycle connectivity within the Project site. Therefore, the Project is not anticipated to conflict with any program, plan, ordinance or policy addressing transit, bicycle, and pedestrian facilities.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. The Project's potential impacts to the roadway network, CMP facilities within Los Angeles County, and transit, bicycle, or pedestrian facilities would be **less than significant**.

4.10.5.2 State CEQA Guidelines *Section 15064.3, Subdivision(b)*

Threshold:	Would the Project conflict or be inconsistent with *State CEQA Guidelines* Section 15064.3, subdivision(b)?

According to *State CEQA Guidelines* Section 15064.3(a), project-related transportation impacts are generally best measured by evaluating the project's VMT. VMT refers to the amount and distance of automobile travel attributable to a project.

State CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts, breaking down the methodology based on project type and specifying other criteria for conducting VMT analysis.

The *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2019) includes recommended thresholds for determining VMT impacts for a land use development project. According to the technical advisory, a net increase in total VMT may indicate a significant transportation impact. Generally, projects located within 0.5 mile of an existing high-quality transit corridor should be considered to have a less than significant impact. *State CEQA Guidelines* Section 15064.3(b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT, such as a pedestrian, bicycle, and transit projects, should be presumed to have a less than significant impact. Subdivision (b)(3) of the *State CEQA Guidelines*, Section 15064.3, acknowledges that Lead Agencies may not be able to quantitatively estimate VMT for every project type; in these cases, a qualitative analysis may be used. The regulation goes on to state that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT (*State CEQA Guidelines* Section 15064.3(b)(4)). It is important to note that *State CEQA Guidelines* Section 15064.3(c) states that while an agency may elect to be governed by the provisions of this section immediately, it is not required until July 1, 2020.

The proposed Project is considered a land use project and is not within 0.5 mile of an existing high-quality transit corridor. Consequently, Section 15064.3 of the *CEQA Guidelines* is applicable to the proposed Project. In addition, because of the low commercial square footage of the Project (5,000 square feet), it cannot be analyzed as a mixed-use project and would have to be analyzed as a residential project. A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as City VMT per capita.

Since the primary land use of the proposed Project is residential, VMT per capita for the residential component of the Project was estimated and compared with the VMT per capita for the Region. The Project's retail component is minor compared to the residential component with only ten anticipated retail employees on the site. As such, the retail would primarily be used by residents of the Project and would be a local serving retail development that would help reduce home-based retail trips and thereby reduce VMT. The TA recommends local serving retail developments (less than 50,000 square feet in area) be exempt from VMT analysis. Additionally, as stated in the TA, for mixed-use projects, only the "project's dominant use" may be considered for VMT analysis. Since the retail component of the proposed Project is not a major component and would primarily serve residents of the Project itself, a VMT assessment for this component of the Project is not considered.

The VMT for the Region has been determined to be 14.9 miles and the VMT[5] for the proposed Project has been determined to be 18.3 miles. The VMT per capita for the proposed Project is 23 percent higher than the Regional VMT and 8 percent higher than the threshold of 15 percent below existing Regional VMT as suggested in the TA. Therefore, although the City of Claremont has yet to adopt thresholds for VMT impacts, based on the TA, the proposed Project would have a significant impact on transportation.

[5] For conservative analytical purposes, VMT from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project VMT since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

Impact Conclusion. The VMT of the proposed Project would be 23 percent higher than the Regional VMT and would also be 8 percent higher than the 15 percent threshold as suggested by the TA. The TA suggests a variety of potential mitigation measures that would reduce vehicle miles traveled. Some of the measures that would be incorporated by design as part of the proposed Project that are suggested by the TA include:

- Improve or increase access to transit.
- Increase access to common goods and services, such as groceries, schools, and daycare.
- Incorporate affordable housing into the project.
- Orient the project toward transit, bicycle and pedestrian facilities.
- Provide bicycle parking.
- Limit or eliminate parking supply.
- Providing on-site amenities at place of work, such as priority parking for carpools and vanpools, secure biking parking, and showers and locker rooms.

Even with such design features implemented as part of the Project, the VMT of the proposed Project would still exceed the 15 percent below existing VMT threshold as suggested by the TA.

The VMT memorandum recommends the following mitigation; however, the applicant nor the City can guarantee the mitigation would be implementable therefore the impacts associated with VMT remain significant and unavoidable.

1) The Foothill Transit Route 292 maintains a stop at the intersection of Claremont Boulevard/Foothill Boulevard approximately 0.1 miles from the project site. At present, the route has a headway of more than 15 minutes during the morning peak commute period (7 a.m. – 9 a.m.) and only one service in the afternoon peak commute period (4 p.m. – 6 p.m.). If Foothill Transit system converted the headway to 15 minutes or less during both the peak commute periods, then the project will be considered to fall within 0.5 miles of a high quality transit area. Therefore, the project will be presumed to create a less than significant impact. To implement this change of headway, Foothill Transit would need to create a fee program and the project would have to contribute its fair share to that program. However, because there is no certainty the route conversion could be implemented and since there is no fixed timeline for implementation of the program and the service upgrade, there is no guarantee that the project VMT impact can be reduced to a less than significant level. Also, since this project is a residential project there is no guarantee the project applicant or the future owners or association of homeowners/residents could influence the Foothill Transit agency to change or modify their operations. Therefore, the Project's VMT impact would remain significant and unavoidable.

2) The nearest Metrolink station is located southeast of the intersection of Monte Vista Avenue and Richton Street approximately one mile south of the project site. The project applicant could provide a shuttle service from the station to the project site at a frequency of 15 minute or less during both the morning and afternoon peak commute periods. A guarantee of the long-term maintenance of this shuttle service would be required. If this service were to be implemented as

a long-term project component, then the Project's VMT impact would be presumed to be less than significant. However, since this project is a residential project there is no guarantee the project applicant or the future owners or association of homeowners/residents would fund or maintain such a shuttle service. Therefore, the Project's VMT impact would remain significant and unavoidable.

Other potential mitigation measures suggested by the TA are aimed at regional conditions and would not be applicable to the proposed Project. The proposed Project would conflict and would be inconsistent with *CEQA Guidelines* Section 15064.3(b) and the design features incorporated into the proposed Project would not reduce impacts associated with the conflict and inconsistency. As such impacts would be **significant and unavoidable**.

4.10.5.3 Design Features or Incompatible Uses

Threshold:	Would the proposed Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The design of roadways must provide adequate sight distance and traffic control measures. This provision is normally realized through roadway design to facilitate roadway traffic flows. Project improvements within the public right-of-way include the installation of full-access driveways to the Project site along Foothill Boulevard and Monte Vista Avenue, landscaping along the sidewalk adjacent to Foothill Boulevard, and curb cuts at all pedestrian crosswalks to improve pedestrian safety and walkability.

The Project includes an internal circulation system and parking areas to provide connectivity between all Project features and access driveways. The Project would not include any roadways containing sharp curves or dangerous intersections. Primary access to the Project site would be provided via two ungated access driveways on Foothill Boulevard and one ungated access driveway on Monte Vista Avenue. Final roadway improvements along the Project's frontage at both of these driveways would be identified in the final conditions of approval for the proposed Project in accordance with applicable City standards.

Construction. Development of the proposed Project would require excavation of the site; delivery of materials, equipment, and personnel; undergrounding of utilities and connections to existing infrastructure in Foothill Boulevard; construction of the buildings; and installation of landscaping. Demolition, grading, and building activities would involve the use of standard earthmoving equipment (e.g., loaders, bulldozers, cranes, and other related equipment). All construction equipment, including construction worker vehicles, would be staged on the Project site for the duration of the construction period to the extent feasible. Construction workers are anticipated to drive standard vehicles that would not result in incompatible uses. Therefore, because construction equipment would be staged on site for the duration of the construction period, Project construction is not anticipated to result in incompatible uses that increase on-road hazards. No mitigation is required.

Operation. The design of Project's circulation system does not include any sharp curves or dangerous intersections. Roadway improvements in and around the Project site would be designed and

constructed to satisfy all City requirements for street widths, corner radii, intersection control, site access requirements, and internal circulation. As part of the City's standard plan check process, the final design of all roadways, intersections, and circulation within and adjacent to the Project site would be reviewed by and subject to approval by City staff prior to issuance (as relevant) of any grading, construction, or occupancy permit, which would preclude uses that are incompatible with existing on-site or adjacent development. The review and approval by City staff sufficiently ensures the Project would incorporate the necessary design features to provide safe travel to, from, and within the Project site. As previously discussed, streets within the Project site include curb cuts at intersections to both visually enhance the intersection, to promote pedestrian safety, and to accommodate non-motorized travelers.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. With the installation of Project improvements, it is reasonable to conclude that the geometric design features required for the Project site and the Cities in general would be installed and appropriately maintained. Therefore, the proposed Project would have a **less than significant** impact on design features or incompatible uses that would substantially increase hazards.

4.10.5.4 Inadequate Emergency Access

Threshold:	Would the proposed Project result in inadequate emergency access?

The Project is within a very high fire hazard severity area.[6,7] The Project site would be designed, constructed, and maintained to provide required emergency/evacuation access. As part of the development process, Project plans would be submitted to law enforcement, fire protection, and/or other emergency service providers (as appropriate) for review and approval prior to the issuance of building permits.

Construction. Construction activities may have a temporary effect on existing traffic circulation patterns by requiring partial lane closures during street improvements and utility installation or by increasing emergency vehicle response times. As previously discussed in Section 4.10.5.1, the Project would adhere to the recommendations outlined in the *California Manual on Uniform Traffic Control Devices* (Caltrans 2014, Revision 4) to reduce potential impacts on the local circulation system during Project construction. Recommendations would be implemented by the construction contractor to ensure that emergency vehicles would be able to navigate through the streets adjacent to the Project site that may experience congestion due to construction activities. All emergency access to the Project site and adjacent areas would be kept clear and unobstructed during all phases of demolition and construction. If a partial street closure (i.e., a lane closure) would be required, notice would be provided to the City of Claremont Police Department, and flag persons would be used to facilitate traffic flow until construction is complete.

Operation. Traffic associated with Project operation would utilize existing and improved roadways within the vicinity of the Project site and within the Project site. As no significant impacts to any study

6 *City of Claremont General Plan,* Public Safety and Noise Element, Figure 6-4: High Fire Areas.

7 CAL FIRE, FRAP, Fire Hazard Severity Zones in LRA Los Angeles County. Website: https://frap.fire.ca.gov/media/6387/fhszl06_1_map19.pdf (accessed November 15, 2019).

area intersections have been identified, it is anticipated that all intersections within the Project vicinity would continue to operate at an acceptable LOS during all traffic conditions. As discussed in the *City of Claremont General Plan,* Public Safety and Noise Element, formal evacuation routes are not predetermined. It is assumed that Major and Secondary Arterial roadways within the Project vicinity and City would function as evacuation routes and/or emergency vehicle and responder access routes during the event of an emergency. Upon completion of the proposed Project, the available evacuation routes for Project occupants and guests would be:

- **Egress to the east via Foothill Boulevard from Driveway 1.** This is the primary Project access point from Foothill Boulevard, a Major Arterial that provides greater regional access and connects with SR-210 approximately 5 miles west of the Project site in the City of La Verne. As previously discussed, SR-210 offers travel options to the east or west into Los Angeles or San Bernardino Counties.
- **Egress to east via Foothill Boulevard from Driveway 2.** This secondary Project access driveway along Foothill Boulevard would provide a similar evacuation route to that of the egress from Driveway 1.
- **Egress to the south via Monte Vista Avenue from Driveway 4.** An egress point along Monte Vista Avenue would allow travel to the south to Foothill Boulevard and I-10 approximately 2 miles south of the Project site. I-10 offers east or west travel to Los Angeles and San Bernardino Counties and connects with major north-south freeways within the region.

All neighborhoods include at least two ingress/egress streets. All on-site roadways, driveways, and parking spaces would comply with Section 16.136.040, Design Standards for Driveways and Parking Spaces, in the City of Claremont's Municipal Code, and Section 18.56.130, Vehicle Access and Parking Requirements, or with the standards set in the Specific Plan. All Project access driveways are ungated and therefore would not potentially obstruct or interfere with emergency response or evacuation. Additionally, all Project driveways would comply with minimum dimension and clearance standards as required by the Los Angeles County Fire Department. Therefore, operation of the proposed Project would not result in inadequate emergency access.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. The proposed Project is not anticipated to cause significant impacts to roadways or intersections that may be used by emergency vehicles. The implementation of recommendations outlined in the *California Manual on Uniform Traffic Control Devices* (Caltrans 2014, Revision 4) would minimize the length of time that any roadways would be blocked for construction vehicle and material delivery. At all times during construction and operation, no roadways would be closed or feature obstructions to through traffic and emergency vehicles. With the installation of and proper maintenance of Project improvements, impacts to emergency access would be **less than significant**.

4.10.6 Cumulative Impacts

As defined in the *CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and probably future projects. The cumulative impact area for traffic/transportation is the City of Claremont and the City of Upland.

Cumulative with Project traffic volumes were developed by adding traffic from approved/pending development projects to Project opening year (2021) with Project Traffic volumes. Cumulative projects are identified in previously referenced Table 4.10.E and in Figure 4-3 in the *Traffic Impact Analysis* (Appendix H).

As shown in Appendix E of the *Traffic Impact Analysis*, all study area intersections are anticipated to operate at an acceptable LOS under Cumulative with Project Traffic volumes. Given the distance between the proposed Project site and cumulative project sites, impacts associated with air traffic patterns, design hazards, emergency access, or conflicts with adopted policies, plans, or programs supporting alternative transportation would not comingle and create impacts over and above those associated with the proposed Project. The proposed Project would not have a cumulatively considerable impact on traffic. No mitigation is required.

The VMT of the proposed Project[8] would be 23 percent higher than the Region VMT and would also be 8 percent higher than the 15 percent threshold as suggested by the TA. Implementation of the proposed Project as well as cumulative project's would incrementally increase VMT in the Region. As described above, the proposed Project includes 5,000 square feet of retail uses, easy access to off-site retail for Project occupants that choose to walk or bike in the area, and placement of bicycle racks to encourage less vehicle usage by Project residents. Even with such design features in place, the proposed Project would still contribute to a cumulative incremental contribution to the Region's VMT. As such, the proposed Project would have a cumulatively considerable impact on traffic that cannot be reduced with implementation of Project specific mitigation measures.

[8] For conservative analytical purposes, VMT from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast boundary are being consolidated with the Project VMT since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.

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4.11 TRIBAL CULTURAL RESOURCES

This section identifies and evaluates the Project's potential adverse impacts related to Tribal Cultural Resources (TCRs). This section provides a detailed discussion of impacts potentially attributable to the proposed Project and criteria used to determine impact significance to tribal cultural resources.

The Project's potential impacts to non-tribal cultural resources are addressed in Section 4.3, Cultural Resources. This section addresses impacts related to burial sites and other sites of religious or cultural significance to Native American groups. It additionally includes a summary of the Native American contact and consultation conducted for the Project. The analysis contained in this section is based upon the consultations between the City and Native American tribal government(s) conducted pursuant to Senate Bill 18 (SB 18) and Assembly Bill 52 (AB 52) as well as the following report:

- *Cultural Resources Assessment for the Commons Specific Plan, in the Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California.* LSA Associates, Inc. May 2019 (Appendix D).

4.11.1 Existing Setting

4.11.1.1 Ethnographic Context[1]

The Project area is located in a transitional region adjacent to the borders of the Gabrielino and Serrano. The Project area is situated near the northeastern area associated with the Gabrielino and at the southern/western of the area associated with the Serrano.

Gabrielino. During ethnohistoric times, the territory of the Gabrielino included portions of Los Angeles, Orange, and San Bernardino Counties. It encompassed an extremely diverse environment that included coastal beaches, lagoons and marshes, inland river valleys, foothills, and mountains. The ancestral territory extended along the Pacific Coast from Malibu Creek in Los Angeles County to Aliso Creek in Orange County and encompassed Catalina (*Pimunga*), San Nicolas (*Haraasnga*) and San Clemente (*Kiinkenga*) Islands. Inland boundaries extended to the San Gabriel Mountains (*Hidakupa*) to parts of San Bernardino (*Waatsngna*), Orange and Riverside Counties.[2]

The Gabrielino caught and collected seasonally available food resources, and led a semi-sedentary lifestyle, living in permanent communities along inland watercourses and coastal estuaries. Individuals from these villages took advantage of the varied resources available. Groups moved to temporary camps on a seasonal rotation to collect plant foods such as acorns, buckwheat, chía, berries, and fruits, and to conduct communal rabbit and deer hunts. They also established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt.

The arrival of Spanish explorers and the establishment of missions and outposts during the 18th century ended the prehistoric period in California. At this time, traditional Gabrielino society began

1 *Cultural Resources Assessment for the Commons Specific Plan, in the Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California*. LSA Associates, Inc. May 2019.

2 Gabrielino-Kizh Nation.

to fragment as a result of foreign diseases and the mass removal of local Native American groups to the Mission San Gabriel and Mission San Juan Capistrano.

The first modern social analyses of Gabrielino culture took place in the early part of the 20th century. By this time, acculturation and disease had devastated this group, and the population studied was a remnant of its pre-contact form. Nonetheless, the early ethnographers viewed the Gabrielino as a chief-oriented society of semi-sedentary hunter-gatherers. Influenced by coastal and interior environmental settings, their material culture was quite elaborate and consisted of well-made wood, bone, stone, and shell items. The Gabrielino lived in small communities, consisting of patrilineally linked, extended families. Both clans and villages were apparently exogamous, marrying individuals from outside the clan or village. The nearest historically known Native American village to the Project area was the Gabrielino community of *Tooypinga* (also described as *Toibi*), located approximately 4.5 miles to the southwest near Pomona.

Serrano. The Serrano lived in the area generally north of Cahuilla territory (western Riverside County), occupying much of present-day San Bernardino County and northeastern Los Angeles County as there was some overlap in the ancestral areas. The term Serrano is Spanish for "mountaineer" or "highlander" and is derived from *sierra*, meaning "mountain range" and was given to people who inhabited the areas of the San Bernardino Mountains that had no associated mission. The Serrano culture group consists of two divisions, a mountain division, referred to as the Mountain Serrano, and a desert division, referred to as the Desert Serrano.

The Serrano were hunter-gatherers who exploited whatever flora was available in the area they happened to be in; generally, it was acorns, pinion nuts, honey, mesquite, yucca, and cactus fruits, in addition to various seeds, bulbs, and roots. Plants were consumed both raw and cooked. Food processing involved the use of manos, metates, mortars, and pestles. Antelope, deer, mountain sheep, rabbits, and rodents were hunted and captured, and the most common hunting implements were the bow and arrow, throwing stick, traps, snares, and deadfalls. Meat was prepared in earth ovens, by boiling in watertight baskets, or by parching.

The Serrano had a patrilineal society composed of clans and families linked by both ancestry and ceremony, and most lived in small communities near reliable sources of water (springs, perennial seeps, streams, and small lakes). The basic settlement unit of the Serrano was a village with a number of small satellite resource-gathering camps.

The Spanish decimated all indigenous groups adjacent to the San Bernardino Mountains, but some Serrano survived for many years. This was due to the ruggedness of the terrain in the far eastern San Bernardino Mountains and to their dispersed population. Serrano populations studied in the early part of the last century were a remnant of their cultural form prior to contact with the Spanish missionaries. Nonetheless, the Serrano are viewed as clan and moiety-oriented or local lineage-oriented group tied to traditional territories or use-areas. Typically, a "village" consisted of a collection of families centered about a ceremonial house, with individual families inhabiting willow-framed huts with tule thatching. Considered hunter-gatherers, the Serrano exhibited a sophisticated technology devoted to hunting small animals and gathering roots, tubers, and seeds of various kinds. Today, Serrano descendants are found mostly on the Morongo and San Manuel Reservations.

4.11.1.2 NOP/Scoping Comments

No comments specific to Tribal Cultural Resources were provided during the NOP review period or the Public Scoping Meeting.

4.11.1.3 Sacred Lands File Search

The City requested a Sacred Lands File (SLF) Search and Native American Contact List from the Native American Heritage Commission (NAHC) on August 15, 2018. While the NAHC responded that the SFL search indicated "negative results," it did not preclude the presence of cultural resources in the Project area. The NAHC provided list of tribal contacts that may have knowledge of cultural resources in the Project area. The tribal contacts identified in the SLF search response are identical to those contacted during the required SB 18 and AB 52 Native American consultation.

4.11.1.4 Native American Consultation

The proposed development is a project under CEQA and includes a General Plan Amendment and implementation of a Specific Plan; therefore, consultation provisions pursuant to both SB 18 and AB 52 are required. On September 10, 2018, pursuant to provisions of SB 18 and AB 52, the City provided consultation requests (via certified mail) to the following Native American entities.

- Barbareno/Ventureno Band of Mission Indians;[3]
- Fernandeno Tataviam Band of Mission Indians;
- Gabrieleño Band of Mission Indians–Kizh Nation;
- Gabrielino/Tongva San Gabriel Band of Mission Indians;
- Gabrielino/Tongva Nation;
- Gabrielino-Tongva Tribe;
- Kern Valley Indian Community;
- Kitanemuk and Yowlumne Teion Indians;
- San Manuel Band of Mission Indians;
- Soboba Band of Luiseño Indians; and
- Santa Ynez Band of Chumash Indians.

The only response received by the City was from the Gabrieleño Band of Mission Indians–Kizh Nation (Tribe) on January 30, 2019. The Tribe requested further consultation to identify specific measures to mitigate for potential impact to TCRs.

[3] Multiple contacts were made to some tribes (based on NAHC contact list).

4.11.2 Existing Policies and Regulations

4.11.2.1 Federal Regulations[4]

The Native American Graves Protection and Repatriation Act (NAGPRA) was enacted on November 16, 1990, to address the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to Native American cultural items, including human remains, funerary objects, sacred objects, and objects of cultural patrimony. The NAGPRA assigned implementation responsibilities to the Secretary of the Interior. The NAGPRA program provides support for the following activities:

- Publishing notices for museums and federal agencies in the Federal Register;
- Creating and maintaining databases, including the Culturally Unidentifiable Human Remains Inventories Database;
- Making grants to assist museums, Indian tribes, and Native Hawaiian organizations in fulfilling NAGPRA;
- Assessing civil penalties on museums that fail to comply with provisions of NAGPRA;
- Providing staff support to the NAGPRA Review Committee and for the Annual Report to Congress;
- Providing technical assistance to federal agencies where there are excavations and discoveries of cultural items on federal and Indian lands;
- Promulgating implementing regulations; and
- Providing technical assistance through training, website information, reports prepared for the Review Committee, supporting law enforcement investigations, and direct personal service.

The National Park Service has compliance obligations for parks, separate from the NAGPRA program. NAGPRA is the omnibus program, the constituent groups all of which are federal agencies, museums that receive federal funds, tribes and Native Hawaiian organizations, and the public.

4.11.2.2 State Regulations

Senate Bill 18. Signed into law in September 2004, and effective March 1, 2005, SB 18 permits California Native American tribes recognized by the NAHC to hold conservation easements on terms mutually satisfactory to the tribe and the landowner. The term "California Native American tribe" is defined as "a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC."

The bill requires a City or County to consult with California Native American tribes for the purpose of preserving specified places, features, and objects located prior to the adoption or amendment of a General Plan or Specific Plan. This bill requires the planning agency to refer to the California Native American tribes specified by the NAHC and to provide them with opportunities for involvement.

Assembly Bill 52. Effective July 1, 2016, AB 52 created a new environmental resource (Tribal Cultural Resources) that must be considered under CEQA. AB 52 requires Lead Agencies evaluate a project's

[4] National Parks Service. https://www.nps.gov/subjects/nagpra/index.htm, site accessed November 19, 2019.

potential to impact "tribal cultural resources" which may include "… [s]ites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources."

AB 52 requires lead agencies to provide notice to tribes that are traditionally and culturally affiliated with the geographic area of a project if they have requested notice of projects proposed within that area. Consultation may include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. Consultation must be conducted in good faith between the tribal government and the lead agency and is deemed concluded when either the parties agree to measures to mitigate or avoid a significant effect on a tribal cultural resource (should a significant effect exists) or when a party concludes that mutual agreement cannot be reached.

California Health and Safety Code. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on site, no further disturbance shall occur until the County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC. This regulation is applicable to any project where ground disturbance would occur.

4.11.2.3 General Plan Consistency

Table 4.11.A identifies City of Claremont General Plan policies addressing cultural resources, including where applicable, Tribal cultural resources.

Table 4.11.A: City of Claremont General Plan Consistency Analysis, Tribal Cultural Resources

General Plan Goals and Targets	General Plan Consistency Analysis
Goal 2.14: Retain and celebrate Claremont's rich history and heritage, as evidenced through its development patterns, buildings and building materials, landscaping, street treatments, parks and open space, and civic architecture.	
Policy 2.14.1: Continue to protect architectural, historical, open space, environmental, and archaeological resources throughout the City	**Consistent with Mitigation:** As part of the EIR, a Project-specific Phase 1 Cultural Resources Assessment was prepared to identify any culturally significant resources. Mitigation was identified to address potential impacts to on-site archaeological resources. Additionally, the City has consulted with Native American tribal contacts pursuant to applicable provisions of SB 18 and AB 52. Mitigation identified during the tribal consultation process has been incorporated into this EIR.

Source: Land Use, Community Character and Heritage Preservation Element, City of Claremont General Plan, November 2006.

4.11.3 Thresholds of Significance

Per Appendix G of the State *CEQA Guidelines*, a project would have a significant impact on tribal cultural resources if it would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is

geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.11.4 Methodology Used for the Impact Analysis

The methodology used to address potential impacts to Tribal Cultural Resources included the notification of tribal governments as detailed in Section 4.11.1.4. Subsequent confidential contact between the City and the consulting tribal governments was conducted to receiving information relative to tribal concerns and developing appropriate mitigation to address any potential impact.

4.11.5 Impact Analysis

4.11.5.1 Tribal Cultural Resources

Threshold	Would the proposed Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), OR A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

A discussion of potential National Register of Historic Places and California Register of Historic Places resources has been provided in Section 4.3, Cultural Resources. According to the Project-specific Cultural Resources Assessment (Appendix C), the three historic period archaeological sites recorded within the site are typical examples of common resource types (i.e., building foundations [19-004863] and minimal refuse scatters [36-033017 and 36-033018]), have no potential for significant archaeological data and similarly do not meet any of the criteria under CEQA.

In its consultation response, the Gabrieleño Band of Mission Indians–Kizh Nation (Tribe) expressed[5] a concern for cultural resources located on and around the Project site. The Tribe indicated the site's proximity to traditional overland trade routes. These trade routes were utilized throughout the year to access foraging, trade and ceremonial areas. Seasonal and permanent *ramadas*, trade depots and habitation areas were located along these trade routes, especially those near water. The Tribe identified the potential for individual and communal burials (including cremations) along established trade routes and habitations sites. The City entered into an agreement on February 4, 2019 with Tribe to "Accept Tribal Mitigation Measures." Mitigation in the EIR are based on that agreement.

Due to the longevity of use of tribal cultural landscapes in the Project area, the Tribe identified a "high potential" that Tribal Cultural Resources may be present in the Project area; therefore, a significant potential exists that Project-related development activities could impact or inadvertently unearth, disturb, and/or destroy such resources.

Mitigation Measures. The following measures shall be implemented to reduce potential significant impacts to known, unknown or potential Tribal cultural resources in the Project area. For purposes of these measures, the term "Tribe" shall refer to the Gabrieleño Band of Mission Indians–Kizh Nation.

4.11.1A **Retention of Tribal Monitor.** Prior to the issuance of grading, the Project applicant shall provide evidence a Native American monitor has been retained and appropriately compensated for construction monitoring services. The monitor shall be approved by the Gabrieleño Band of Mission Indians–Kizh Nation (Tribe) and shall be listed on the Native American Heritage Commission's (NAHC's) Tribal Contact list for the area of the Project location.

The monitor shall be present on site only during the construction phases that involve ground-disturbing activities. Ground-disturbing activities are defined as activities that include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling and trenching within the Project area. The Kizh monitor shall complete daily monitoring logs that provide a description of the day's activities, including construction activities, locations, soils, and any cultural materials identified. The on-site Tribal monitoring shall end when the Project site grading and excavation activities area completed, or when the Kizh representatives, in consultation with the City, have indicated that the site has a low potential for impact to Tribal Cultural Resources.

4.11.1B **Unanticipated Discovery.** Upon discovery of any archaeological resource, construction activities in the immediate vicinity of the find shall ceased until the find can be assessed. All archaeological resources unearthed by the Project construction activities shall be evaluated by a qualified archaeologist and the Tribe. If the resources are Native American in origin, the Tribe shall coordinate with the landowner regarding the treatment and curation of these resources. Typically, the Kizh request reburial or preservation for educational purpose. Work may continue on other parts of the Project while evaluation occurs.

[5] Email communication from Tribal Administration to City of Claremont, January 30, 2019.

If a discovery is determined by the qualified archaeologist to be a "historical resource" or "unique archaeological resources," a treatment plan shall be developed (pursuant to *CEQA Guidelines*, Section 15064.5[f]) allowing for sufficient time and funding to identify and implement avoidance measures and/or appropriate mitigation.

For unique archaeological resources, preservation in place is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery extraction to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall, at the discretion of the landowner, be curated at a public, non-profit institution with a research interest agreeing to accept in the materials. If no such institution agrees to accept the materials, they shall be offered to a local school or historical society in the area for educational purposes.

4.11.1C Archaeological and Native American monitoring and excavation during construction shall be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel shall meet the Secretary of Interior standards for archaeology and have a minimum of ten years of experience as a principal investigator working with Native American archaeological sites in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.

4.11.1D Prior to the issuance of grading permits, the applicant shall provide evidence that the Tribal Cultural Resource mitigation measure(s) identified in this EIR and the current contact information for the Tribe, Tribal monitor, qualified archaeologist, County Coroner(s) and Native American Heritage Commission are included in construction documentation and are readily available to the construction contractor(s) for the duration of on-site ground disturbance activities.

Impact Conclusion. Implementation of **Mitigation Measures 4.11.1A** through **4.11.1D** would reduce potential impacts to Native American cultural resources to a **less than significant** level.

4.11.5.2 Native American Human Remains

Threshold	Would the proposed Project disturb any human remains, including those interred outside of dedicated cemeteries?

Human remains are defined as any physical remains of a human being. The term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal traditions included, but were not limited to, the burial of associated cultural resources (funerary objects) with the deceased, and the ceremonial burning (cremation) of human remains (which are treated in the same manner as bone fragments that remain intact). Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects.

Although no evidence exists to suggest the Project site has been utilized in the past for human burials, on-site construction could uncover previously unknown buried human remains. In the event of an accidental discovery or recognition of any suspected human remains, California State Health and Safety Code Section 7050.5 dictates that no further excavation or disturbance of the site (or any nearby area reasonably suspected to overlie adjacent human remains) may occur until the Los Angeles County Coroner determines that no investigation of the cause of death is required.

The inadvertent discovery of any potential Native American human remains is a potentially significant impact requiring mitigation.

Mitigation Measures. The following measures shall be implemented to address potential significant impacts to Native American burials:

4.11.2A **Human Remains Assessment and Treatment.** Upon discovery of human remains, cremations, and/or associated grave goods, the Tribal monitor and/or archaeological monitor shall halt work within a minimum of 150 feet of the discovery. The discovery shall be kept confidential and secure to prevent further disturbance. The Tribe and the County Coroner shall be notified within 24 hours of any such discovery. Work within the 150 foot buffer area shall be diverted while the County Coroner determines the nature of the remains and the Most Likely Descendant (MLD) identified.

The MLD shall complete his or her inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD shall identify and direct the most appropriate means of treating the human remains and any associated funerary object(s).

Prior to the continuation of ground-disturbing activities, the landowner shall arrange a designated site within the footprint of the Project for the respectful reburial of the human remains and/or funerary objects. In cases where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered with muslin cloth and a steel plate that can be moved by heavy equipment to protect the remains. If this type of protection is not available, a 24-hour guard shall be posted outside of working hours. The Tribe shall make every effort to recommend diverting the Project and keeping the remains in situ and protected. If the Project cannot be diverted, it may be determined that burials would be removed. The Tribal monitor shall work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum, detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe/Tribal monitor for data recovery purposes.

Cremations shall either be removed in bulk or by means as necessary to ensure complete recovery of all material. Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site. These items shall be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the Project site but at a location agreed upon between

the Tribe monitor and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

If the discovery of human remains includes four or more burials, the location shall be considered a cemetery, and a separate treatment plan shall be developed. Once complete, a final report of all activities shall be submitted to the Tribe Nation and the Native American Heritage Commission. The Tribe does not authorize any scientific study or the utilization of invasive diagnostics on human remains.

Kizh-Gabrieleno Procedures for Burials and Funerary Remains. If the Gabrieleno Band of Mission Indians - Kizh Nation is designated MLD, the following treatment measures shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects.

Treatment Measures. Prior to the continuation of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains shall be covered "with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe shall make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials shall be removed. The Tribe "shall work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations "shall either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be created. Once complete, a final report of all activities is to be submitted to the Tribe and the NARC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains.

Each occurrence of human remains and associated funerary objects shall be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony shall be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location agreed upon between

the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

Impact Conclusion. Implementation of **Mitigation Measure 4.11.2A** and applicable provisions of existing State law (required of all development projects) would render potential impacts to buried Native American remains and associated funerary objects to **less than significant**.

4.11.6 Cumulative Impacts

The cumulative area for cultural resources is the ancestral territory of affected Native American tribes. Past, present, and reasonably foreseeable future projects in Native American traditional use area(s) could include ground-disturbing activities with the potential to destroy, damage, or displace surface or previously undiscovered Native American cultural resources, including burials and associated funerary objects; therefore, any development could cumulatively affect these resources.

Through implementation of applicable provisions of SB 18 and AB 52, affected Native American governments have the opportunity to identify areas of Native American cultural resource sensitivity and develop appropriate mitigation to reduce and/or avoid said impacts. Similar to the Project, as other project(s) located in Native American traditional use area(s) developed, it is reasonable to conclude Native American participation in this process would provide equal opportunities to identify specific measures to reduce the significance of impacts to Native American cultural resources. Implementation of the mitigation measures outlined in this EIR, and the CEQA documents for other developments in the City of Claremont, along with other jurisdictions would ensure potential cumulative Native American cultural resource impacts are **not cumulatively considerable**. No additional mitigation for cumulative impacts is required.

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4.12 WILDFIRE

This section describes the existing setting and wildfire risks in the City of Claremont, which is in eastern Los Angeles County. This section evaluates the potential impacts of the proposed Project with regard to wildfire and post-wildfire environmental risks.

4.12.1 Existing Setting

A wildfire is a nonstructural fire that occurs in vegetative fuels. Wildfire generally does not include prescribed or controlled fires set by firefighters to manage fuel loads in fire-prone landscapes. Wildfires can occur in undeveloped areas and spread to urban areas where the landscape and structures are not designed and maintained to be ignition resistant. A wildland-urban interface (WUI) is an area where urban development is located in proximity to open space or "wildland" areas. The potential for wildland fires represents a hazard where development is adjacent to open space or within close proximity to wildland fuels or designated a Fire Hazard Severity Zone (FHSZ). Steep hillsides and varied topography can also contribute to the risk of wildland fires. Fires that occur in WUI areas may affect natural resources as well as life and property.

Wildfire ignition sources may include lightning, improperly managed camp fires, cigarettes, arson, sparks from automobiles, lawnmowers, and maintenance equipment, damaged/failed/unmaintained utilities (i.e., high-voltage electrical equipment), and other sources. Wildfire spread is often dramatically exacerbated when prolonged hot and dry weather conditions are coupled with strong wind events. In Southern California, wildfire season has historically extended from late summer through fall, when most vegetative fuels are dried out and Santa Ana wind events are most common. However, climate change has increasingly led to conditions that are conducive to wildfire spread throughout much of the year. Key factors in assessing wildland fire risk include potential ignition sources, building materials and design, community design, structural density, presence of slopes and vegetative fuels, fire occurrence and weather, as well as occurrences of drought.

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped areas of significant fire hazards in the State through its Fire and Resources Assessment Program (FRAP). These maps place areas of California into different FHSZ, based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban brushfire could result in catastrophic losses. As part of this mapping system, land where CAL FIRE is responsible for wildland protection and generally located in unincorporated areas is classified as a State Responsibility Area (SRA). Where local fire protection agencies (e.g., the Los Angeles County Fire Department [LACFD]) are responsible for wildfire protection, the land is classified as a Local Responsibility Area (LRA)). CAL FIRE currently identifies the Project site as an LRA. In addition to establishing local or State responsibility for wildfire protection in a specific area, CAL FIRE designates areas as Very High Fire Hazard Severity Zones (VHFHSZ) or non-VHFHSZ.

According to the CAL FIRE Very High Fire Hazard Severity Zone Maps for Los Angeles County and the City of Claremont, the Project site is designated as a VHFHSZ.[1] The Project site is currently devoid of development and is currently occupied by natural vegetation (i.e., scrub brush, grasses, trees, and

[1] CAL FIRE, FRAP, *Fire Hazard Severity Zones in LRA Los Angeles County*. Website: https://frap.fire.ca.gov/media/6387/fhszl06_1_map19.pdf (accessed November 15, 2019).

bushes). Adjacent uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses is located to the northwest. The property located due north of the site is vacant, and the business located beyond Marylind Avenue is Conveyor Manufacturing and Service (formerly 3B Grinding). The College Center strip mall single-family and multifamily residential uses are located northwest of the site, beyond Claremont Boulevard. The site of a recently approved 70-acre sports park is located south of the site, across Foothill Boulevard. The Claremont Colleges and the College Park residential development and are located approximately 0.33 and 0.50 mile south and southwest from the site, respectively. Just east of the project is vacant land located within the City of Upland, and adjacent land across Monte Vista Avenue in Upland consists of the College Business Park and low-density multifamily residences (Harvest at Upland). The Project site is located approximately 1,850 feet southwest of Cable Airport's Runway 6/24.

The 2003 Grand Prix fire burned 59,448 acres of land north of the Project site in the San Gabriel Mountains and within the foothills of the City of Claremont and City of Upland. This fire resulted in the loss of 196 structures; however, no loss of human life occurred as a result of the Grand Prix fire.[2] The perimeter of the Grand Prix fire came within one mile of the Project site (in the vicinity of Padua Avenue, Baseline Road, and State Route 210).

4.12.1.1 NOP/Scoping Comments

An NOP Comment letter from the LACFD was received and includes standard conditions that the Project should implement to reduce fire hazards. The LACFD also notes that its Forestry Division has statutory responsibilities that include implementation of fuel modification[3] for Very High Fire Hazard Severity Zones. However, no specific comments pertaining to wildfire hazards were provided by LACFD in its NOP comment letter.

No comments were received concerning wildfire during the public scoping meeting on the Project.

4.12.2 Policies and Regulations

4.12.2.1 Federal Regulations

National Incident Management System (NIMS). The NIMS provides a systematic, proactive approach to guide government agencies, nongovernmental organizations, and the private sector to work together to prevent, report to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property harm to the environment.

[2] City of Claremont 2015 Natural Hazards Mitigation Plan, prepared by Emergency Planning Consultants, January 20, 2015, Section 6: Wildfire Hazards, pgs. 109 to 130.

[3] According to the Los Angeles County Fire Department website (https://www.fire.lacounty.gov/forestry-division/forestry-fuel-modification/) the Fuel Modification Unit is responsible for the approval of a landscape plan for structures located in the Fire Hazard Severity Zones. The process of approval consists of reviewing aspects of a project such as structure location, type of construction, topography, slope, amount and arrangement of vegetation, and overall site settings. The objective of this unit is to create defensible space necessary for effective fire protection of homes in the Fire Hazard Severity Zones.

4.12.2.2 State Regulations

CAL FIRE and Resources Assessment Program. CAL FIRE publishes maps that predict the threat of fire for each county within the State. LRAs, SRAs, or Federal Responsibility Areas (FRAs) are classified as either VHFHSZ or non-VHFHSZ based on factors including fuel availability, topography, fire history, and climate. The 2012 Strategic Fire Plan for California was generated by CAL FIRE to provide guidelines and objectives in order to account for associated fire impacts.

California Fire Code (CFC). The CFC includes regulations for emergency planning, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Fire safety requirements include, but are not limited to, installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Strategic Fire Plan. This statewide plan is a strategic document that guides fire policy for much of California. The plan is aimed at reducing wildfire risk through pre-fire mitigation efforts tailored to local areas through assessments of fuels, hazards, and risks.

California State Hazard Mitigation Plan. The purpose of the State Hazard Mitigation Plan (SHMP) is to significantly reduce deaths, injuries, and other losses attributed to natural- and human-caused hazards in California. The SHMP provides guidance for hazard mitigation activities emphasizing partnerships among local, State, and federal agencies as well as the private sector.

California Government Code. California Government Code §51175 defines VHFHSZ and designates lands considered by the State to be a very high fire hazard. California Government Code §51189 directs the Office of the State Fire Marshal to create building standards for wildland fire resistance. The code includes measures that increase the likelihood of a structure withstanding intrusion by fire (e.g., building design and construction requirements that use fire-resistant building materials) and provides protection of structure projections (e.g., porches, decks, balconies, and eaves) and structure openings (e.g., attics, eave vents, and windows).

California Public Resources Code (PRC). The State's Fire Safe Regulations are set forth in PRC §4290, which include the establishment of SRAs. PRC §4291 sets forth defensible space requirements, which are applicable to anyone that "… owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush covered lands, grass-covered lands, or land that is covered with flammable material" (§4291(a)).

Assembly Bill 337. Per AB 337, local fire prevention authorities and CAL FIRE are required to identify VHFHSZ in LRAs. Standards related to brush clearance and the use of fire-resistant materials in FHSZ are also established.

California Code of Regulations (CCR) Title 8 (Industrial Relations). In accordance with CCR Title 8 §1270 and §6773 (Fire Prevention, and Fire Protection and Fire Equipment), the California Occupational Safety and Health Administration (Cal/OSHA) establishes fire suppression service

standards. The standards range from fire hose size requirements to the design of emergency access roads.

CCR Title 14 (Natural Resources). Division 1.5 (Department of Forestry and Fire Protection), Title 14 of the CCR establishes a variety of wildfire preparedness, prevention, and response regulations.

CCR Title 19 (Public Safety). Title 19 of the CCR establishes a variety of emergency fire response, fire prevention, and construction and construction materials standards.

CCR Title 24 (California Building Standards Code). The CFC is set forth in Part 9 of the Building Standards Code. The CFC, which is pre-assembled with the International Fire Code by the International Code Council, contains fire-safety building standards referenced in other parts of Title 24.

California Health and Safety Code §13000 et seq. and California Building Code (CBC). State fire regulations are set forth in §13000 et seq. of the California Health and Safety Code, which is divided into "Fires and Fire Protection" and "Buildings Used by the Public." The regulations provide for the enforcement of the CBC and mandate the abatement of fire hazards. The California Health and Safety Code establishes broadly applicable regulations, such as standards for buildings and fire protection devices, in addition to regulations for specific land uses, such as childcare facilities and high-rise structures.

California Residential Code §R337. Section R337 establishes minimum standards for the protection of life and property by increasing the ability of a building located in any FHSZ within an SRA or any WUI Fire Area to resist the intrusion of flame or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses. This section regulates materials and construction methods for exteriors susceptible to wildfire exposure.

CBC, Chapter 7A. Chapter 7A applies to building materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a WUI Fire Area. This section of the CBC establishes minimum standards for features such as fire-retardant-treated wood and wood shingles, surface treatment protection, ignition-resistant construction, roof coverings and gutters, vents, exterior walls and coverings, exterior porch ceilings, underfloor protection, exterior windows, skylights, and doors, decking, and accessory structures.

Executive Order (EO) N-04-19. On January 9, 2019, Governor Newsom announced EO N-04-19, which requires State agencies to identify innovative and sustainable solutions to address the State's wildfire crisis, such as (e.g., upgraded fire detection technology).

EO N-05-19. On January 9, 2019, Governor Newsom also announced EO N-05-19, which requires CAL FIRE and other State agencies to compile policy and regulatory recommendations concerning wildfire mitigation, emphasizing environmental sustainability and public health. EO N-05-19 requires the incorporation of socioeconomic analysis when conducting risk management of wildfires and mandates that agencies identify geographic areas with populations that are more vulnerable to the impacts of wildfires.

4.12.2.3 Local Regulations

Claremont General Plan. The City of Claremont strives to administer proper fire prevention through public education and land use restrictions. Table 4.12.A evaluates the consistency of the proposed Project with applicable Claremont General Plan Policies pertaining to wildfires.

Table 4.12.A: City of Claremont General Plan Consistency Analysis, Wildfires

General Plan Goals and Targets	General Plan Consistency Analysis
Goal 6-7: Minimize the risks associated with urban and wildland fires.	
Policy 6-7.1: Work with the fire department to establish minimum standards for water supply and access for fire-fighting equipment.	**Consistent:** The Project applicant has prepared a preliminary site plan identifying access points and internal road widths that are adequate for onsite fire department maneuvers. The preliminary plan also includes hose layout distances that adequately cover all buildings onsite, and the proposed locations of fire hydrants. Prior to final approval of the Project, the Fire Code Official would review all plans of the Project to ensure that development is compliant with Fire Code standards. The Fire Code Official would also approve that water flow to the Project site is adequate to provide protection to structures.
Policy 6-7.3: Enforce building codes and ordinances and continue to research and adopt best practices pertaining to fire management and fire hazards.	**Consistent:** The proposed Project would be developed in compliance with the most current Fire Code and Building Code standards related to fire protection for residential and retail uses. Prior to final approval of the Project, the Fire Code Official would review all plans of the Project to ensure that development is compliant with Fire Code standards.
Policy 6-7.4: Work with the fire department to establish an aggressive fire inspection and code enforcement program.	**Consistent:** The proposed Project would comply with the most current Fire Codes and Building Codes related to fire protection the City requires of development projects. The Project would be subject to review and approval by the Fire Code Official as well as by the City, especially since the Project site is located in an LRA VHFHSZ.
Policy 6-7.5: Continue to disseminate information relating to fire prevention measures and resident response to emergency situations, with the understanding that an informed public can greatly aid in the reduction of fire loss.	**Consistent:** The residents of the proposed Project would be able to access fire prevention measures, emergency evacuation plans, and emergency procedures in the event of large-scale fires through educational material offered by the City of Claremont and Los Angeles County Fire Department. Implementation of the proposed Project does not preclude residents from obtaining information about fire prevention that can greatly aid in the reduction of fire loss.
Policy 6-7.8: Continue to work with Los Angeles County Weed Abatement Division to implement and enforce the county's systematic weed abatement program.	**Consistent:** The proposed Project would be required to implement **Mitigation Measure 4.12.A,** which includes development and implementation of a Fuel Modification Plan. The Fuel Modification Plan would be reviewed and approved by the Fire Code Official and City and may include measures to abate weeds on the Project site and promote a drought-resistant landscaping theme.

Source: *Chapter 6 Public Safety and Noise Element,* Claremont General Plan, 2009.

Claremont Municipal Code. The City of Claremont, as detailed in Chapter 15.20.010 of the Municipal Code, has adopted the 2017 Fire Code for the Consolidated Fire Protection District of Los Angeles County (Title 32, Los Angeles County Code) setting forth fire protection and prevention guidelines/ standards for building development in the City.

4.12.3 Thresholds of Significance

The thresholds for wildfire impacts used in this analysis are consistent with Appendix G of the *State CEQA Guidelines*. If the proposed Project would be located in or near SRAs or lands classified as VHFHSZ, the proposed Project may be deemed to have a significant impact with respect to wildfires if it would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- Expose people or structures to significance risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Appendix G of the *CEQA Guidelines* includes a threshold related to fire exposure risk under the Hazards and Hazardous Materials resource topic. As such, this specific threshold is also included in this section for analysis:

- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

4.12.4 Methodology Used to Assess Impacts

This section addresses factors that could expose people or structures to fire or post-fire flooding or landslides, risk or impair emergency response, or require installation of infrastructure that could exacerbate fire risk. Past case law supports that CEQA should evaluate a proposed project's impact on the environment (e.g., potential of a mixed-use development to degrade water quality), rather than the environment's impact on a project (e.g., potential for an earthquake to destroy a mixed-use development). In *California Building Industry Association v. Bay Area Air Quality Management District* (CBIA v. BAAQMD) (Supreme Court of California 2015), the CBIA challenged BAAQMD's adoption of CEQA air pollutant significance thresholds that required analysis of impacts on "new receptors" (residents and workers drawn to an area as a result of a proposed project). The California Supreme Court found that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future user or residents," except where a proposed project may exacerbate those environmental hazards or conditions that already exist. Therefore, this section would not directly focus on the risk of wildfire to the Project, rather it would address whether the Project exacerbates the risk of a natural disaster by bringing new development to vulnerable areas. The analysis is based on review of FHSZ maps, local and regional Hazard Mitigation Plans, and Project conformance to California Fire Codes.

4.12.5 Impact Analysis

4.12.5.1 Impair an Emergency Response or Emergency Evacuation Plan

Threshold:	Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

According to CAL FIRE VHFHSZ in the LRA Map for the City of Claremont, the Project site is in a VHFHSZ. The nearest wildland fire, the Grand Prix fire, came within 1 mile of the proposed Project site in 2003. The Los Angeles County Fire Department and the City of Claremont Police Department are the local agencies that would oversee emergency response and emergency evacuation at the Project site. The Project applicant has prepared a Fire Department Access Plan that details Project site access points, internal circulation routes that would accommodate fire department truck circulation, location of existing fire hydrants and proposed fire hydrants, and 150-foot long fire department hose layouts showing adequate coverage for all uses in the Project site.

Construction. The proposed Project is located within an LRA VHFHSZ as defined by CAL FIRE. All large construction vehicles entering and exiting the Project site would be guided by the use of personnel using signs and flags to direct traffic. The proposed Project does not include any design features that would physically impair or otherwise interfere with emergency response or evacuation in the Project vicinity. The proposed Project may require temporary lane closures on Foothill Boulevard and Monte Vista Avenue to allow for utility connections; however, temporary lane closures would be implemented consistent with the recommendations of the *California Temporary Traffic Control Handbook.* Among other things, the handbook recommends early coordination with affected agencies to ensure that emergency vehicle access is maintained during construction activities. In this manner, emergency service personnel can plan and respond appropriately to direct the public away from Foothill Boulevard and Monte Vista Avenue as appropriate, in the event of an emergency requiring evacuation. Therefore, construction of the proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Construction impacts would be **less than significant** and no mitigation would be required.

Operation. The proposed Project includes the development of 27 single-family residential units, 20 townhouses, a 5,000-square foot building occupied by retail uses, and 15 residential flats located above the retail uses. The proposed Project would also include internal circulation, a plaza park, and a central park, three access points (two driveways on Foothill Boulevard and a driveway on Monte Vista Avenue), and a surface parking lot to accommodate patrons at the on-site retail uses. According to the *Traffic Impact Analysis* prepared for the proposed Project, forecast that the proposed Project would generate 1,089 net daily trips with 118 net trips occurring in the a.m. peak hour and 88 net trips occurring the p.m. peak hour. The *Traffic Impact Analysis* concluded that no significant transportation impacts would occur with implementation of the proposed Project. The City of Claremont in its General Plans does not officially designate any specific evacuation routes within their jurisdictions. Roads that are used as response corridors and evacuation routes usually follow the most direct path to or from various parts of the community. For the proposed Project site, the main corridors utilized would be Foothill Boulevard and Monte Vista Avenue.

The proposed Project would provide emergency access via driveways located on Monte Vista Avenue and Foothill Boulevard. According to the Fire Department Access Plan of the applicant's site plan the following would be incorporated into the design of the proposed Project:

- Fire Department truck access routes at a 26-foot width minimum for the circulation system in the Project serving the townhomes.
- Fire Department truck access routes at a 20-foot width minimum for the circulation system in the Project serving the single-family residential units.
- No parking signage and marking on internal roads that are only 26 feet wide.
- Sprinkler systems meeting NFPA 13D Compliance in R3 Occupancy rated buildings on site.
- Illuminated address numbering visible from the street (4-inch tall numbering for residential uses and 12-inch tall numbering for commercial uses).
- Fire Alarm and Detection Systems and/or water flow monitoring would be installed in new buildings. These systems would be compliant with 2016 CFC 907.1, NFPA 72 and Fire Department Standard F-5.
- Automatic fire sprinkler systems or fire alarm systems would be installed in building housing multiple tenants. The main controls and control appurtenances for these systems would be located in an attached or included room or an approved weather resistant enclosure with at least one exterior access door of dimensions not less than 3 feet by 6 feet, 8 inches.

Based on the features to be implemented as part of the Project, operation of the proposed Project would not physically interfere with or impair an adopted emergency response or emergency evacuation plan. Although these design features would be implemented to reduce the spread of wildfire (or fires) a Fire Protection Plan, Fire Master Plan, Fuel Modification Plan for the Project would need to be prepared and approved by the Fire Code Official. Without implementation of mitigation measures impacts would potentially be significant.

Mitigation Measures. The following mitigation measure shall be implemented:

4.12.1A **Fire Protection Plan.** The Project applicant/developer shall adhere to Chapter 7A of the California Building Code (CBC) and/or Section R337 of the California Residential Code (CRC). All structures in the Project shall adhere to the standards from Chapter 7A of the CBC and/or Section R337 of the CRC pertaining to roofing and venting to help prevent the intrusion of embers into structures.

Fire Master Plan. Since the proposed Project is located in an LRA VHFHSZ, the Project applicant/developer shall develop a Fire Master Plan that identifies the proper installation and maintenance of fire access roadways, the locations of fire hydrants, a sufficient water supply for adequate fire flow requirements, and emergency access to residences and structures within the Project site as required by the most current California Fire Code and City of Claremont Municipal Code.

Fuel Modification Plan. A Fuel Modification Plan shall be prepared for the proposed Project by the Project applicant/developer and reviewed and approved by the Fire Code

Official at the time of final plan submittal as the Project site is located within a LRA VFHFSZ. As part of the Fuel Modification Plan, all new buildings to be developed or installed in hazardous fire areas shall comply with the following:

- A preliminary Fuel Modification Plan shall be submitted to and approved by the Fire Code Official prior to or concurrently with the approval of the tentative map.
- A Final Fuel Modification Plan shall be submitted to and approved by the Fire Code Official prior to the issuance of the grading permit.
- The Fuel Modification Plan shall be reviewed by the Forestry Division of the Fire Department (Los Angeles County) for defensible space, fire safety and compliance with Section 325.2.1, 325.2.2, 325.10 and 503.2.1 of the Los Angeles County Code of Ordinances, the Los Angeles County Fire Department's fuel modification guidelines, and California Code of Regulations, Title 14, Division 1.5, Chapter 7, subchapter 2.
- The Fuel Modification Plan may be altered if conditions change. Any alterations to the fuel modification areas shall have prior approval from the Fire Code Official.
- All elements of the Fuel Modification Plan shall be maintained in accordance with the approval plan and are subject to the enforcement process outlined in the California Fire Code.

Impact Conclusion. Implementation of **Mitigation Measure 4.12.1A** would reduce the potential to impact an adopted emergency response plan or emergency evacuation plan. As such, impacts would be **less than significant** with implementation of **Mitigation Measure 4.12.1A.**

4.12.5.2 Risks from Pollutant Concentrations or Uncontrolled Spread from Wildfires

Thresholds	Would the proposed Project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Topography influences the movement of air, thereby directing a fire course. For example, if the percentage of uphill slope doubles, the rate of spread in wildland fire would likely double. Wind events magnify the risks of wildfire spread and have the potential to expose inhabitants of the City of Claremont to elevated pollutant concentrations from a wildfire and the uncontrolled spread of wildfire from open space areas in the foothills of the San Gabriel Mountains (north of the Project site).

The proposed Project would introduce a new development and permanent population on land that is undeveloped and does not contain any permanent residents. In its existing condition, the Project site has a relatively flat terrain with elevations ranging between 1,331 feet to 1,355 feet above mean sea level. Surrounding parcels similarly are occupied by relatively flat terrain. As previously stated, the Project site is located in an LRA VHFHSZ and the perimeter of the Grand Prix Fire (2003) came within one mile of the proposed Project.

Implementation of the proposed Project is anticipated to result in a population increase of approximately 162 people. Adjacent roads include Monte Vista Avenue and Foothill Boulevard which would serve as fire breaks in the unlikely event of the uncontrolled spread of a wildfire. Additionally,

the State Route 210 (located 0.8 mile north of the Project site) with a right-of-way width of 200 feet is expected to serve as an effective fire break for wildfire events entering Claremont to the north from the foothills and higher elevations of the San Gabriel Mountains.

As detailed in **Mitigation Measure 4.12.1A,** the Project applicant/developer is required to prepare and implement a Fire Protection Plan, Fire Master Plan, and Fuel Modification Plan all of which would reduce the change of structure ignition on the Project site in the unlikely event of a wildfire. These plans require the use of fire-resistant building materials, the construction of radiant heat walls, the selection of non-combustible plant species, and the establishment of setback areas and areas that would be permanently irrigated. Furthermore, the proposed Project would result in clearing, paving and revegetation, resulting in the unavailability of vegetative/combustible materials in areas of the Project site that would be particularly vulnerable to wildfire spread from vacant lands to the south, north, and northeast of the site.

As stated previously, the Project site is located in an LRA VHFHSZ as designated by CAL FIRE FRAP. The LRA VHFHSZ designation is applied to parcels to the south, east, and northeast of the site. The area to the northeast of the site designated as LRA VHFHSZ continues north into the foothills of the San Gabriel Mountains. Despite the LRA VHFHSZ designation of the Project site, the uncontrolled spread of a wildfire in the vicinity of the Project site is unlikely due to the existing non-combustible development and roadways and due to the fire break State Route 210 provides north of the site. Impacts of downwind pollutant concentrations from a wildfire to occupants as a result of the Project would be negligible. Therefore, due to slope, prevailing winds, location, and other factors, the proposed Project would not exacerbate wildfire risk. Impacts would be **less than significant**.

Mitigation Measures. Implementation of **Mitigation Measure 4.12.1A.**

Impact Conclusion. Impacts would be **less than significant** with implementation of **Mitigation Measure 4.12.1A.**

4.12.5.3 Fire Risk Exacerbation Due to Project Related Infrastructure Maintenance or Installation

Thresholds	Would the proposed Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Utility and infrastructure improvements as part of the Project are described in Section 3.0 Project Description of this EIR. These include connections to existing water and sewer lines in E. Foothill Boulevard, extension of sewer and water mains and laterals throughout the Project site, undergrounding of overhead electrical lines along E. Foothill Boulevard onto the Project site, and an underground infiltration system beneath the Central Park.

Although the Project would include an internal circulation system, the proposed Project does not include any changes to public or private roadways that would exacerbate fire risk or that would result in impacts to the environment. Although utilities, including water facilities, sewer facilities, storm drain lines, and power lines, would be modified and/or extended throughout the Project site, these

improvements would be underground and would not exacerbate fire risk. All utility lines, pipes, utility junction boxes, and transformers would be located underground. Project design and implementation of utility improvements would be reviewed and approved by the City of Claremont Public Works Departments as part of the Project approval process to ensure the proposed Project is compliant with all applicable fire codes, design standards and regulations.

The installation of Project-related utilities and an on-site roadway network would not exacerbate fire risk due to the Project site's location in an urban area despite being located in an LRA VHFHSZ. Furthermore, the improved connectivity of water lines would aid in fire suppression compared to existing conditions on the Project site in the event of a wildfire. The proposed Project would not require the installation or maintenance of associated infrastructure (e.g., roads, fuel breaks, emergency water sources, power lines, or other utilities) that would exacerbate fire risk or result in temporary or ongoing impacts to the environment. Impacts would be **less than significant**.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant**.

4.12.5.4 Secondary Risks Due to Post-Fire Hazards

Thresholds	Would the proposed Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff post-fire slope instability, or drainage changes?

Landslides and other forms of mass wasting, including mud flows, debris flows, and soil slips, occur as soil moves downslope under the influence of gravity. Landslides are frequently triggered by intense rainfall or seismic shaking but can also occur as a result of soil erosion and downslope runoff caused by rain following a fire. According to the California Department of Conservation[4] the Project site is not located in an area prone to landslides as the land within and adjacent to the Project site is relatively flat. The proposed Project site is located in a relatively urban setting within the City of Claremont. Some vacant land exists around the proposed Project site; however, the majority of the parcels adjacent to or near the Project site are developed with residential, commercial, institutional, or other urban uses. In the event that a wildfire should spread to the Project site, it would not expose any on-site slopes to erosion and potential failure because, as noted above, the Project site does not contain any steep slopes that are prone to landslides. The proposed Project would not expose people or structures to significant risks, including downslope landslides, as a result of runoff, post-fire slope instability, or drainage changes. There would be **no impact** to Project occupants or nearby residents or workers related to post-wildfire landslide risks.

[4] California Department of Conservation, County of Los Angeles, San Bernardino County, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | California Geological Survey | California Geological Survey, USGS, Cooper-Clark Associates. Website: https://maps.conservation.ca.gov/cgs/DataViewer/ (accessed November 18, 2019).

According to the FEMA Flood Hazard Map, the Project site is located in Zone X Area of Minimal Flood Hazard.[5] Zone X designates area of minimal flood risk and consists of the areas between the limits of the base flood and the 0.2 percent annual chance flood, or 500-year flood. The Project site is not located near a creek channel, stream channel or manmade water channel where flows generated by upstream wildfires could result in Project site inundation. In the event that a wildfire spread to the Project site, it is not expected that the Project would contribute any additional runoff or sedimentation to nearby land or downstream drainages. This is due to the lack of steep slopes prone to landslide or erosion on the Project site and the fact that the Project's drainage improvements would remain intact after a major wildfire, allowing them to continue to reduce potential for flooding conditions in downstream storm drain facilities. Therefore, downslope or downstream flooding as a result of runoff, post-fire slope instability, or drainage changes are unlikely to expose occupants or structures to significant risks. Impacts to Project occupants related to post-wildfire flooding risks would be **less than significant**.

Mitigation Measures. No mitigation measures are required.

Impact Conclusion. Impacts would be **less than significant**.

4.12.5.5 Risk to People and Structures Involving Wildland Fires

Thresholds	Would the proposed Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The proposed Project is located in an LRA VHFHSZ as designated by CAL FIRE through its FRAP. The Project would include open space in the form of on-site parks, surface parking areas for internal open space areas and retail uses, and an internal circulation system. The proposed Project would connect to existing utilities located within the Foothill Boulevard right-of-way and would underground such utilities as they are developed on the site.

As detailed in **Mitigation Measure 4.12.1A,** the Project applicant is required to prepare and implement a Fire Protection Plan, Fire Master Plan, and Fuel Modification Plan all of which would reduce the chance of structure ignition on the Project site in the unlikely event of a wildfire. These plans require the use of fire-resistant building materials, the construction of radiant heat walls, the selection of non-combustible plant species, and the establishment of setback areas and areas that would be permanently irrigated. Furthermore, the proposed Project would result in clearing, paving and revegetation, resulting in the unavailability of vegetative/combustible materials in areas of the Project site that would be particularly vulnerable to wildfire spread from vacant lands to the south, north, and northeast of the site.

With implementation of **Mitigation Measure 4.12.1A,** the proposed Project would be developed in a manner that reduces the potential for the commencement of wildfires on the property and therefore

[5] Federal Emergency Management Administration, National Flood Hazard Layer, Website: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd (accessed November 18, 2019).

would not expose nearby people or structures either directly or indirectly to a significant loss of injury or death.

Mitigation Measures. Implementation of **Mitigation Measure 4.12.1A** would reduce the potential for the proposed Project to start or be affected by a wildfire that could result in a significant loss or injury to nearby residents or structures.

Impact Conclusions. Impacts would be **less than significant** with implementation of **Mitigation Measure 4.12.1A**.

4.12.6 Cumulative Impacts

The purpose of this section is to evaluate any additional incremental impact that the proposed Project is likely to cause over and above the combined impacts of recently approved and proposed projects in the City of Claremont. As defined in the *State CEQA Guidelines*, cumulative impacts are the incremental effects of an individual project when viewed in connection with the effects of past, current, and reasonably foreseeable projects within the cumulative study area for wildfire.

For the reasons outlined above, implementation of the proposed Project would not result in a significant cumulative impact related to wildfire. The proposed Project and all related projects are required to adhere to City of Claremont, State, and federal regulations designed to reduce and/or avoid impacts related to wildfire. With compliance with these regulations, the Project would not be cumulatively considerable.

Potential impacts of the proposed Project with regard to a wildfire, when combined with the impacts of past, present, and reasonably foreseeable projects in the City of Claremont, could contribute to a cumulatively significant impact due to the increased risk of wildfire and impacts to resources and human life as a result of wildfire. However, each development application received by the City of Claremont is required to undergo environmental review pursuant to CEQA. If there were any potential for significant impacts with regard to wildfire and related risks, an investigation would be required to determine the nature and extent of the resources and identify the appropriate mitigation measures. As the proposed Project has undergone environmental review, it would not be cumulatively considerable pertaining to wildfire impacts.

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5.0 ADDITIONAL TOPICS REQUIRED BY CEQA

Section 15126 of the *CEQA Guidelines* requires that all aspects of a project must be considered when evaluating its impacts on the environment, including planning, acquisition, development, and operation. As part of this analysis, the EIR must also identify (1) significant environmental effects of the proposed Project; (2) significant environmental effects that cannot be avoided if the proposed Project is implemented; and (3) growth-inducing impacts.

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Table 5.A illustrates the significant unavoidable impacts anticipated to result from the proposed Project, even with implementation of the mitigation measures identified in the Chapter 4.0 analysis.

Table 5.A: Significant Environmental Effects That Cannot Be Avoided

Topic	Type of Impact	Details of Impact
Hazards Section 4.6	Safety hazard for people residing or working in the Project area.	The Project site is located within Safety Zone 2 and Safety Zone 4 as established by the *California Airport Land Use Planning Handbook*. The *Handbook* is used (when an established Airport Land Use Compatibility Plan is not applicable) to develop such safety zones around airports in order to promote safety for airport users as well as to promote safety and reduce hazards to nearby land uses. According to the *Handbook*, development of residential units should be avoided in Safety Zone 2 unless the project is part of an infill project or if residential densities do not exceed 1 dwelling unit per 10 to 20 gross acres. The Project is not considered an infill project and would have an estimated residential density of 12.94 dwelling units per 1 gross acre (47 residential units on 3.63 gross acres) in Safety Zone 2. Safety Zone 4 allows for low density residential development (below 1 dwelling unit per 2 to 5 gross acres); however, the proposed Project would develop an estimated residential density of 5.22 dwelling units per 1 gross acre in Safety Zone 4 (15 residential units on 2.87 acres). This would be inconsistent with the *Handbook* and would result in more residents being exposed to potential safety hazards from Cable Airport Operations. An Airport Individual Risk Analysis was prepared for the Project and concluded that there was a 27 in 1 million chance of resident injuries or deaths to occur on the site from a Cable Airport accident. Although this risk is low, it does not preclude the possibility that injuries or death could occur on the Project site from development in Safety Zone 2 or Safety Zone 4 as established by the *2011 Handbook*. **Mitigation Measures 4.6.1.A** through **4.6.1.C** would be implemented to warn residents of potential safety hazards due to residing near Cable Airport; however, these mitigation measures would not reduce the land use densities in proximity to Cable Airport to levels required to meet compatibility criteria of the *2011 Handbook*. The proposed Project includes a 150 foot wide "avigation easement" that runs the diagonal width of the Project site and that lines up with Cable Airport Runway 6/24. This area on the Project site would not be developed with buildings or tall structures; but instead, would be developed with public spaces (Park Plaza, and Central Park) with relatively short vegetation and low height light standards. This area would be devoid of development in order to accommodate an aircraft departing from Cable Airport that may need to make an emergency landing; thus reducing the chance of such

Table 5.A: Significant Environmental Effects That Cannot Be Avoided

Topic	Type of Impact	Details of Impact
		an airplane crashing into occupied buildings and potentially injuring or killing people on the site. Development of different uses at the Project site also has been considered; however, such a change in land uses would not be consistent with the objectives of the proposed Project. As no mitigation measures exist to reduce impacts to a less than significant level; implementation of the proposed Project would result in a **significant and unavoidable impact** related to safety hazards and to people residing or working in the Project area due to the close proximity of Cable Airport operations.
Transportation and Traffic, Section 4.10	VMT	The VMT per capita for the Project is 23 percent higher than the regional VMT per capita under base year conditions. The difference (+23 percent) is higher than the threshold of 15 percent as suggested in the VMT Technical Analysis memo (TA). The TA suggests a variety of potential mitigation measures that would reduce vehicle miles traveled. Some of the measures that would be incorporated by design as part of the proposed Project that are suggested by the TA include: • Improve or increase access to transit. • Increase access to common goods and services, such as groceries, schools, and daycare. • Incorporate affordable housing into the project. • Orient the project toward transit, bicycle and pedestrian facilities. • Provide bicycle parking. • Limit or eliminate parking supply. • Providing on-site amenities at place of work, such as priority parking for carpools and vanpools, secure biking parking, and showers and locker rooms. Even with such design features implemented as part of the Project the VMT of the proposed Project would still exceed the 15 percent threshold as suggested by the TA. Other potential mitigation measures suggested by the TA are aimed at regional conditions and would not be applicable to the proposed Project. The proposed Project would be inconsistent with *CEQA Guidelines* Section 15064.3. The design features incorporated into the proposed Project would not reduce impacts associated with the conflict and inconsistency; therefore, impacts would be significant and unavoidable.

Source: Summary of EIR Sections 4.6 and 4.10

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126(c) of the *CEQA Guidelines* mandates that the EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented. An impact would fall into this category if it resulted in any of the following:

- The Project would involve a large commitment of non-renewable resources;
- The primary and secondary impacts of the Project would generally commit future generations of people to similar uses;

- The Project involves uses in which irreversible damage could result from any potential environmental incidents associated with the Project; and/or
- The proposed consumption of resources is not justified (e.g., the Project could waste energy).

Determining whether the proposed Project may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of restoring them.

Natural resources in the form of construction materials would be utilized in the construction of the proposed Project, and energy resources in the form of electricity and natural gas would be used during the long-term operation of the Project; however, their use is not expected have a negative impact on the availability of these resources.

The Project site has been designated as "Other Land" by the California Department of Conservation (see Appendix A1 Initial Study) and no agricultural production is occurring on the Project site. The California Geological Survey and the Claremont General Plan do not identify the Project site as a suitable area for the extraction of aggregate and other materials. As such, the Project site is not designated as a potential area for mineral resources or mining. The development of the proposed Project would preclude any future use of the site for agricultural production or mineral extraction activities. Since the site is not designated for agricultural use or mineral extraction, development of the Project would not result in the loss of a site for such activities and would not be considered permanent and irreversible.

The conversion of the site from undeveloped to developed uses has been previously considered by the City of Claremont through their designation of the site for commercial development in its General Plan. A *Biological Resources Assessment* (BRA) has been prepared to inventory on-site conditions and identify potential resource impacts. The potential impacts to biological resources, including sensitive habitat and species, have been reduced to a less than significant level though implementation of **Mitigation Measure 4.2.5.4A.** The site is disturbed and isolated from other natural areas. The natural vegetation on site is highly degraded. Nonetheless, the removal of existing vegetation, modification of topography, and subsequent development represents a permanent and irreversible change in the visual character of the site and Project area.

A *Cultural Resources Assessment* (CRA) was prepared for the proposed Project to determine if potential impacts to cultural resources would occur with implementation of the proposed Project. In order to identify and evaluate such resources, the CRA documents a historical/archaeological resources records search, historical background research, and an intensive-level field survey that was carried out. The research indicated that a segment of former Route 66 (now Foothill Boulevard) adjacent to the Project was evaluated by Caltrans in 2010 as lacking sufficient integrity to contribute to the significance of Route 66 as a whole and was not a "historical resource" under CEQA. The CRA also analyzed the identification of several previously undocumented archaeological resources; however, the CRA did not encounter any "historical resources" as defined by CEQA within the Project area and the value of the resources within the Project parcels has been realized by current recordation. The Project site has been disturbed by development, chronic dumping, and erosion. However, the proximity of a historically renowned archaeological site and location within the former

drainage of a major water course indicates the Project parcels have some sensitivity for subsurface prehistoric conditions. In order to reduce potential impacts to undiscovered subsurface prehistoric artifacts, **Mitigation Measure 4.3.1A** would be implemented, which would reduce impacts to a less than significant level. Nonetheless, the potential discovery of undiscovered subsurface prehistoric artifacts during Project construction activities represents a permanent and irreversible change to cultural resources that could be potentially located on the Project site.

5.3 GROWTH-INDUCING IMPACTS

A proposed General Plan Amendment would amend the land use designation on the 6.5-acre site from "Commercial" to "Specific Plan Overlay." This designation would allow for a mix of residential and compatible office and retail/service uses integrated as one cohesive development. In total, the proposed Project would include the development of 27 single-family residential units, 20 townhomes, 15 residential flats, 5,000 square feet of retail space, and over an acre of open space.

The proposed zone change on the 6.5 acres of the site to "SP16 - Specific Plan Area 16" would provide greater specificity and flexibility in carrying out the General Plan of the City. Implementation of the General Plan Amendment and zone change would accurately define the residential land uses, as proposed, in order to facilitate a more streamlined development schema integrating the residential uses into the surrounding community pursuant to Article 8 of Chapter 3 of Title 7 of the Government Code (Section 65450 and following), Chapter 16.081 (SP Specific Plan District), and Chapter 16.318 (General Plan Amendments) of the Claremont Municipal Code.

The proposed change in land use designations requiring an amendment to Claremont's General Plan is expected to result in a less intense occupation of the site than under the approved commercial land use. The Project site was previously entitled for development as a commercial use, which would generate approximately 300 employees within Claremont, and would result in a negligible increase in population even if every employee were to move to the area.[1]

The latest statistical figures published by SCAG for the Cities' average household size assumes 2.6 persons per housing unit for Claremont.[2] Sixty-two dwelling units are proposed Claremont so the proposed Project could increase Claremont's population by approximately 162 persons[3]. Additionally, development of 5,000 square feet of retail in Claremont would add approximately 10 employees to the City.[4] If the proposed increase in population were compared to the anticipated population increase from the approved land use, development of the site would result in fewer people on site under the proposed General Plan Amendment and conversion of the land use from commercial to mixed-use. Development of the site would not result in construction or occupation at a location or

1 *Claremont Commons, File #08-A13. City of Claremont Mitigated Negative Declaration.* Page 45. City of Claremont. July 20, 2009.
2 *Profile of the City of Claremont.* Southern California Association of Governments Local Profiles Report 2019. May 2019.
3 2.6 persons/dwelling unit × 62 units = 161.2 persons in Claremont.
4 *Employment Density Study Summary Report*. Table 4B. Southern California Association of Governments. October 31, 2001. (5,000 square feet of proposed retail ÷ 511 square feet of retail/services in Los Angeles County per employee = 9.78 employees.)

intensity not previously anticipated by the City. Therefore, no potential indirect or direct overburdening of community infrastructure and service capacity is expected to occur.

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6.0 ALTERNATIVES

6.1 INTRODUCTION

An EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment. In compliance with CEQA;[1] an EIR must describe "a range of reasonable alternatives to the project, or to the location of the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project." The EIR need not consider every conceivable alternative; rather, it must consider a reasonable range of potentially feasible alternatives to the project even if "these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[2] The discussion of project alternatives must "include sufficient information about each [alternative] (to) allow meaningful evaluation, analysis, and comparison with the proposed project." An EIR must evaluate a "No Project" alternative in order to allow decision-makers to compare the effect of approving the project to the effect of not approving the project.

The City of Claremont, acting as the CEQA Lead Agency, is responsible for selecting a range of Project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives addressed in an EIR is governed by a "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. Of the alternatives considered, the EIR needs to examine in detail only those the Lead Agency determines could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. "Feasible" has been defined as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."[3]

6.1.1 Summary of the Proposed Project

The Project is a proposed planned residential/mixed-use development located near the northwest corner of Foothill Boulevard and Monte Vista Avenue on 6.5 acres adjacent to the boundary between the Cities of Claremont and Upland. The Project includes the following City of Claremont actions: General Plan Amendment (18-GPA02); General Plan Text Amendment; Specific Plan (The Commons Specific Plan, 18-SP01), Zone District Change (18-CA02), Tentative Tract Map approval (TTM 82135), Design Review (18-ARA08), and Certification of the Project EIR.

Assessor's Identification Number (AIN) 8307-003-066 encompasses approximately 7.92 acres north of Foothill Boulevard in the City of Claremont. The Project includes a Tentative Tract Map (TTM 82315), which proposes to subdivide this existing parcel into lots for the Armstrong Garden Center and for the proposed single-family residential uses, townhome uses, commercial component, and public streets within The Commons Specific Plan (Specific Plan). The Specific Plan area encompasses 6.5 acres. The proposed lot of 1.44 acres hosting the Armstrong Garden Center is not included in the Specific Plan. Because the Commons Project envisions a unified design and community vision, unless stated

1 CEQA *Guidelines* Section 15126.6(a).
2 *CEQA Guidelines* Section 15126.6(b).
3 *CEQA Guidelines* Section 15364.

otherwise in this EIR, the terms: Project, Project site, proposed Project, and/or site shall refer to the development and area within the 6.5 acres and **excludes** the Armstrong Garden Center.

The proposed Project would result in the development of 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on a 6.5-acre site. The Project will include the development of an internal circulation system with three access points (two driveways off Foothill Boulevard and a driveway off Monte Vista Avenue) and more than 1 acre of park/open space use. The park/open space use will include parks, common area landscaping, pedestrian paths, picnic area, and public seating. A surface parking lot for the on-site retail space will be included on the southwestern portion of the Project site.

6.1.2 Project Objectives

The City of Claremont's primary Project objective is the development of the site with uses that are consistent with the policies and development guidelines established by the City. The City has identified the General Plan Goals applicable to development of the Project:

- Promote and encourage sustainable development, incorporating green practices, on vacant sites within a built up area. (LU Goal 2-1)
- Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes. Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community. (LU Goal 2-2, H Goal 8-3)
- Promote high quality architecture for new development. (LU Goal 2-5)
- Provide a variety of park facilities that meet the diverse needs and interests of the community. (OS Goal 5-9)
- Continue to require public art as part of new development projects and encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City. (LU Goal 2-5, 2-7)
- Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses. Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development. (LU Goal 2-15)
- Create distinctive gateways at all entry points into Claremont. (LU Goal 2-7)
- Encourage development that increases the City's economic base. (ED Goal 3-1)
- Encourage a high-quality project at what is now a long-term vacant site at the entry to the City.
- Establish a cohesive, contemporary, and innovative design character for the Project site that would be unique to the City of Claremont.

In order to promote primary objectives of ensuring a cohesive, attractive, and unique development, the proposed Project identifies the following "Guiding Principles" to provide a broad framework and direction for the site plan and building design:

- Provide a community that meets current and future housing demands on a highly accessible site located near major roads.
- Ensure compatibility with neighboring existing commercial areas and with future institutional and residential uses.
- Create a walkable environment and a definable sense of place.
- Create special places such as a large open space spine and central plaza.
- Provide for infill residential development on a vacant property.
- Emphasize distinct features of site and surroundings to create a unique, mixed-use neighborhood.
- Provide diversity in product mix design to target a variety of age groups.

6.1.3 Summary of the Proposed Project's Significant Impacts

The analysis provided in Section 4.0 determined that, despite the implementation of mitigation measures, significant environmental impacts would result from the construction and operation of the proposed Project. To satisfactorily provide the CEQA-mandated alternatives analysis, the alternatives considered must reduce or eliminate one or more of the Project-related significant impacts described in Table 6.A.

Table 6.A: Significant Environmental Effects That Cannot Be Avoided

Type of Impact	Details of Impact
Hazards and Hazardous Materials, Section 4.6	
Airport Safety Hazards	The Project site is located within Safety Zone 2 and Safety Zone 4 as established by the *California Airport Land Use Planning Handbook*. The *Handbook* is used (when an established Airport Land Use Compatibility Plan is not applicable) to develop such safety zones around airports in order to promote safety for airport users as well as to promote safety and reduce hazards to nearby land uses. According to the *Handbook*, development of residential units should be avoided in Safety Zone 2 unless the project is part of an infill project or if residential densities do not exceed 1 dwelling unit per 10 to 20 gross acres. The Project is not considered an infill project and would have an estimated residential density of 11.73 dwelling units per 1 gross acre. Safety Zone 4 allows for low density residential development (below 1 dwelling unit per 2 to 5 gross acres); however, the proposed Project would develop an estimated residential density of 7.1 dwelling units per 1 gross acre in Safety Zone 4. This would be inconsistent with the *Handbook* and would result in more residents being exposed to potential safety hazards from Cable Airport Operations. An Airport Individual Risk Analysis was prepared for the Project and concluded that there was a 27 in 1 million chance of resident injuries or deaths to occur on the site from a Cable Airport accident. Although this risk is low, it does not preclude the possibility that injuries or death could occur on the Project site from development in Safety Zone 2 or Safety Zone 4 as established by the *2011 Handbook*. **Mitigation Measures 4.6.1.A** through **4.6.1.C** would be implemented to warn residents of potential safety hazards due to residing near Cable Airport; however, these mitigation measures would not reduce the land use densities in proximity to Cable Airport to levels required to meet compatibility criteria of the *2011 Handbook*. The proposed Project includes a 150 foot wide "avigation easement" that runs the diagonal width of the Project site and that lines up with Cable Airport Runway 6/24. This area on the Project site would not be developed with buildings or tall structures; instead, would be developed with public spaces (Park Plaza, and Central Park) with relatively short vegetation and low height light standards. This area would be devoid of buildings in order to accommodate an aircraft departing from Cable Airport that may need to make an emergency landing; thus reducing the chance

Table 6.A: Significant Environmental Effects That Cannot Be Avoided

Type of Impact	Details of Impact
	of such an airplane crashing into occupied buildings and potentially injuring or killing people on the site. Development of different uses at the Project site also has been considered; however, such a change in land uses would not be consistent with the objectives of the proposed Project. As no mitigation measures exist to reduce impacts to a less than significant level; implementation of the proposed Project would result in a **significant and unavoidable impact** related to safety hazards and to people residing or working in the Project area due to the close proximity of Cable Airport operations.
Transportation and Traffic, Section 4.10	
Transportation	The OPR TA on Evaluating Transportation Impacts in CEQA for residential project states: "Recommended threshold for residential projects: A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measures as regional VMT per capita or as City VMT per capita." The VMT per capita for the Project is 23 percent higher than the regional VMT per capita under base year conditions. The difference (+23 percent) is higher than the threshold of 15 percent below the regional baseline as suggested in the VMT Technical Analysis memo (TA). The TA suggests a variety of potential mitigation measures that would reduce vehicle miles traveled. Some of the measures that would be incorporated by design as part of the proposed Project that are suggested by the TA include: • Improve or increase access to transit. • Increase access to common goods and services, such as groceries, schools, and daycare. • Incorporate affordable housing into the project. • Orient the project toward transit, bicycle and pedestrian facilities. • Provide bicycle parking. • Limit or eliminate parking supply. • Providing on-site amenities at place of work, such as priority parking for carpools and vanpools, secure biking parking, and showers and locker rooms. Even with such design features implemented as part of the Project the VMT of the proposed Project would still exceed the 15 percent below regional baseline threshold as suggested by the TA. Other potential mitigation measures suggested by the TA are aimed at regional conditions and would not be applicable to the proposed Project. The proposed Project would be inconsistent with *CEQA Guidelines* Section 15064.3. The design features incorporated into the proposed Project would not reduce impacts associated with the conflict and inconsistency; therefore, impacts would be **significant and unavoidable**.

6.2 ALTERNATIVES CONSIDERED BUT REJECTED

In determining an appropriate range of alternatives to be evaluated in the EIR, several possible alternatives were considered by the City of Claremont and rejected because they could not accomplish the basic objectives of the Project as detailed in Section 6.1.2; were considered infeasible, or would not reduce the significant impacts of the proposed Project. Factors that may be considered when addressing the feasibility of alternatives include failure to meet most of the stated project objectives, infeasibility, or inability to avoid environmental effects.[4]

[4] *CEQA Guidelines* Section 15126.6(c).

The primary objective of the Project is to provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and open space uses that will revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, sustainable economic development, incorporate new, high quality development on vacant sites, and a variety of housing types that respond to the needs of residents of all age ranges and incomes. During the EIR process, potential alternatives for developing the site were considered, resulting in the feasible alternatives identified and analyzed in Section 6.3 and Section 6.4.

The following development alternative in Section 6.2.1 for the 6.5-acre site were initially considered. This alternative was rejected because (1) the site would not remain unoccupied as it is slated to be developed per the City of Claremont whether or not the proposed Project is approved; (2) the alternative would not meet any of the primary Project objectives; (3) the applicant does not own or control other properties and therefore would not be able to develop a project on them; and (4) other sufficiently sized properties with similar access to and visibility from Foothill Boulevard are not available within the City of Claremont.

6.2.1 Off-site Alternative

Some of the factors to be considered when determining the feasibility of alternatives (including an off-site alternative) include site suitability, economic viability, availability of infrastructure, General Plan consistency, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site.[5] It is reasonable to conclude that development of the proposed uses on any alternative site would result in the same level of traffic, air pollutant and greenhouse gas emissions, public service utilization, and public utility demand as the proposed Project. The primary consideration of an alternative site would be the reduction of potential impacts associated with the site's proximity to Cable Airport which includes safety and the effects of VMT.

The proposed Project would result in the development of 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on a 6.5-acre site. Cumulative development in the Project area has been previously detailed in Section 2.9 of this EIR. Cumulative development in the Project area includes:

- Claremont McKenna Master, Claremont and Upland (institutional and sports complex);
- Harvest and Arbor Square, Upland (residential);
- Enclave Specific Plan, Upland (residential); and
- Harvey Mudd College Master Plan Amendment, Claremont (institutional).
- Proposed 48 Affordable Townhome Project, Upland.

Development on these sites has been approved by or are being reviewed as applications by the Cities of Claremont or Upland; therefore, these sites are not available as an alternative site to the Project. In the Project vicinity, property sufficiently sized to accommodate the Project includes Rancho Santa

[5] The parcel that is south of the site, beyond Foothill Boulevard, has been environmentally cleared for development pertaining to the Claremont Colleges East Campus Project. As such, this specific parcel will be developed in the near future and will no longer be vacant

Ana Botanical Garden and the Claremont Golf Course. The applicant does not own or control these properties. Other sufficiently sized properties with similar access to and visibility from Foothill Boulevard are not available within either City; therefore, an off-site alternative was not further considered.

6.3 DEVELOPMENT OF PROJECT ALTERNATIVES

The following alternatives have been identified and evaluated to provide City of Claremont decision-makers with a reasonable range of alternatives that would eliminate or reduce the impacts of the Project. Factors considered in selecting the alternatives include site suitability, availability of infrastructure, other plans or regulatory limitations, economic viability, and whether the Project proponent can reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote or speculative. The alternatives considered in this EIR (Table 6.B) include those that 1) could accomplish most of the basic objectives of the Project (with the exception of the No Project/No Build Alternative), 2) are reasonably feasible given the nature of the Project and surrounding land uses (with the exception of the No Project/No Build Alternative), and 3) could avoid or substantially lessen one or more of the significant impacts of the Project.

Table 6.B: Description of Analyzed Alternatives

Project Alternative	Alternative Description
Alternative 1: No Project/No Build	The "no project/no build" alternative (Alternative 1: No Project/No Build) is the circumstance under which the project does not proceed. In certain instances, the no project alternative can mean "no build," in which case the existing environmental conditions on-site would be maintained and remain the same. Under Alternative 1, the site would remain in its current condition. No new building, improvements, or ground disturbance would occur. The proposed discretionary actions (e.g., General Plan Amendments, Zone Change) would not be required. None of the short- or long-term impacts associated with the proposed Project would occur.
Alternative 2: No Project, Existing General Plan and Zoning Approved Commercial/ Office Project.	Under Alternative 2, the site would be developed based on the existing Claremont General Plan land use and zoning designations. The site has a land use designation of Commercial and zoning classification of Commercial Highway (CH). The site could be built out in accordance with an approved commercial/office development. Alternative 2 would include the development of up 70,800 square feet of office uses in four, two-story buildings, and 14,000 square feet of retail in two, single-story buildings.
Alternative 3: Reduced Density	Alternative 3 would develop the 6.5-acre Project site with the 5,000 square feet of commercial uses but reduces the density of the residential potion of the Project to 8.2 units per acre. Alternative 3 would allow for development of up to a total of 38 townhouses, 5,000 square feet of commercial and 15 residential flats over the commercial use. The linear park/open space proposed with the Project would be maintained.
Alternative 4: Business Park	To be compatible with the surrounding land uses within Claremont and Upland, Alternative 4 proposes 141,570 square feet of business park uses on 6.5 acres. The existing avigation easement would be used as a parking area for the buildings to maintain a 150-foot setback for the buildings as safety area for the Cable Airport. Development under this alternative would require a General Plan Amendment to Business Park and a Zone Change to B/IP (Business/Industrial Park District). Claremont's General Plan Business Park designation provides locations for well-designed business and employment centers developed with uses consisting of professional offices, research/development businesses, laboratories, light

Table 6.B: Description of Analyzed Alternatives

Project Alternative	Alternative Description
	manufacturing, and supportive commercial uses. The corresponding B/IP zone is intended to provide for a variety of professional and office uses, restricted industrial uses primarily engaged in research and testing, or in light manufacturing and the treatment of materials, that will maintain and enhance employment opportunities in the community. Business park developments should offer attractive and distinctive architectural design, innovative site planning, and landscaping.

6.4 ALTERNATIVES ANALYSIS

The following sections evaluate and compare the impacts of the alternatives to the proposed Project by each environmental topic presented in Section 4.0 of this EIR. Sections 6.5 and 6.6 summarize the impacts of each alternative and determine if or to what degree each one would achieve the objectives of the Project and identify the environmental superior alternative, respectively. Tables 6.C through 6.F provide a comparison between the proposed Project and the alternatives related to traffic, air quality emissions, greenhouse gas emissions, and energy demand/consumption.

Table 6.C: Comparison of Peak Hour and Daily Trips

Alternative	Uses	Peak Hour		Average Daily
		A.M.	P.M.	
Proposed Project[1]	27 single-family dwelling units 20 townhomes 15 flats 5,000 sf Retail/Commercial	118	88	**1,089**
Alternative 1: No Project/No Build	No Uses- Site Remains Vacant	0	0	**0**
Percent Change of ADT Between Project and Alternative 1		-100%	-100%	**-100%**
Alternative 2: No Project, Existing General Plan and Zoning	14,000 sf Retail/Commercial 70,800 sf Business/Office	159	165	**1,732**
Percent Change of ADT Between Project and Alternative 2		+35%	+88%	**+59%**
Alternative 3: Reduced Density	5,000 sf Commercial/Retail 15 Residential Flats 38 Multifamily Residential du	85	50	**664**
Percent Change of ADT Between Project and Alternative 3		-28%	-43%	**-39%**
Alternative 4: Business Park	141,570 sf Business Park	57	59	**1,761**
Percent Change of ADT Between Project and Alternative 4		-51%	-32%	**+62%**

Source: LSA, November 2019. du = Dwelling units. sf = square feet
Notes: [1] For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project

Table 6.D: Comparison of Operational Air Pollutant Emissions

Alternative	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Proposed Project	**3.45**	**7.19**	**21.57**	**0.06**	**5.02**	**1.42**
SCAQMD Thresholds	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**

Table 6.D: Comparison of Operational Air Pollutant Emissions

Alternative	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Alternative 1: No Project/No Build No Uses-Site Remains Vacant	0	0	0	0	0	0
Percent Change of Air Pollutant Emissions Between Project and Alternative 1	**-100%**	**-100%**	**-100%**	**-100%**	**-100%**	**-100%**
Alternative 2: No Project; Existing General Plan and Zoning 14,000 sf Retail/Commercial 70,800 sf Business/Office	14.11	47.06	114.71	0.39	31.28	8.59
Percent Change of Air Pollutant Emissions Between Project and Alternative 2	**+309%**	**+555%**	**+432%**	**+550%**	**+523%**	**+505%**
Alternative 3: Reduced Density 5,000 sf Commercial/Retail 15 Residential Flats 38 Multifamily Residential du	1.12	2.70	8.20	0.02	1.76	0.52
Percent Change of Air Pollutant Emissions Between Project and Alternative 3	**-68%**	**-62%**	**-62%**	**-67%**	**-65%**	**-63%**
Alternative 4: Business Park 141,570 sf Business Park	7.65	15.45	42.54	0.15	12.63	3.50
Percent Change of Air Pollutant Emissions Between Project and Alternative 4	**+122%**	**+115%**	**+97%**	**+150%**	**+152%**	**+146%**

Source: LSA, November 2019.
CO = carbon monoxide lbs/day = pounds per day NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District SO_2 = sulfur dioxide VOC = volatile organic compounds

Table 6.E: Comparison of Operational GHG Emissions (unmitigated)

Alternative	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Proposed Project[1] 27 Single-family residential du 20 townhomes 15 Flats 5,000 sf Retail/Commercial	12.14	1,065.36	1,077.50	0.82	0	1,100.21
Alternative 1: No Project/No Build No Uses – Site Remains Vacant	0	0	0	0	0	0
Percent Change of GHG Emission Between Project and Alternative 1	**-100%**	**-100%**	**-100%**	**100%**	**100%**	**-100%**
Alternative 2: No Project; Existing General Plan and Zoning 14,000 sf Retail/Commercial 70,800 sf Business/Office	14.47	5,816.17	5,830.65	1.39	0.01	5,871.74
Percent Change of GHG Emission Between Project and Alternative 2	**+19%**	**+446%**	**+441%**	**+70%**	**—**	**+434%**
Alternative 3: Reduced Density 5,000 sf Commercial/Retail 15 Residential Flats 38 Multifamily Residential du	3.47	1,139.36	1,142.83	0.31	0.00	1,152.72
Percent Change of GHG Emission Between Project and Alternative 3	**-71%**	**7%**	**6%**	**-62%**	**—**	**+5%**

Table 6.E: Comparison of Operational GHG Emissions (unmitigated)

Alternative	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e
Alternative 4: Business Park 141,570 sf Business Par use	67.26	2,813.43	2,880.69	4.77	0.04	3,014.52
Percent Change of GHG Emission Between Project and Alternative 4	**+454%**	**+164%**	**+167%**	**+482%**	**--**	**+174%**

Source: LSA, November 2019.
Notes: For conservative analytical purposes, trips from the potential development of the adjacent cumulative project with 48 townhomes within the City of Upland adjacent to the east/southeast are being consolidated with the Project trips since that project is expected to come on line at or near the same time as the Project and is immediately adjacent to the Project.
Bio-CO_2 = biologically generated CO_2 | CH_4 = methane | CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent | MT/yr = metric tons per year | N_2O = nitrous oxide
NBio-CO_2 = non-biologically generated CO_2 | SCAQMD = South Coast Air Quality Management District

Table 6.F: Comparison of Energy Usage (unmitigated)

Alternative	Electricity		Natural Gas	
	Usage Rates[1] kWh/size/yr	Annual Usage (kWh/year)	Usage Rates[2] kBtu/size/yr	Annual Usage (kBtu/yr)
Proposed Project 27 Single-family residential du 20 Townhomes 15 Residential Flats 5,000 sf Retail/Commercial	—[3]	465,522	—[3]	1,351,194
Alternative 1: No Project/No Build No Uses – Site Remains Vacant	—	0	—	0
Alternative 1 Total (Percent Change of Energy between Alternative 1 and Project)		**0 (-100%)**	**—**	**0 (-100%)**
Alternative 2: No Project; Existing General Plan and Zoning 14,000 sf Retail/Commercial 70,800 sf Business/Office	 13.05 12.95	 1,443,840 801,467	 1.64 10.41	 172,706 614,719
Alternative 2 Total (Percent Change of Energy between Alternative 2and Project)		**2,235,307 (+380%)**		**787,425 (-42%)**
Alternative 3: Reduced Density 5,000 sf Commercial/Retail 15 Residential Flats 53 Multifamily du	 13.05 5,039.94	 67,500 393,115	 1.64 17,176.56	 8,200 1,339,770
Alternative 3 Total (Percentage Change of Energy between Alternative 3 and Project)		**460,615 (-1%)**		**1,347,970 (-0.2%)**
Alternative 4: Business Park Alternative 141,570 sf Business Park use	10.72	2,636,682	4.84	2,656,390
Alternative 4 Total (Percentage Change of Energy between Alternative 4 and Project)		**2,636,682 (+466%)**		**2,656,390 (+97%)**

kWh: Kilowatt hour | kBtu: 1,000 British Thermal Units
du: dwelling units

1. CalEEMod rates for Los Angeles-San Bernardino area: 5,039.94 kWh/condominium-townhouse/year, 13.05 kWh/shopping center/ year, 12.95 kWh/general office building/year, and 11.10 kWh/light industrial warehouse/year of electricity.
2. CalEEMod rates for Los Angeles -San Bernardino area: 17,176.56 kBtu/condominium-townhouse/year, 1.64 kBtu/shopping center/ year, 10.41 kBtu/general office building/year, and 18.10 kBtu/light industrial warehouse/year of natural gas. 1,000 BTUs is equivalent to one cubic foot.
3. Per *Air Quality/Greenhouse Gas Impact Analysis*, LSA, 2019. (Appendix B)

6.4.1 Alternative 1: No Project/No Build

The No Project/No Build Alternative refers to a "no build" condition in which the existing environmental setting on the site is maintained. Under this alternative, no development or modification of the site would occur. The site would be retained in its current condition for the foreseeable future. No roadway, utility, or storm water features would be installed on the site and the proposed discretionary actions (e.g., General Plan Amendment, Zoning Change, Tract Map, and Specific Plan) would not be required nor would they occur. The site would remain undeveloped.

Alternative 1 Impacts to Resource Topics That Are Similar to the Proposed Project

As the site would remain vacant and undeveloped, the site is not designated as Important Farmland or Timberland, is not under agricultural/forestry production and is not zoned for agricultural/forestry uses. No Williamson Act Contract is in effect on the property. Therefore, similar to the Project, no impact to agricultural and forestry resources would result this alternative.

The following subsections focus on resource topic impacts that differ between Alternative 1 and the proposed Project.

Aesthetics. The proposed Project would develop urban uses (residential and retail uses and ancillary features) on a site that is currently vacant. While the visual characteristics of the site would change, such changes are generally consistent with existing pattern of development east, west, northwest, southwest, and southeast of the site. The on-site uses would be designed and constructed consistent with the development standards established by the cities of Claremont. As such, the aesthetic impacts of the Project would be less than significant.

Under this alternative, the site would remain vacant and undeveloped. No change in the visual characteristics of the site would occur. This would continue a pattern of uses similar to vacant parcels to its north, east, and its south. Views to and through the site would be unchanged for persons traveling along adjacent streets, students at Claremont Colleges, employees at surrounding business park, commercial, and nearby retail uses. While the site improvements (e.g., project entry signage, public art, landscaping) would not be realized under this alternative, no aesthetic impact would occur under Alternative 1.

No impact to aesthetics would occur with implementation of Alternative 1. A less than significant impact to aesthetics would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact to aesthetics than Alternative 1.

Air Quality. The proposed Project would generate both construction and operational air quality emissions; however, such emissions would not exceed air quality standard; therefore, project-related air-quality impacts were determined to be less than significant.

As established in Tables 6.C and 6.D, because no development would occur under Alternative 1, the pollutants generated during the construction or operation of the Project would not occur. Compared to the Project, the absence of any pollutant emissions under this alternative would reduce the level of air quality emissions generated in the South Coast Air Basin; therefore, the effect on air quality under this alternative would be proportionally reduced.

No impact to air quality would occur with implementation of Alternative 1. A less than significant impact to air quality would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact to air quality than Alternative 1.

Biological Resources. While development of the site would potentially impact on-site and off-site biological resources; mitigation measures to address potential impacts to nesting birds have been identified to reduce the level of impact to a less than significant level with mitigation.

Under Alternative 1, the site would remain vacant and undeveloped and would neither disrupt nor displace any on-site biological resource. The Project's potential impacts to nesting birds would not occur under this alternative; therefore, compared to the Project, the biological resource impacts under this alternative are reduced.

Cultural Resources. While no cultural resource has been identified on-site, development of the Project would require excavation and construction activities could expose previously unknown cultural material. Mitigation requiring pre-construction training, archeological monitoring of ground-disturbing activities, the establishment of exclusionary buffers, resource evaluation, and reporting of cultural materials (if any) discovered on-site have been identified. The implementation of these measures would reduce potential impacts to less than significant levels.

As the Project's ground-disturbing activities would not occur under this alternative, there would be no potential to impact any unknown cultural material. Compared to the Project, the potential cultural resource impact associated with this alternative would be reduced.

Energy. The Project would not create a significant impact resulting from the consumption of energy nor obstruct an established renewable energy or energy efficiency plan.

Energy resources would not be consumed with implementation of Alternative 1, as no development would occur on the site under this alternative. As such, no impact to energy would occur with implementation of Alternative 1. The proposed Project would require 465,522 kWh/year of electricity and 1,351,194 kBtu/year of natural gas all of which could be provided by existing supplies. Impacts to energy resources under the proposed Project were determined to be less than significant.

No impact to energy resources would occur with implementation of Alternative 1. A less than significant impact to energy resources would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on energy resources than Alternative 1.

Geology and Soils. Alternative 1 would not implement development on the site for the foreseeable future. As such, the site would not be disturbed due to construction and excavation activities. There would be no structures on the site under Alternative 1 that could be exposed to geological hazards such as earthquakes, subsidence, liquefaction, and corrosive soils. Implementation of Alternative 1 would have no impact pertaining to geology and soils as nothing will be developed on the site. The proposed Project would disturb onsite soil and would have the potential to expose onsite structures to geological and soil hazards. Best Management Practices (BMPs), and compliance with the City of Claremont municipal code related to grading would ensure that impacts would be less than significant.

No impact to geology and soils would occur with implementation of Alternative 1. A less than significant impact to geology and souls would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on geology and soils than Alternative 1.

Greenhouse Gas Emissions. No development would occur onsite for the foreseeable future with implementation of Alternative 1. As such, the site would remain vacant and no construction would occur on the site that would generate greenhouse gas emissions. Alternative 1 would not contribute to existing vehicular trips and would not include any development; as such, operational activities generating greenhouse gas emissions would not occur. No impact would occur to greenhouse gas emissions with implementation of Alternative 1. Implementation of the proposed Project would generate greenhouse gas emissions during construction and operational activities. However, the greenhouse gas emissions generated by the Project would not exceed threshold standards. Impacts to greenhouse gas emissions would be less than significant with implementation of the proposed Project.

No impact to greenhouse gas emissions would occur with implementation of Alternative 1. A less than significant impact to greenhouse gas emissions would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on greenhouse gas emissions than Alternative 1.

Hazards and Hazardous Materials. As no development would occur onsite with implementation of Alternative 1, construction and operational activities would not use or potentially release hazardous materials into the surrounding environment. Under Alternative 1, no structures would be developed onsite; as such, Alternative 1 would not create hazards relating to Cable Airport Operations. Furthermore, Alternative 1 would not expose onsite residents/occupants to potential accidents and hazards from Cable Airport operations. No impact pertaining to hazards and hazardous materials would occur with implementation of Alternative 1.

Construction of the proposed Project would include the routine transportation, use, and disposal of construction-related hazardous materials such as fuels, oils, solvents, and other materials. These materials are typical of materials delivered to construction sites and do not constitute a significant hazard to the public or environment. Best Management Practices (BMPs) would be implemented to ensure a less than significant impact. Potential hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products may be used and/or stored on site during operation of the proposed project; however, only small quantities of these materials are expected to be used during construction, so they are not considered hazardous to the public at large. The Project site is located within Safety Zone 2 and Safety Zone 4 as established by the California Airport Land Use Planning Handbook. Analysis in the EIR determined that development of the proposed Project in Safety Zones 2 and 4 would result in a hazard to onsite structures and occupants that cannot be mitigated. As such impacts were determined to be significant and unavoidable.

As Alternative 1 would not include development, onsite structures and occupants would not be exposed to hazards or hazardous materials and Alternative 1 would not expose surrounding uses to hazards or hazards materials. No impact to hazards and hazardous materials would occur with implementation of Alternative 1. A significant and unavoidable impact pertaining to airport hazards

would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on hazards and hazardous materials than Alternative 1.

Hydrology and Water Quality. Alternative 1 will not disturb the site as no development will occur. As such, Alternative 1 would not disturb the existing hydrological feature on the site, would not result in changes to site drainage, nor generate pollutants that could degrade existing water quality in the area. No impact to hydrology and water quality would occur with implementation of Alternative 1. The proposed Project would include development and therefore would decrease the permeability of the site. Hydrological conditions would change due to Project implementation and drainage patterns would also change on the site. Since permeability on the site will decrease, there is potential that nominal quantities of pollutants could be drained off site and increase the degradation of groundwater and surface water quality in the area. However, Best Management Practices (BMPs) would be implemented during Project construction and operation to reduce such potential impacts. With BMPs in place, impacts to hydrology and water quality would be less than significant with implementation of the proposed Project.

No impact to hydrology and water quality would occur with implementation of Alternative 1. A less than significant impact to hydrology and water quality would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on hydrology and water quality than Alternative 1.

Land Use. The site is designated as Commercial under the City of Claremont General Plan and zoned as Commercial Highway under the Claremont Zoning Code. Implementation of Alternative 1 would result in no project and no development occurring on the site. Vacant land is permitted under the General Plan and Zoning designations; therefore, Alternative 1 would be consistent with the City's General Plan and Zoning designations. Both the proposed Project and Alternative 1 would have a less than significant impact on land use. The intensity of the land use impact associated with Alternative 1 would be the same as the intensity of the impact associated with implementation of the proposed Project.

Mineral Resources. The site is not located in an area designated as a mineral resource recovery zone nor is it located in an area where known minerals exist. Alternative 1 would not include development on the site; as such, land on the site would not be disturbed and the potential for unknown mineral deposits to be located on site would not occur. No impact to mineral resources would occur with implementation of Alternative 1. Although the site is not located in an area known for mineral deposits, implementation of the proposed Project would disturb existing ground on the site through grading and construction activities. The potential to find unknown mineral deposits during Project construction is low but could occur. As such, impacts to mineral resources would be less than significant with implementation of the proposed Project.

No impact to mineral resources would occur with implementation of Alternative 1. A less than significant impact to mineral resources would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact on mineral resources than Alternative 1.

Noise. The site would remain vacant under Alternative 1, therefore, noise generating sources would not be developed onsite which would have the potential to expose offsite sensitive receptors noise

levels that exceed City standards. Sensitive receptors would not be developed onsite; as such, noise sources (i.e., nearby traffic, Cable Airport Operations) would not expose onsite sensitive receptors to noise levels that exceed City standards. The analysis in the EIR for the proposed Project concluded that noise sources that would be generated on the site (during construction and operation) due to development would not expose offsite sensitive receptors to noise levels that would exceed City standards. Onsite sensitive receptors have the potential to be exposed to noise levels that would exceed interior noise level standards; however, mitigation measures would be implemented to reduce impacts to less than significant. Exterior noise levels at onsite sensitive receptors would exceed existing Claremont General Plan standards/policies due to the close proximity of operations occurring at Cable Airport. However, the proposed Project includes a text amendment to the Claremont General Plan that increase the exterior noise standard from Cable Airport operations on land within close proximity of the airport (i.e., the proposed Project site) under some circumstances. With this General Plan text amendment, the proposed Project would not expose exterior areas of sensitive receptors above Claremont regulations.

No impact pertaining to noise would occur with implementation of Alternative 1. A less than significant impact to pertaining to noise would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact pertaining to noise than Alternative 1.

Population and Housing. Development on the site would not occur under Alternative 1. As such, implementation of Alternative 1 would not increase population within the City of Claremont. Housing stock in the City of Claremont would not increase due to implementation of Alternative 1. Alternative 1 would have no impact on population and housing. The proposed Project would increase the population of the City of Claremont by up to 162 persons; however, the increase would be nominal compared to the City's expected buildout population. The proposed Project would also add to the housing inventory of the City of Claremont which helps the City meet its Regional Housing Needs Assessment (RHNA) goals. Impacts pertaining to population and housing was determined to be less than significant with implementation of the proposed Project.

No impact to population and housing would occur with implementation of Alternative 1. A less than significant impact to population and housing would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact to population and housing than Alternative 1.

Public Services. The site would remain vacant under Alternative 1; therefore, an increased need for public services (i.e., law enforcement, fire protection, emergency medical services, education services, library services, etc.) would not occur. The proposed Project would increase the population on the site and within the City of Claremont; however, such an increase would be nominal and was determined to not affect public services. The proposed Project would pay applicable mitigation fees which would be used toward improving public services within the City of Claremont. Impacts to public services with Project implementation were determined to be less than significant.

No impact to public services would occur with implementation of Alternative 1. A less than significant impact to public services would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact to public services than Alternative 1.

Recreation. Implementation of Alternative 1 would not include development onsite and would not result in the removal of recreational areas from the City of Claremont existing inventories. Furthermore, Alternative 1 would not increase the recreational area inventory of the City of Claremont since this alternative would result in no development occurring on the site. No impacts to recreation would occur with implementation of Alternative 1. The proposed Project would increase the population within the City of Claremont which may lead to an increase in use at nearby recreational facilities; however, the increased use would be nominal since the proposed Project includes park/open space features as part of it design. The proposed Project would include development of a Central Park and Linear Park which would be available for recreational use by residents occupying the site. Additionally, the proposed Project would be required to pay in lieu fees in accordance with the Quimby Act, which in conjunction with the proposed onsite recreational facilities, would offset any increased demand on public recreational facilities within the City of Claremont. As such, impacts to recreational facilities was determined to be less than significant with implementation of the proposed Project.

No impact to recreation would occur with implementation of Alternative 1. A less than significant impact to recreation would occur with implementation of the proposed Project. As such, the proposed Project would have a greater impact to recreation than Alternative 1.

Transportation and Traffic. Alternative 1 would not generate a population increase on the site as no development would occur for the foreseeable future. Since Alternative 1 would not include development on the site, it would not generate an increase in vehicle trips to and from the site. As a result, Alternative 1 would not generate a change in the existing Level of Service (LOS) at nearby intersections or on nearby roads. No impact to transportation and traffic would occur with implementation of Alternative 1. The proposed Project would increase the population on the site and in turn would generate an increase in vehicle trips to and from the site. The vehicle trip increase would be nominal compared to existing conditions, and would not result in the degradation of existing LOS levels at nearby intersections or on roads. As such, analysis determined that impacts to transportation and traffic due to Project implementation would be less than significant.

The Project also included transportation impact analysis using Vehicle Miles Traveled (VMT). The Project's VMT was compared to the Region VMT and then determined if an impact existed based on the OPR's Technical Advisory threshold of "a proposed project exceeding a level of 15 percent below existing VMT per capita." The Region VMT was modeled to be 14.9 per capita and the Project VMT was modeled to be 18.3. This results in the VMT per capita of the Project equating to 23 percent higher than the regional VMT per capita and an exceedance of the OPR's Technical Advisory threshold. No mitigation measures are available to reduce impacts; as such, impacts would be significant and unavoidable. Alternative 1 would not develop the site; as such, Alternative 1 would not generate VMT.

No impact to transportation and traffic would occur with implementation of Alternative 1. A significant and unavoidable impact to transportation and traffic would occur with implementation of the proposed Project with regard to the VMT impacts. As such, the proposed Project would have a greater impact to transportation and traffic than Alternative 1.

Tribal Cultural Resources. Grading and construction activities would not occur on the site with implementation of Alternative 1, since this alternative would not develop the site for the foreseeable

future. Finding undiscovered tribal cultural resources due to Alternative 1 would not occur as no soil disturbing activities would occur on the site. As such, no impacts to tribal cultural resources would occur with implementation of Alternative 1. Implementation of the proposed Project includes grading and construction activities that could expose undiscovered tribal cultural resources. Mitigation measures would be implemented as part of the proposed Project in the event that tribal cultural resources are discovered during construction activities. With implementation of the mitigation measures described in the EIR, impacts to tribal cultural resources would be less than significant with implementation of the proposed Project.

No impact to tribal cultural resources would occur with implementation of Alternative 1. A less than significant impact with mitigation measures implemented would occur to tribal cultural resources with implementation of the proposed Project. As such, the proposed Project would have a greater impact to tribal cultural resources than Alternative 1.

Utilities and Service Systems. Alternative 1 would not require improvements to existing utilities and service systems and will not connect to such existing infrastructure as no development would occur on the site. As such, no impact to utilities and service systems would occur with implementation of Alternative 1. The proposed Project would connect to existing utility and service systems; however, these systems would be able to accommodate the increased usage generated by the nominal population increase that would occur with implementation of the proposed Project. Offsite improvements to existing utilities and service systems would be required with implementation of the proposed Project. As such, impacts to utilities and service systems would be less than significant with implementation of the proposed Project.

No impact to utilities and service systems would occur with implementation of Alternative 1. A less than significant impact would occur to utilities and service systems with implementation of the proposed Project. As such, the proposed Project would have a greater impact to tribal cultural resources than Alternative 1.

Wildfire. According to CAL FIRE VHFHSZ in the LRA Map for the City of Claremont, the Project site is in a VHFHSZ. Alternative 1 would not develop any uses on the site for the foreseeable future; as such, there would be no uses on the site that could increase the risk of a fire starting and spreading to adjacent land. Furthermore, since the site would continue to be vacant under Alternative 1, hazards associated with wildfire exposure would not occur to onsite occupants. The proposed Project would develop uses on the site that have the potential to cause a fire during construction and operational activities. The Project would be designed to reduce the potential of wildfire spread through structural development strategies that are consistent with State and local fire codes. Furthermore, mitigation measures would be implemented to reduce potential wildfire impacts to residents occupying the Project site once it becomes operational. With mitigation measures implemented, impacts pertaining to wildfires would be less than significant with Project implementation.

No impact pertaining to wildfire would occur with implementation of Alternative 1. A less than significant impact with mitigation incorporated would occur pertaining to wildfire with implementation of the proposed Project. As such, the proposed Project would have a greater impact pertaining to wildfire than Alternative 1.

Alternative 1: Conclusion

Development on the site would not occur under Alternative 1; as such, the site will continue to be vacant for the foreseeable future. Compared to the proposed Project, Alternative 1 would not generate impacts to resources, as discussed above. Although Alternative 1 would be considered less impactful when compared to the proposed Project; implementation of Alternative 1 would not meet the objectives, needs, or purpose of the proposed Project (refer to Table 6.H).

6.4.2 Alternative 2: No Project; Existing General Plan and Zoning Approved Commercial/ Office Project

As identified in the Claremont General Plan Land Use Plan, the site (6.5 acres) is currently designated Commercial. The Commercial designation "… provides opportunities for a broad range of retail, professional office, and service-oriented businesses, including supermarkets, theaters, restaurants, and specialty retail stores. Drive-through businesses are prohibited. The Commercial category accommodates uses that typically attract vehicular traffic. This designation applies to properties along Foothill Boulevard, Indian Hill Boulevard, and the east end of Base Line Road."[6] Claremont's zoning designations generally follow its General Plan land use designations for the site which is Commercial Highway.

The site could be built out in accordance with an approved commercial/office development which would include the development of up to 70,800 square feet of office uses in four, two-story buildings, and 14,000 square feet of retail in two, single-story buildings.

Given the topography of the Project site, grading would still be required to accommodate the development, which would include grading for building pads, manufactured slopes, roadways, and other improvements. This alternative would result in a similar suite of roadway and other related infrastructure improvements to the proposed Project.

Alternative 2 Impacts to Resource Topics That Are Similar to the Proposed Project

Alternative 2 is located on the same site as the proposed Project and would disturb the same amount of land as the proposed Project. For these reasons, Alternative 2 would have the same impacts under Agricultural and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Hydrology and Water Quality, Mineral Resources, Tribal Cultural Resources, and Wildfire as the proposed Project. Alternative 2 and the proposed Project would require similar changes in the site's drainage and would implement similar best management practices to reduce the degradation of surface and groundwater quality. As such, Alternative 2 and the proposed Project would have similar impacts related to hydrology and water quality. Both Alternative 2 and the proposed Project would increase the demand for public services and recreation in the area. Alternative 2 and the proposed Project would be required to pay mitigation fees which would result in similar impacts to public services. Finally, the existing utilities are available whether Alternative 2 or the proposed Project is developed on the site. Additionally, adequate amounts of sewer capacity and water supply are

[6] *City of Claremont General Plan.* Land Use, Community Character, and Heritage Preservation Element. Page 2-67. November 2006, Last updated October 2009.

available to serve Alternative 2 or the proposed Project, resulting in similar impacts to utilities and service systems.

The following subsections focus on resource topic impacts that differ between Alternative 2 and the proposed Project.

Aesthetics. Under this alternative, the entire site would still be developed; however, the uses that would be developed would be consistent with the existing General Plan land use designations and zoning classifications for the City of Claremont. Based on the development standards of the zoning designations for the site, the following would be developed under this alternative: 14,000 square feet of Retail/Commercial and 70,800 square feet of Business/Office uses. Like the proposed Project, views to and from the site would be of buildings, landscaping, road, lighting, and other site features typically associated with this type of development. The massing of the commercial uses on-site would greater from a visual perspective compared to the proposed Project; however, the scale of the four, two-story retail/commercial buildings and two, single-story business/office buildings would be much larger than the building scale of the proposed Project. As with the proposed Project, any new use would be subject to City of Claremont design review, which would ensure the development remains consistent with established City guidelines and requirements.

Impacts to aesthetics would be less than significant with implementation of either Alternative 2 or the proposed Project. However, the intensity of the impact to aesthetics is greater under Alternative 2 compared to the proposed Project due to the massing of the commercial buildings and lack of open space in Alternative 2.

Air Quality. This alternative would generate 643 more average daily trips compared to those generated by the proposed Project. As detailed in Table 6.D, the operational emissions associated with this alternative represent a 309 to 555 percent increase over those resulting from the proposed Project. Because this alternative would still require the mass grading of the Project site, construction-related emissions would likely be similar. Operational air pollutant emissions resulting from Alternative 2 would be more than those generated by the proposed Project based on the increased traffic associated with this alternative. Even with such an increase, Alternative 2, similar to the proposed Project, would not exceed established SCAQMD thresholds. Impacts would be less than significant; however, the intensity of the impact is increased compared to that of the proposed Project.

Energy. Similar to the proposed Project, Alternative 2 will consume both electricity and natural gas. Alternative 2 is estimated to consume an annual 2,235,307 kWh of electricity, which is 380 percent of the electricity used by the proposed Project. This alternative is also estimated to annually consume 42 percent less (787,425 kBtu) of the natural gas required by the Project. Similar to the proposed Project, Alternative 2 will be required to implement design features that are in compliance with CALGreen Standards and would be required to implement Regulatory Compliance Measures mandated by the City of Claremont to reduce energy consumption.

Impacts to energy would be less than significant with implementation of either Alternative 2 or the proposed Project. However, the intensity of the impact to energy is greater under Alternative 2

compared to the proposed Project, as Alternative 2 would consume more electricity when compared to the proposed Project.

Greenhouse Gas Emissions and Climate Change. The proposed Project would contribute GHG emissions during the construction and operation/occupation of the site. The increase (643) in vehicle trips associated with this alternative would result in a corresponding increase in greenhouse gas emissions. As demonstrated in Table 6.E, GHG emissions under this alternative would equal a 438 percent increase over that generated by the proposed Project. It is anticipated that the application of mitigation measures to this alternative would similarly reduce GHG emissions. Similar to the proposed Project, no significant impact related to this issue would occur. Development under this alternative would be required to adhere to the same construction standards as the proposed Project. Impacts to greenhouse gas emissions would be less than significant with implementation of either Alternative 2 or the proposed Project. However, the intensity of the impact to greenhouse gas emissions is greater under Alternative 2 compared to the proposed Project, as Alternative 2 would generate more greenhouse gas emissions when compared to the proposed Project.

Hazards and Hazardous Materials. Accidental spills and leaks are unplanned occurrences. It is impossible to predict the occurrences of such events and the likelihood of such events occurring in close proximity to each other at the same time is very small; therefore, impacts resulting from any such event under this alternative would be similar to proposed Project and less than significant. The Phase I ESA did not identify any documented storage or usage of pesticides at the time of the assessment, nor did it identify any areas of bulk storage or mixing areas for pesticide, so it is unlikely any such impact would occur.

The Project site is located within Safety Zone 2 and Safety Zone 4 of the *2011 Handbook*. From a safety and hazards standpoint, nonresidential uses (such as commercial/retail) are an acceptable use in Safety Zone 2 as long as the maximum intensity does not exceed 40 to 60 average number of people per gross acre, as the site is located in a suburban area. From a safety and hazards standpoint, commercial/retail uses are an acceptable land use type within Safety Zone 4 per the *2011 Handbook*. It should be noted that development of Alternative 2 does not include a 150-wide swath of undeveloped land (as the proposed Project includes) to allow for emergency landings on site in the event an aircraft emergency arises during approach or departure from Cable Airport.

An *Aircraft Individual Risk Analysis* was prepared for the Project site based on the uses of the proposed Project and five nearby sites with commercial uses and residential uses to show a comparative hazard analysis for potential injury or death due to aircraft accidents. The analysis indicated that the people residing at the site under the proposed Project would have a 27 in 1 million chance of being seriously injured or killed from a Cable Airport aircraft accident. The three commercial sites and two residential sites that were analyzed in the study were determined to have higher risks of injuries or death to people. This is mainly due to the location of these study sites as well as the fact that the sites would be more occupied with people during high aircraft usage of Cable Airport. Alternative 2 would have more non-residential uses on site compared to the proposed Project; as such, it can be assumed the risk for injuries or death to people on the site under Alternative 2 would be increased as the site would be more occupied during the hours when high aircraft usage at Cable Airport is occurring. Although impacts would be similar, significant and unavoidable, as with the proposed Project, the

implementation of Alternative 2 would increase the risk of injury or death of people when compared to the proposed Project.

Land Use and Planning. This alternative envisions development under the existing General Plan and Zoning designations; therefore, the land use actions (General Plan Amendment and Zone Change) included with the Project would not be required. Various local and regional plans are in part based on existing General Plan and Zoning designations and the development assumptions derived from these designations. As this alternative retains the existing on-site designations, it is reasonable to expect development under this alternative would retain the existing consistency with local and regional land use and planning programs.

The uses in Alternative 2 are permitted in Safety Zones 2 and 4 as defined by the 2011 Handbook. Alternative 2 would be consistent with the development standards and development type on the Project site as defined by the 2011 Handbook. Impacts to land use and planning would be less than significant with implementation of either Alternative 2 or the proposed Project.

Noise and Vibration. Due to the generally similar level of earth movement and construction required as for the proposed project, it is reasonable that construction noise impacts at adjacent receptors for this Alternative 2 would be similar to those experienced under the proposed Project. Under this alternative, implementation of similar noise regulations would reduce the significance of these short-term noise impacts.

Alternative 2 would generate 643 more daily vehicle trips compared to the proposed Project. However, addition of this amount of vehicles would not generate noise levels at nearby sensitive receptors any higher than what would be generated by the proposed Project. Since Alternative 2 would develop a higher amount of retail/commercial/business/office uses compared to the proposed Project, it can be assumed that noise levels generated by stationary sources, such as parking lot activity, HVAC systems, etc. could be higher, and on-site or off-site residential uses could be exposed to slightly higher noise levels when compared to implementation of the proposed Project. Similar to the proposed Project, development of this alternative would incorporate features to reduce interior and exterior noise levels at affected receptors. It should be noted that Alternative 2 does not include the development of residential units on the Project site. The uses on the Project site under Alternative 2 would be exposed to exterior noise levels that are less stringent as compared to residential unit exterior noise level exposure.

Similar to the proposed Project, Alternative 2 would result in a less than significant noise impact; however, the intensity of the impact would be less than the proposed Project because no residential units are being developed under Alternative 2 compared to the proposed Project.

Population and Housing. Alternative 2 would not develop residential units and therefore would not increase the permanent population of the City of Claremont. Similar to the proposed Project, Alternative 2 would be developed on the same site that is currently vacant; as such, no existing residential units would be removed to implement Alternative 2 or the proposed Project. It should be noted that the development of 70,800 square feet of business/office uses and 14,000 square feet of retail/commercial uses would temporarily increase the site's population during business hours; however, this would not constitute an addition to the existing population of the City of Claremont.

Development of Alternative 2 would not be beneficial to the regional, State, or City of Claremont's housing deficit as no residential development would occur on the site. As such, the impact level on population with Alternative 2 and the proposed Project would be similar (less than significant). However, Alternative 2 would not provide needed housing in the City. As such, implementation of Alternative 2 would result in an increased intensity of the impact to population and housing when compared to the Project.

Transportation and Traffic. Compared to the proposed Project, Alternative 2 would increase traffic levels generated from on-site uses by approximately 59 percent. Such an increase in traffic would more than likely generate Level of Service (LOS) degradation at local intersections and roadway segments requiring improvements and mitigation to be implemented by Alternative 2. Even with the collection of mitigation fees, there is no assurance all the required improvements would be in place at the time required.

Alternative 2 would develop businesses on the site in an area of the City that is employment deficient. However, Alternative 2 would generate more ADT when compared to the proposed Project. As such, it is estimated that VMTs associated with Alternative 2 may be slightly more than those of the proposed Project, resulting in exceedance of VMT thresholds (as described in the traffic section of this EIR).. Impacts to traffic, specifically pertaining to VMT would be significant and unavoidable, with implementation of Alternative 2 and the proposed Project. The intensity of the impact would be increased as Alternative 2 would more than likely generate more VMT when compared to the proposed Project.

Alternative 2: Conclusion

This alternative envisions a Project that will not require a General Plan Amendment or Zoning Change and will develop a previously approved project consisting of 14,000 square feet of retail/commercial uses and 70,800 square feet of business/office uses. Alternative 2 would be developed on the same site as the proposed Project. Development of the alternative would implement required City of Claremont design, siting, public improvement, and landscaping standards sufficient to complement the proposed uses and provide compatibility with adjacent existing uses. With the exception of providing residential use development, Alternative 2 satisfies most of the primary Project objectives refer to Table 6.H).

Compared to the proposed Project, this alternative would increase the traffic generated from on-site uses (ADT), and it is possible that improvements at affected intersections and roadway segments may not be installed in time to fully offset the identified impacts. The public service and public utility demands associated with the Project and Alternative 2 are similar and within the capacity of local service providers. Operational air quality impacts and greenhouse gas emissions would be increased compared to the proposed Project; however, they would not exceed established SCAQMD significance criteria.

While Alternative 2 increases the intensity of impacts compared to the proposed Project, the development of office/retail/business/commercial uses would still result in a significant hazard impact. The impact would be greater in intensity then that of the proposed Project because

Alternative 2 uses would promote more people on the site during Cable Airport main operations. Alternative 2 would not eliminate the hazards/hazardous materials significant impact.

6.4.3 Alternative 3: Reduced Density

Alternative 3 would develop the 6.5-acre Project site with the 5,000 square feet of commercial uses but reduces the density of the residential portion of the Project to 8.2 units per acre. Alternative 3 would eliminate the 27 single family homes and add 18 townhomes instead, thereby allowing for development of up to 38 townhouses, 5,000 square feet of commercial uses and 15 residential flats over the commercial use. The linear park proposed with the Project would be maintained. The Plaza park would be eliminated. Alternative 3 (similar to the proposed Project) will include the following actions: General Plan Map Amendment; General Plan Text Amendment; Zoning District Change; Specific Plan Approval; and, approval of Tentative Tract 82315.

It is anticipated that, given the topography of the Project site, grading would still be required to accommodate the development, which would include grading for residential lots, building pads, manufactured slopes, roadways, and other improvements. The extent and volume of earthmoving operations would be incrementally reduced under this alternative. This alternative is intended to decrease the overall development footprint of the proposed Project, which would result in reduced landform alteration and urban development that is visible from surrounding viewpoints, including public streets and highways. This alternative would require the installation of roadway and other related infrastructure improvements, though the size and capacity of such facilities could be incrementally reduced relative to the proposed Project. The location and capacity of such facilities could be altered relative to the proposed Project.

Alternative 3 Impacts to Resource Topics That Are Similar to the Proposed Project

Alternative 3 is located on the same site as the proposed Project and would disturb the same amount of land as the proposed Project. For these reasons, Alternative 3 would have the same impacts under Agricultural and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Mineral Resources, Tribal Cultural Resources, and Wildfire as the proposed Project. Alternative 3 would develop a less dense project when compared to the proposed Project; however, the visual impact would not be discernable between Alternative 3 and the proposed Project from off-site viewers.

Similar to the proposed Project, Alternative 3 would develop residential uses within Safety Zone 2 and 4 as defined by the *2011 Handbook*. From a safety and hazards standpoint, the *2011 Handbook* restricts residential land uses within Safety Zone 2 and 4, due to close proximity to aircraft operations occurring at Cable Airport. The significance conclusions for both Alternative 3 and the proposed Project would be the same related to risk of injury or death from Cable Airport aircraft operations; however, Alternative 3 would have a reduced population onsite and therefore the intensity of hazards exposure to people on site pertaining to airport operations would be slightly reduced.

Alternative 3 and the proposed Project would require similar changes in the site's drainage and would implement similar best management practices to reduce the degradation of surface and groundwater quality. As such, Alternative 3 and the proposed Project would have similar impacts related to hydrology and water quality.

Both the proposed Project and Alternative 3 would develop residential units within the 60 to 65 dBA CNEL noise contour of Cable Airport. The City of Claremont, through the General Plan policies, prohibit the development of residential units in areas where external noise levels will exceed 60 dBA CNEL generated by airport operations. Similar to the proposed Project, Alternative 3 includes a Claremont General Plan Text Amendment to allow for new residential development to be exposed to exterior noise levels up to 70 dBA generated by Cable Airport operations. This would result in a less than significant impact pertaining to exterior noise levels from aircraft activity at residential units on the site.

Both Alternative 3 and the proposed Project would increase the demand for public services and recreation in the area. However, Alternative 3 and the proposed Project would be required to pay mitigation fees, which would result in similar impacts to public services and Alternative 3 would include park/open space areas that will be used by on-site residents. The existing utilities are available whether Alternative 3 or the proposed Project is developed on the site. Finally, adequate amounts of sewer capacity and water supply are available to serve Alternative 3 or the proposed Project, resulting in similar impacts to utilities and service systems, which are less than significant.

The following subsections focus on resource topic impacts that differ between Alternative 3 and the proposed Project.

Air Quality. Daily vehicle trips associated with this alternative are less than (664 for Alternative 3 compared to 1,085 for the proposed Project) of those associated with the proposed Project (Table 6.C). As detailed in Table 6.D, the operational emissions associated with this alternative would be reduced between 63 and 68 percent compared to those emissions generated by the proposed Project. The operational emissions generated by Alternative 3 would similarly be below established SCAQMD daily emissions thresholds. Impacts would be less than significant and the intensity of the impact is less compared to that of the proposed Project.

Energy. Similar to the proposed Project, Alternative 3 will consume both electricity and natural gas. Alternative 3 is estimated to consume an annual 460,615 kWh of electricity, or approximately 1 percent less of that required for the proposed Project. Uses envisioned under this alternative would also consume approximately 0.2 percent less (1,347,970 kBtu) of the natural gas required for the proposed Project. Similar to the proposed Project, Alternative 3 will be required to implement design features that are in compliance with CALGreen Standards and would be required to implement Regulatory Compliance Measures mandated by the City of Claremont to reduce energy consumption. Implementation of Alternative 3, similar to the Project, would result in a less than significant impact on energy demand and consumption; however, the intensity of the impact would be less when compared to the proposed Project.

Greenhouse Gas Emissions and Climate Change. The proposed Project would generate GHG emissions during the construction and operation/occupation of the proposed development. As demonstrated in Table 6.G, GHG emissions under this alternative would equal a 5 percent increase of those generated by the proposed Project. It is anticipated that the application of measures to this alternative would similarly reduce GHG emissions. Similar to the proposed Project, no significant impact related to this issue would occur with implementation of Alternative 3. Development under this alternative would be required to adhere to the same construction standards as the proposed

Project. Impacts would be less than significant and the intensity of the impact is slightly increase compared to that of the proposed Project.

Land Use and Planning. This alternative envisions development of the Project site in a similar manner as compared to the proposed Project; however, the density of the residential units on the site will be less than that of the proposed Project. Alternative 3 would require the same General Plan Amendment and Zoning Change approval as the proposed Project. Similar to the proposed Project, Alternative 3 would comply with the majority of local and regional plans. Similar to the proposed Project, Alternative 3 would be consistent with the 2011 Handbook even though residential units would be located within Safety Zones 2 and 4. This is because the City of Claremont would follow the 2011 Handbook requirements in providing the LACALUPC the opportunity to review Alternative 3. The City of Claremont would have the final jurisdictional duty to approve or disapprove Alternative 3 regardless of LACALUPC's review outcome. Since the City of Claremont would follow the 2011 Handbook requirements, Alternative 3 would be consistent with this applicable airport planning document. Compared to the proposed Project, no change in the significance and intensity (less than significant) of this impact would occur even though the density of residential units on site would be reduced under Alternative 3.

Population and Housing. Development of 53 dwelling units (15 residential flats and 38 multifamily residential units) under this alternative could result in a population increase of up to 138 persons, or 24 fewer people added compared to the proposed Project. Similar to the proposed Project, the addition of people from Alternative 3 is already considered in the growth of Claremont through the City's General Plan. This alternative would only include the development of townhomes and flats on the site and no single-family residential units would be developed. As such, the varied housing mix envisioned under the proposed Project would not be developed. While the loss of on-site housing options is not a significant impact, this alternative would not contribute as much varied housing mix to the Claremont's regional housing needs/requirements. Impacts would be less than significant; however, the intensity of the impact related to growth is decreased compared to that of the proposed Project.

Transportation and Traffic. Compared to the proposed Project, this alternative would decrease traffic levels generated from on-site uses by approximately 39 percent. A 39 percent decrease in traffic levels would be noticeable on local roadways and at local intersections. As such, Alternative 3 would contribute to an improved level of service on roadways and intersections compared to contribution of the proposed Project. Alternative 3 would generate less VMT than the proposed Project, as Alternative 3 includes less residential development than the proposed Project. However, the percentage of Alternative 3 VMT is anticipated to exceed the threshold limits that were used for Project analysis purposes. Alternative 3 would include similar design features as the Project to limit the amount of VMT generated; however, no feasible mitigation measures would be available to reduce the impact. Similar to the proposed Project, Alternative 3 would have a significant and unavoidable impact; however, the intensity of the impact would be lower when compared to the proposed Project.

Alternative 3: Conclusion

This alternative would be similar to the proposed Project; however, the density and variety of residential units developed on site would be reduced. Alternative 3 would develop 5,000 square feet of commercial/retail use, 15 residential flats and 38 multifamily residential units on the same development envelope as the proposed Project (6.5 acres). No variably sized single-family or multifamily residential options would be provided. With the exception of providing a varied mix of housing types, this alternative satisfies most of the primary Project objectives.

Compared to the proposed Project, this alternative would reduce traffic levels generated from on-site uses, resulting in an improved level of service on roadways and intersections compared to the contribution of the proposed Project. The public service and public utility demands associated with Alternative 3 are the same as with the proposed Project, and are within the capacity of local service providers. Operational air quality impacts would be slightly reduced and would not exceed established SCAQMD significance criteria. Greenhouse gas emissions would be slightly increased compared to those generated by the proposed Project. Energy consumption would be decreased under Alternative 3 due to fewer residential units compared to the proposed Project.

While this alternative's contribution to impacts is incrementally decreased or similar to the Project as proposed, the development of the residential units would still constitute a hazard to onsite population due to adjacent Cable Airport operations. Additionally, Alternative 3 would generate a similar level of VMT as the proposed Project, which would not be reduced through mitigation implementation. Alternative 3 would therefore not reduce or eliminate the significant and unavoidable impacts associated with the proposed Project.

6.4.4 Alternative 4: Business Park

Alternative 4 proposes 141,570 square feet[7, 8] of business park uses on 6.5 acres of land. The existing avigation easement would be used as a parking area for the buildings to maintain a 150-foot setback for the buildings as safety area for the Cable Airport.

Development under this alternative would require a General Plan Amendment to Business Park and a Zone Change to B/IP (Business/Industrial Park District). Claremont's General Plan Business Park designation provides locations for well-designed business and employment centers developed with uses consisting of professional offices, research/development businesses, laboratories, light manufacturing, and supportive commercial uses. The corresponding B/IP zone is intended to provide for a variety of professional and office uses, restricted industrial uses primarily engaged in research and testing, or in light manufacturing and the treatment of materials, that will maintain and enhance employment opportunities in the community.[9] Business park developments should offer attractive and distinctive architectural design, innovative site planning, and landscaping.

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7 6.5 acres in Claremont × 43,560 square feet per acre = 283,140 square feet × 0.5 FAR = 141,570 square feet of business park uses.

8 FAR range of 0.3 – 1.5, from *City of Claremont General Plan. Land Use, Community Character, and Heritage Preservation Element.* Page 2-16.

9 Chapter 16.054.000, City of Claremont Municipal Code.

While grading would still be required to accommodate development under this alternative, the extensive grading and creation of manufactured slopes on the northern portion of the site would not be required. While reduced in terms of overall intensity and site coverage, this alternative would result in roadway, utility, and related infrastructure improvements, though the size and capacity of such facilities could be incrementally reduced relative to the proposed Project.

Alternative 4 Impacts to Resource Topics That Are Similar to the Proposed Project

Alternative 4 will be located on the same site as the proposed Project and therefore would have similar impacts to land-based CEQA resource topics as the proposed Project. Implementation of Alternative 4 would have similar impacts as the proposed Project to Agricultural and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Mineral Resources, Hydrology and Water Quality, Tribal Cultural Resources, and Wildfire. Existing utilities are available whether Alternative 4 or the proposed Project is developed on the site. Adequate amounts of sewer capacity and water supply are available to serve Alternative 4 or the proposed Project, resulting in similar impacts to utilities and service systems. Both Alternative 4 and the proposed Project would increase the demand for public services (including recreation resources) in the area. However, Alternative 4 and the proposed Project would be required to pay mitigation fees, which would result in similar impacts to public services.

The following subsections focus on resource topic impacts that differ between Alternative 4 and the proposed Project.

Aesthetics. Development under this alternative would include 141,571 square feet of business park uses and elimination of the linear parks. The linear park component would be replaced by a surface parking lot that would accommodate parking for the employees and patrons accessing the site. The buildings associated with Alternative 4 would be designed per development standards of the zoning designations. Typically, business park buildings are larger in mass compared to residential and retail/ commercial uses; as such, people viewing the Project site from off-site viewpoints would view larger buildings. Similar to the proposed Project, Alternative 4 would be required to go through Design Review in order for the City of Claremont to ensure that design of the on-site buildings are consistent with architectural requirements. Overall, even though the mass of buildings on site would be larger compared to the proposed Project, Alternative 4 would be developed and designed to be consistent with the existing uses adjacent to the site. However, since Alternative 4 does not include an open space component, the aesthetic quality of the site will be reduced when compared to the aesthetic quality of the uses developed as part of the proposed Project. Impacts would be less than significant and the impact intensity would be slightly greater with implementation of Alternative 4 when compared to that of the proposed Project.

Air Quality. Daily vehicle trips associated with this alternative are increased by 62 percent when compared with those generated by the proposed Project (Table 6.C). As detailed in Table 6.D, the operational emissions associated with this alternative would be increased between 97 and 152 percent when compared to the operational emissions generated by the proposed Project. Carbon monoxide (CO) generated by Alternative 4 would increase by 146 percent when compared to the CO generated by the proposed Project. Similar to the proposed Project, the operational emissions generated by Alternative 4 would be below established SCAQMD daily emissions thresholds. As

Alternative 4 is located on the same site as the proposed Project, it is reasonable to conclude the volume and duration of construction emissions would be the same as those generated by the proposed Project. Impacts would be less than significant; however, the impact intensity of Alternative 4 is increased when compared to that of the proposed Project for operational emissions.

Energy. Similar to the proposed Project, Alternative 4 will consume both electricity and natural gas. Alternative 4 is estimated to annually consume 2,636,682 kWh of electricity and 2,656,390 kBtu of natural gas, which is approximately 466 percent and 97 percent, respectively, of the Project's annual electricity and natural gas consumption. Similar to the proposed Project, Alternative 4 would be required to implement design features that are in compliance with CALGreen Standards and would be required to implement Regulatory Compliance Measures mandated by the City of Claremont to reduce energy consumption. Implementation of Alternative 4, similar to the proposed Project, would result in a less than significant impact on energy demand and consumption; however, the impact intensity of Alternative 4 is increased for energy use compared to that of the proposed Project.

Greenhouse Gas Emissions and Climate Change. The proposed Project would contribute GHG emissions during the construction and operation/occupation of the proposed mixed-use development. The increase (62 percent) in vehicle trips, reduction in residential dwelling units, and increase in industrial and manufacturing uses on the site associated with Alternative 4 would result in a corresponding increase in greenhouse gas emissions. As demonstrated in Table 6.E, GHG emissions under Alternative 4 would equal a 174 percent increase compared to those generated by the proposed Project. It is anticipated that the application of measures to this alternative would similarly reduce GHG emissions. Similar to the proposed Project, no significant impact related to this issue would occur. Development under this alternative would be required to adhere to the same construction standards as the proposed Project; however, operational standards would be more stringent when compared to those adhered to by the proposed Project. Impacts would be less than significant; however, the intensity of the impact under Alternative 4 is increased compared to that of the proposed Project.

Hazards and Hazardous Materials. The Phase I ESA conducted for the site did not identify any documented storage or usage of pesticides at the time of the assessment, nor did it identify any areas of bulk storage or mixing areas for pesticide, so it is unlikely any such impact would occur under this alternative. Accidental spills and leaks are unplanned occurrences. It is impossible to predict the occurrences of such events and the likelihood of such events occurring in close proximity to each other at the same time is very small. Under Alternative 4, more hazardous materials may be stored in the business park buildings on site compared to the uses on site under the proposed Project; as such, there is an increased risk of accidental spillage or release of hazardous materials compared to those stored on the site under the proposed Project. It is anticipated that the businesses occupying the site under Alternative 4 would be equipped with Safety Data Sheets that provide information on hazardous materials and procedures for clean-up in the event of accidental release. Measures would be in place, under Alternative 4, to ensure that accidental release of hazardous materials remain confined and will not risk injuries to people on site. Impacts related to this matter would be less than significant under Alternative 4; however, the intensity of the impact under Alternative 4 is increased compared to that of the proposed Project.

Alternative 4 will be located within Safety Zone 2 and Safety Zone 4 as established by the *2011 Handbook*. Alternative 4 would include development of 141,570 square feet of business park use on site; however, without a site plan, the amount of business park use that will be located within Safety Zones 2 and 4 on the site cannot be determined. The *2011 Handbook* establishes the following development limitations pertaining to business park uses for Safety Zone 2 and Safety Zone 4:

- Pertaining to Safety Zone 2, limit development of single-story office buildings if the intensity of the use is more than 40 to 60 persons per gross acre.
- Pertaining to Safety Zone 4, avoid office buildings if an alternative site outside of the zone would serve intended public function.

These development limitations have been established by the *2011 Handbook* to prevent hazardous conditions to people occupying land surrounding Cable Airport in the event that an aircraft accident occurs.

Based on the *Aircraft Individual Risk Analysis* prepared for the Project, it is anticipated that the uses developed under Alternative 4 would result in an increased risk of injury or death to people on site from Cable Aircraft accidents when compared to people residing or working on the site under the proposed Project. This is mainly due to the fact that more people will be on site Under Alternative 4 during the busiest operational times of Cable Airport when the potential for an aircraft accident increases. Similar to the proposed Project, Alternative 4 would implement Mitigation Measures 4.6.1.A, 4.6.1.B, and 4.6.1.C, to reduce hazardous conditions on the site due to Cable Airport aircraft operations. However, these mitigation measures would not reduce impacts pertaining to potential hazards and impacts would remain significant and unavoidable.

Implementation of Alternative 4, similar to the proposed Project, would result in a significant and unavoidable impact; however, the intensity of the impact would be greater under Alternative 4 compared to the proposed Project, as more people would be onsite and more people would be exposed to potential hazards associated with Cable Airport operations.

Land Use and Planning. Implementation of Alternative 4 would require a General Plan Amendment and Zoning Change to accommodate the industrial and manufacturing buildings envisioned for development on the site. The land use and zoning designations are intended to encourage business and job development in each City to support increases in residential population within the region. Alternative 4 would be similar to the business park uses east of Monte Vista Avenue and would provide job opportunities for students at the Claremont College complex to the southwest. It is anticipated that the type of development associated with Alternative 4 would be consistent with local and regional planning documents as a General Plan Amendment and Zoning Change would be implemented as part of Alternative 4.

Alternative 4 would include the development of business park uses in the City of Claremont. Safety Zone 2 of the *2011 Handbook* permits limited development of single-story office buildings if the intensity of the use is no more than 40 to 60 persons per gross acre. Safety Zone 4 of the *2011 Handbook* does not permit development of business office uses if an alternative site outside of the zone would serve intended public function. Alternative 4 is estimated to generate approximately 360

employees[10] or 55.28 employees per acre. The Project applicant does not control (own) sites outside of Safety Zone 4, as such an alternative site for development of Alternative 4 would not be available to serve the intended public function of business office development unless it is built by another applicant or this applicant purchases property in another area, which is speculative. Alternative 4 would be consistent with the *2011 Handbook* pertaining to the land use development intended for the site within Safety Zone 2 but not Safety Zone 4.

Similar to the proposed Project, Alternative 4 would have a less than significant impact for areas within Zone 2 but a significant impact for areas of the site within Zone 4.

Noise and Vibration. Development under Alternative 4 would result in the construction of 141,570 square feet of business park uses. Similar to the proposed Project, construction noise would not be within close proximity to off-site residential uses or other sensitive uses; therefore, construction-generated noise is not anticipated to exceed City of Claremont construction noise thresholds or standards.

Alternative 4 would generate 672 more average daily trips than the proposed Project, all of which would be distributed on local roadways. A doubling of average daily trips on local roadways is required to result in a traffic-related noise increase that would be perceptible at adjacent sensitive receptors. As Alternative 4, similar to the proposed Project, would not result in the doubling of traffic along local roads, it is assumed that traffic-generated noise at adjacent sensitive receptors would not exceed City of Claremont thresholds or standards.

Since Alternative 4 does not include the development of residential units on site, operational activities would not generate a noise impact to on-site sensitive receptors. Additionally, Alternative 4 is far enough away from off-site residential units that operational activities would not generate a noise impact above and beyond the City of Claremont thresholds or standards for sensitive receptors. Alternative 4 would also incorporate noise-reduction measures to ensure that operational activities do not generate noise levels at off-site sensitive receptors exceeding City of Claremont thresholds or standards.

Finally, as stated above, Alternative 4 would not develop on-site residential units. As such, unlike the proposed Project, residential units would not be developed within the 60 dBA CNEL to 65 dBA CNEL noise contour of Cable Airport requiring a General Plan Text Amendment. Therefore, external areas of sensitive receptors would not be exposed to excessive noise levels from operations at Cable Airport, as what would occur with development under the proposed Project. Impacts would be less than significant; and comparably, the intensity of impacts would be reduced when compared to the less than significant impacts concluded for implementation of the proposed Project.

Population and Housing. Alternative 4 would not include the development of residential units; therefore, would not result in a population change to the City of Claremont. The business park uses on the site under Alternative 4 would increase the site's population by 360 employees; however, this would be a temporary increase during daily operating hours of businesses on the site and would not

[10] 6.5 gross acres × 55.28 employees/acre = 360 employees. *Employment Density Study Summary Report*. Table 4B. Southern California Association of Governments. October 31, 2001. The low-rise office land use category was used in this case as this is the type of business park development that is anticipated on the site which will be similar to adjacent business park developments in the City of Claremont and City of Upland.

add to the population residing in the City of Claremont. Alternative 4 would not add to the housing inventory of Claremont as no residential units are planned to be developed on the site. This alternative would therefore not contribute to meeting the City's regional housing needs. Nonetheless, compared to the proposed Project, the impacts associated with this alternative are similar; however, the intensity of the impact within implementation of Alternative 4 would be less when compared to the proposed Project.

Transportation and Traffic. Alternative 4 would generate 672 more average daily trips distributed on local roadways compared to those generated by the proposed Project (a 62 percent increase compared to the proposed Project). Similar to the proposed Project, it is likely the addition of 1,761 average daily trips generated by Alternative 4 (compared to existing conditions) will not require improvements to local roads or intersections and will not significantly degrade existing LOS of roads and intersections. Similar to the proposed Project, Alternative 4 will generate an increase in VMT which will more than likely be above the regional VMT standards. Mitigation measures would not be available to reduce VMT impacts; as such, similar to the proposed Project VMT impacts would be significant and unavoidable.

Alternative 4: Conclusion

Alternative 4 would allow for the site to be developed with 141,570 square feet of business park uses. The linear park associated with the proposed Project would be replaced with a surface parking lot serving the business park uses and the plaza park would be eliminated. Residential units would not be developed under Alternative 4; therefore, no variably sized single-family, multifamily, or residential flat units would be provided. This alternative does not fully satisfy the primary Project objective of providing a variety of housing options.

Compared to the proposed Project, this alternative would increase traffic levels at nearby intersections and on roads; however, the increased levels would not be enough to degrade existing intersection and road LOS. Operational air quality impacts and greenhouse gas emissions would be increased; however, similar to the proposed Project, would not exceed established SCAQMD significance criteria. Development of business park/light industrial uses under Alternative 4 would place employees on the site during the peak operational hours of Cable Airport; as such, the risk of injury or death to people on the Project site will be increased compared to the risk under implementation of the proposed Project. Overall, this alternative would not result in elimination of a significant and unavoidable impact identified for the proposed Project. Impacts would incrementally increase with implementation of Alternative 4 compared to those impacts of the proposed Project.

6.5 COMPARISON OF PROJECT ALTERNATIVES

The following discussion compares the impacts of each alternative with the impacts of the proposed Project, as detailed in Chapter 4.0 of this EIR and Appendix 1A Initial Study. Table 6.G compares the impacts of the alternatives with those of the proposed Project and identifies whether the alternative results in (1) a reduction of the impact; (2) a greater impact than the Project; or (3) the same impact as the Project. It should be noted that Alternative 1 No Project/No Build has no impacts compared to the proposed Project and represents existing conditions on the site. In addition, Table 6.G further summarizes the changes in significant impacts among the various alternatives.

Table 6.G: Comparison of Alternatives to the Proposed Project

Environmental Issue	Proposed Project	Alternative 1: No Project/No Build	Alternative 2: Existing General Plan/ Zoning Approved Commercial/Office Project	Alternative 3: Reduced Density	Alternative 4: Business Park
Aesthetics	LTS	NI	→LTS	LTS	→LTS
Agriculture& Forestry Resources	NI	NI	NI	NI	NI
Air Quality	LTS	NI	→LTS	←LTS	→LTS
Biological Resources	LTS/mit	NI	LTS/mit	LTS/mit	LTS/mit
Cultural Resources	LTS/mit	NI	LTS/mit	LTS/mit	LTS/mit
Energy	LTS	NI	→LTS	←LTS	→LTS
Geology and Soils	LTS	NI	LTS	LTS	LTS
Greenhouse Gas Emissions	LTS	NI	→LTS	→LTS	→LTS
Hazards and Hazardous Materials	SIG	NI	→SIG	←SIG	→SIG
Hydrology and Water Quality	LTS	NI	LTS	LTS	LTS
Land Use and Planning	LTS	LTS	LTS	LTS	LTS
Mineral Resources	LTS	NI	LTS	LTS	LTS
Noise	LTS	NI	←LTS	LTS	←LTS
Population and Housing	LTS	NI	→LTS	←LTS	←LTS
Public Services	LTS	NI	LTS	LTS	LTS
Recreation	LTS	NI	LTS	LTS	LTS
Transportation and Traffic	SIG	NI	→SIG	←SIG	SIG
Tribal Cultural Resources	LTS/mig	NI	LTS/mig	LTS/mig	LTS/mig
Utilities and Service Systems	LTS	NI	LTS	LTS	LTS
Wildfire	LTS/mig	NI	LTS/mig	LTS/mig	LTS/mig

Impact Abbreviations

NI: No Impact
LTS: Less than Significant Impact
LTS/mit: Less than Significant Impact with Mitigation
SIG: Significant Impact with or without Mitigation
DOL Depends On Location

Project Alternatives

→ Compared with the proposed Project, the significance of the impact is increased.
← Compared with the proposed Project, the significance of the impact is reduced.
←SIG Compared with the proposed Project, the volume or extent of the impact is reduced, yet still significant.
→SIG Compared with the proposed Project, the volume or extent of the impact is increased and still significant.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

When an alternatives analysis is prepared consistent with C*EQA Guidelines Section 15126.6 (e[2]), an* environmentally superior alternative must be identified in the EIR. As detailed in Table 6.G, the Environmentally Superior Alternative is the one that would result in the fewest or least significant impacts. In most cases, the Environmentally Superior Alternative is the No Project/No Build Alternative.[11] While Alternative 1: No Project/No Build would avoid all environmental impacts without any requirement for mitigation, it was determined that maintenance of the site in its current condition was not likely. Alternatives 2, 3 and 4 will all result in a significant and unavoidable impact, similar to the proposed Project. However, the impacts generated by Alternative 3 would be less intense than those impacts generated by the proposed Project and would still meet the objectives of the project. Based on this information, Alternative 3 Reduced Density would be considered the environmentally superior alternative for the proposed Project.

Table 6.H: Do the Alternatives Meet Project Objectives?

Project Objectives	Proposed Project	Alternative 1: No Project/ No Build	Alternative 2: Existing General Plan/Zoning Approved Commercial/ Office Project	Alternative 3: Reduced Density	Alternative 4: Business Park
Promote and encourage sustainable development, incorporating green practices, on vacant sites within a built up area.	Yes	No	Yes	Yes	Yes
Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes. Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community.	Yes	No	No	Yes	No
Promote high quality architecture for new development.	Yes	No	No	Yes	No
Provide a variety of park facilities that meet the diverse needs and interests of the community.	Yes	No	No	Yes	No
Continue to require public art as part of new development Projects and encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City.	Yes	No	Yes	Yes	Yes

[11] Due to the site's current land use designation(s) and its location and proximity to existing residential development, it is reasonable to conclude, should the Project as proposed **not** be approved, that development of the site in a manner permitted under current land use plans would occur. Based on this reasonable assumption, maintenance of the site in its current undeveloped (No Build) state is not likely.

Table 6.H: Do the Alternatives Meet Project Objectives?

Project Objectives	Proposed Project	Alternative 1: No Project/ No Build	Alternative 2: Existing General Plan/Zoning Approved Commercial/ Office Project	Alternative 3: Reduced Density	Alternative 4: Business Park
Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses. Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development.	Yes	No	Yes	Yes	No
Create distinctive gateways at all entry points into Claremont.	Yes	No	Yes	Yes	Yes
Encourage development that increases the City's economic base.	Yes	No	Yes	Yes	Yes
Encourage a high-quality project at what is now a long-term vacant site at the entry to the City.	Yes	No	Yes	Yes	Yes
Establish a cohesive, contemporary, and innovative design character for the Project site that would be unique to the City of Claremont.	Yes	No	Yes	Yes	No
Provide a community that meets current and future housing demands on a highly accessible site located near major roads.	Yes	No	No	Yes	No
Ensure compatibility with neighboring existing commercial areas, and with future institutional, and residential uses.	Yes	No	Yes	Yes	Yes
Create a walkable environment and a definable sense of place.	Yes	No	Yes	Yes	No
Create special places such as a large open space spine and central plaza.	Yes	No	No	Yes	No
Provide for infill residential development on a vacant property.	Yes	No	No	Yes	No
Emphasize distinct features of site and surroundings to create a unique, mixed-use neighborhood.	Yes	No	No	Yes	No
Provide diversity in product mix design to target a variety of age groups.	Yes	No	No	Yes	No

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7.0 REFERENCES

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9.0 ACRONYMS AND ABBREVIATIONS

µg/m^3	Micrograms per Cubic Meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
ADA	Americans with Disabilities Act
ADT	Average Daily Trips
ADU	Accessory Dwelling Unit
AFY	Acre-Feet per Year
AIN	Assessor's Identification Number
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
amsl	Above Mean Sea Level
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
BAU	Business As Usual
BMP	Best Management Practice
BRA	Biological Resources Assessment
C&D	Construction and Demolition
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CalEEMod	California Emission Estimator Model
Cal/OSHA	California Occupational Safety and Health Administration
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CALUCP	Cable Airport Land Use Compatibility Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team

CBC	California Building Code
CBIA	*California Building Industry Assn. v. Bay Area Air Quality Management District*
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cf	Cubic Foot/Feet
CFC	California Fire Code
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	Methane
CHC	Combined Heating and Cooling
CHL	California Historical Landmarks
CHRIS	California Historic Resources Information System
CMP	Congestion Management Program
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalents
CPHI	California Points of Historical Interest
CPD	Claremont Police Department
CPUC	California Public Utilities Commission
CRA	Cultural Resource Assessment
CRPR	California Rare Plant Rank
CSC	California Species of Special Concern
CWA	(Federal) Clean Water Act
dB	Decibel
dBA	A-Weighted Decibels
DCV	Design Capture Volume
DMA	Drainage Management Area
DPM	Diesel Particulate Matter
EAP	Emergency Action Plan

EIR	Environmental Impact Report
EMFAC	Emission FACtor model
EO	Executive Order
Ep	Erosion Potential
EPA	(United States) Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FRA	Federal Responsibility Area
FRAP	Fire and Resources Assessment Program
FTA	Federal Transit Administration
GCC	Global Climate Change
GHG	Greenhouse Gas
GPA	General Plan Amendment
GPCD	Gallons Per Capita per Day
GSWC	Golden State Water Company
GWh	Gigawatt-Hour
GWP	Global Warming Potential
H_2S	hydrogen sulfide
HCD	(Department of) Housing and Community Development
HCM	*Highway Capacity Manual*
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HPD	(California State) Historic Property Data File
HQTA	High Quality Transit Area
HRA	Health Risk Assessment
HUD	(U.S. Department of) Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
I-	Interstate
in/sec	Inches per Second
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITE	Institute of Transportation Engineers
kBTU	Thousand British Thermal Units

kWh	Kilowatt-Hours
LACALUC	Los Angeles County Airport Land Use Commission
LACALUPC	Los Angeles County Airport Land Use Planning Commission
LACFD	Los Angeles County Fire Department
lbs/day	Pounds per day
LCFS	Low Carbon Fuel Standard
L_{dn}	Day-Night Average Noise Level
L_{eq}	Equivalent Continuous Sound Level
LID	Low Impact Development
L_{max}	Maximum Instantaneous Noise Level
LOS	Level of Service
LRA	Local Responsibility Area
LST	Localized Significance Threshold
MATES	Multiple Air Toxics Exposure Studies
MBTA	Migratory Bird Treaty Act
mg/m^3	Milligrams per Cubic Meter
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program/Plan
MMT	Million Metric Tons
MND	Mitigated Negative Declaration
mpg	Miles per Gallon
mph	Miles per Hour
MPO	Metropolitan Planning Organization
MRF	Material Recovery Facility
MS4	Municipal Separate Storm Sewer System
MT	Metric Ton
MW	Megawatt
MWD	Metropolitan Water District of Southern California
MWELO	Model Water Efficient Landscape Ordinance
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NCCP	Natural Community Conservation Plan
ND	Negative Declaration
NFIP	National Flood Insurance Program

NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIMS	National Incident Management System
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
O_3	Ozone
OAL	(California) Office of Administrative Law
OHWM	Ordinary High Water Mark
OPR	(Governor's) Office of Planning and Research
OSY	Operating Safe Yield
PA	Planning Area
Pb	Lead
PFCs	Perfluorocarbons
PLIC	Pacific Land Improvement Company
PM	Particulate Matter
PM_{10}	Particulate Matter less than 10 Microns in Size
$PM_{2.5}$	Particulate Matter less than 2.5 Microns in Size
ppm	Parts per Million
PPV	Peak Particle Velocity
PRC	Public Resources Code
PUC	Public Utilities Code
RAFSS	Riversidean Alluvial Fan Sage Scrub
RCP	Regional Comprehensive Plan
RHNA	Regional Housing Needs Assessment
RMS	Root-Mean-Square
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SBCTA	San Bernardino County Transportation Authority

SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SCH	State Clearinghouse
SF_6	Sulfur hexafluoride
SHMP	State Hazard Mitigation Plan
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SLF	Sacred Lands File
SO_2	Sulfur Dioxide
SoCalGas	Southern California Gas Company
SOx	Sulfur Oxides
SR-	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
SUSMP	Standard Urban Storm Water Mitigation Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TA	Technical Advisory
TAC	Toxic Air Contaminant
T-BACT	Toxics Best Available Control Technology
TCP	Traditional Cultural Place
TCR	Tribal Cultural Resource
TIA	Traffic Impact Analysis
TMDL	Total Maximum Daily Load
TNW	Traditional Navigable Water
TTM	Tentative Tract Map
TVMWD	Three Valleys Municipal Water District
UBC	Uniform Building Code
UNFCCC	United Nations Framework Convention on Climate Change
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

VdB	Velocity in Decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle Miles Traveled
WDR	Waste Discharge Requirement
WUI	Wildland-Urban Interface
ZEV	Zero Emissions Vehicle
ZNE	Zero Net Energy

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APPENDIX A-1:

Initial Study

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INITIAL STUDY

THE COMMONS

CITY OF CLAREMONT

LOS ANGELES COUNTY, CALIFORNIA

LSA

November 18, 2019

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INITIAL STUDY

THE COMMONS

CITY OF CLAREMONT

LOS ANGELES COUNTY, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
BMP	Best Management Practice
CalEEMod	California Emission Estimator Model
CBC	California Building Code
CCR	California Code of Regulations
CALUCP	Cable Airport Land Use Compatibility Plan
CEQA	California Environmental Quality Act
City	City of Claremont
CPD	Claremont Police Department
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ESA	Environmental Site Assessment
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse Gas
GPA	General Plan Amendment
I-10	Interstate 10
Initial Study	Initial Study
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
NAHC	Native American Heritage Commission
ND	Negative Declaration
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
PRC	Public Resources Code
SBCFD	San Bernardino County Fire District
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SRRE	Source Reduction and Recycling Element
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TTM	Tentative Tract Map
UPD	Upland Police Department
USDA	United States Department of Agriculture
ZC	Zone Change

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1.0 INTRODUCTION AND PURPOSE

1.1 INTRODUCTION

Section 1.0 of this Initial Study describes the purpose, environmental authorization, the intended uses of the Initial Study, documents incorporated by reference, and the processes and procedures governing the preparation of the environmental document. Pursuant to Section 15367 of the *State of California Guidelines for Implementation of the California Environmental Quality Act* (*CEQA Guidelines*), the City of Claremont (City) is the Lead Agency under the California Environmental Quality Act (CEQA). The City has primary responsibility for compliance with CEQA and consideration of The Commons Specific Plan (project or proposed project).

The Initial Study is organized as follows:

Section 1.0 *Introduction and Purpose* provides a discussion of the Initial Study's purpose, focus, and legal requirements.

Section 2.0 *Project Description* provides a detailed description of the proposed project.

Section 3.0 *Environmental Checklist* includes a checklist and accompanying analyses of the project's effect on the environment. For each environmental issue, the analysis identifies the level of the project's environmental impact, required mitigation measures, and whether or not further analysis is required in an EIR.

Section 4.0 *List of Preparers*

Section 5.0 *References* details the references cited throughout the document.

Appendices Includes the technical material and studies prepared to support the analyses contained in the Initial Study.

1.2 PURPOSE

CEQA requires that the proposed project be reviewed to determine the environmental effects that would result if the project were approved and implemented. The City is the Lead Agency and has the responsibility of preparing and adopting the associated environmental document prior to consideration of the approval of the proposed project. The City has the authority to make decisions regarding discretionary actions relating to implementation of the proposed project.

This Initial Study has been prepared in accordance with the relevant provisions of CEQA (California Public Resources Code Section 21000 et seq.); the *CEQA Guidelines,*[1] and the rules, regulations, and procedures for implementing CEQA as adopted by the City. The objective of the Initial Study is to inform City decision-makers, representatives of other affected/responsible agencies, the public, and interested parties of the potential environmental effects of the project.

As established in *CEQA Guidelines* Section 15063(c), the purposes of an Initial Study are to:

- Provide the Lead Agency (City of Claremont) with information to use as the basis for deciding whether to prepare an Environmental Impact Report (EIR), Negative Declaration (ND), or Mitigated Negative Declaration (MND);

[1] California Code of Regulations, Title 14, Chapter 3, Sections 15000 through 15387.

- Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for an ND or MND;
- Assist in the preparation of an EIR, if one is required;
- Facilitate environmental assessment early in the design of a project;
- Provide a factual basis for finding in an ND or MND that a project will not have a significant effect on the environment;
- Eliminate unnecessary EIRs; and
- Determine whether a previously prepared EIR could be used with the project.

1.3 INTENDED USE OF THIS INITIAL STUDY

The City formally initiated the environmental process for the proposed project with the preparation of this Initial Study. The Initial Study will be distributed along with a Notice of Preparation (NOP) advising responsible and trustee agencies, other affected agencies, interested parties, and individual members of the public that the City is preparing an EIR to address potential environmental impacts resulting from construction and operation of the proposed project. The Initial Study screens out those impacts that would be less than significant and do not warrant mitigation, identifies those issues that require further mitigation to reduce impacts to a less than significant level, and identifies those issues that require further analysis in an EIR. Based on these analytical conclusions, this Initial Study supports the preparation of a project EIR for the proposed project upon the request of the Lead Agency.

CEQA[2] permits the incorporation by reference of all or portions of other documents that are generally available to the public. This Initial Study has been prepared utilizing information from City planning and environmental documents, technical studies specifically prepared for the project, and other publicly available data. The documents utilized in the Initial Study are identified in Section 3.0 and are hereby incorporated by reference. These documents are available for review at the City of Claremont, Community Development Department, Planning Division.

1.4 PUBLIC REVIEW OF THE INITIAL STUDY

The Initial Study and the NOP will be distributed to responsible and trustee agencies, other affected agencies, interested parties, and individual members of the public for a 30-day NOP public review period. Written comments in response to this Initial Study regarding the scope of the pending EIR should be addressed to:

Jennifer Davis, Contract Planner
City of Claremont
Community Development Department
207 Harvard Avenue
Claremont, California 91711
(909) 399-5470
jdavis@romoplanninggroup.com

[2] *CEQA Guidelines* Section 15150.

Consideration of comments raised during the 30-day NOP public review period regarding the scope and content of the environmental information and analysis pertinent to the proposed project will be taken into account. Relevant and applicable comments will be incorporated into the EIR.

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2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

A description of the proposed project is provided in this section of the Initial Study in conformance with *CEQA Guidelines* Section 15063. It describes the geographic setting of the proposed project, the project location, the existing project setting, project characteristics, project objectives and discretionary actions required to implement the proposed project. The existing setting described in the project description is used to assist in the definition of existing baseline conditions from which the proposed project's impacts on the physical environment are determined.

The proposed project would result in the development of 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on a 6.5-acre site in the City of Claremont (in the County of Los Angeles) and 48 townhomes on 3.0 acres in the City of Upland (in the County of San Bernardino). The project includes a General Plan Amendment (18-GPA02), Specific Plan (18-SP01), a Zone Change (18-CA02), and Tentative Tract Map approvals (TTM 82135 in Claremont). The Upland portion of the project will be approved and entitled in a manner consistent with Upland's land use approval regulatory and discretionary procedures. At this time, the Applicant has submitted an application with the City of Upland for compliance under Senate Bill 35 for the portion of the project that is in Upland.

2.2 PROJECT LOCATION

The project is a proposed planned residential/mixed-use development on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the City of Claremont and the City of Upland (Figure 1: Regional and Project Location). The City of Claremont is located in Los Angeles County and the City of Upland is located in San Bernardino County. The City of Claremont portion of the project site is 6.5 acres of the 9.5 acres. The City of Upland portion of the project site is 3.0 of the 9.5 acres. The City of Claremont is bounded by unincorporated land in Los Angeles County to the north, the Cities of Pomona and Montclair to the south, the City of Upland to the east, and the City of La Verne and County of Los Angeles unincorporated land to the west. The City of Upland is bounded by unincorporated land in San Bernardino County to the north, the Cities of Montclair and Ontario to the south, the City of Rancho Cucamonga to the east, and Claremont and the Los Angeles County/San Bernardino County boundary to the west.

The project site occupies Assessor's Parcel Numbers (APNs) 8307-003-066 (Los Angeles County) and APNs 1006-312-02, 03, and 04 (San Bernardino County). The four parcels are primarily undeveloped with the exception of an Armstrong Garden Center. The nursery will remain and will become the adjacent neighboring property to the west of the planned residential/mixed-use development portion of the project in Claremont. The nursery occupies 1.44 acres west of the 9.5 acre project site and is part of proposed Tentative Tract Map 82135 being processed for the project.

2.3 LAND USE, GENERAL PLAN, AND ZONING

2.3.1 Existing Site and Surrounding Land Uses

The project site is bordered by Foothill Boulevard on the south and Monte Vista Avenue to the east. The land use to the south of Foothill Boulevard is vacant land, and to the east of Monte Vista is an office park (Upland). The office park consists of public storage units, a CrossFit gym, a craft store, and several other

various businesses. There is an Armstrong Garden Center and ARCO Station to the west of the project site in Claremont. Figures 2A and 2B present views of the existing project site.

2.3.2 Site and Surrounding General Plan Land Use Designations

The Claremont and Upland General Plans constitute a blueprint for future growth and development within their respective cities. The General Plans identify the goals with respect to both built and natural environments, and establish the policies and implementation measures to achieve the stated goals.

The existing General Plan land use designations surrounding the project are as follows:

- North: Business Park (Claremont);
- East: Medium Density Single-Family Residential (SFR-M) and Institutional (I)(Upland);
- South: Institutional (Claremont); and
- West: Commercial (Claremont).

The City of Claremont's portion of the site is currently designated as Highway Commercial according to the General Plan. The Highway Commercial designation is intended for a broad range of retail, professional office, and service-oriented businesses. This category accommodates uses that typically attract vehicular traffic. This designation applies to properties that are near the 10 Freeway, that are highly visible from the freeway and benefit from thus location and applies to the properties along Foothill Boulevard, Indian Hill Boulevard and the east end of Base Line Road. Permitted uses are those oriented toward the regional market and benefitting from high visibility, including automobile sales and ancillary uses, supermarkets, hotels, larger retailers, restaurants and drive-through restaurants.

The City of Upland's portion of the site is designated for Business/Residential (B/R-MU), according to the Upland General Plan. The Business/Residential designation is intended for areas in which businesses and/or light industrial uses are compatible with multi-family or single-family residential. Permitted uses include light manufacturing, assembly, processing, and office, multi-family and single-family residential.

2.3.3 Site and Surrounding Zoning

The project site is mostly zoned Commercial Highway (CH) in Claremont and Business/Residential (B/R-MU) in Upland. Zoning allows for the development of a mix of residential and business units with a density of 8.8 dwelling units per acre in Claremont and a density of 15.9 dwelling units per acre in Upland. The total allowable density for the project site under current zoning is 11.1 dwelling units per acre and a total square footage of 5,000 square feet designated to commercial property.

The area to the north of the project site is zoned Business/Industrial Park (B/IP) in the City of Claremont. The area to the east of the project site is zoned Single-Family Residential: RS-7,500 (RS-7.5) in the City of Upland. The area to the south of the project site is zoned Institutional Education (IE) (City of Claremont). The area to the west of the project site is zoned Commercial Highway (CH) (City of Claremont).

2.4 PROJECT CHARACTERISTICS

The project is proposing a total of 27 single-family detached homes, 68 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats and 2,000 square feet of outdoor dining. The development will have a wide easement, which will be used as active and passive

open space for the project (called Central Park and Linear Park). The household expected size is between 2 and 5 occupants. Resident, guest and customer parking spaces will be provided.

Within the City of Claremont is proposed 27 single-family detached homes, 20 townhomes, 15 second-story residential flats, 5,000 square feet of retail space below the residential flats and 2,000 square feet of outdoor dining.

Forty-eight (48) of the 68 townhomes proposed are located in Upland.

Figure 3 presents the project site plan. Figures 4A, 4B, and 4C present building elevations of the proposed project.

2.5 REQUIRED ACTIONS

CEQA Guidelines Section 15124(d)(1) requires the City, to the extent the information is known, to include a list of the agencies that are expected to use the EIR in their decision-making processes, a list of permits and other approvals required to implement the project, and a list of related environmental review/consultation requirements established by federal, State, or local law, regulation and/or policy.

Lead Agency

Pursuant to the provisions of CEQA and the *State CEQA Guidelines*, the City of Claremont is the Lead Agency that will approve and carry out the project within its jurisdiction. As part of the approval process, the City of Claremont is preparing an EIR to consider the environmental effects of the proposed project. The portion of the project located in the City of Claremont will be implemented in accordance with the proposed land use, design, and development standards contained in The Commons Specific Plan, additional conditions of approval applied by the City, and applicable mitigation measures contained in the EIR.

Responsible Agency

The Upland portion of the project will be approved and entitled in a manner consistent with the City of Upland's land use approval regulatory and discretionary procedures. Upland may choose to use this EIR as a Responsible Agency for the portion of the project within its jurisdiction. As part of the Responsible Agency approval process, Upland is required to consider the environmental effects of the portion of the project in Upland in accordance with CEQA Guidelines Section 15096. At this time, the Applicant has submitted an application with the City of Upland for compliance under Senate Bill 35 for the portion of the Specific Plan that is in Upland.

Permits and Approvals

The following City of Claremont permits and approvals are required to implement the project:

- General Plan Amendment (18-GPA02).
- Specific Plan (18-SP01).
- Zone Change Municipal Code Text Amendment (18-CA02).
- Tentative Tract Map approvals (TTM 82135 in Claremont; TTM 12345 in Upland).
- Design Review 18-ARA08.

The following approvals from other regulatory agencies may also be required:

- State Water Resources Control Board (SWRCB): Notice of Intent to comply with the General Construction Activity National Pollutant Discharge Elimination System (NPDES) Permit.
- Utility Providers: Connection permits.

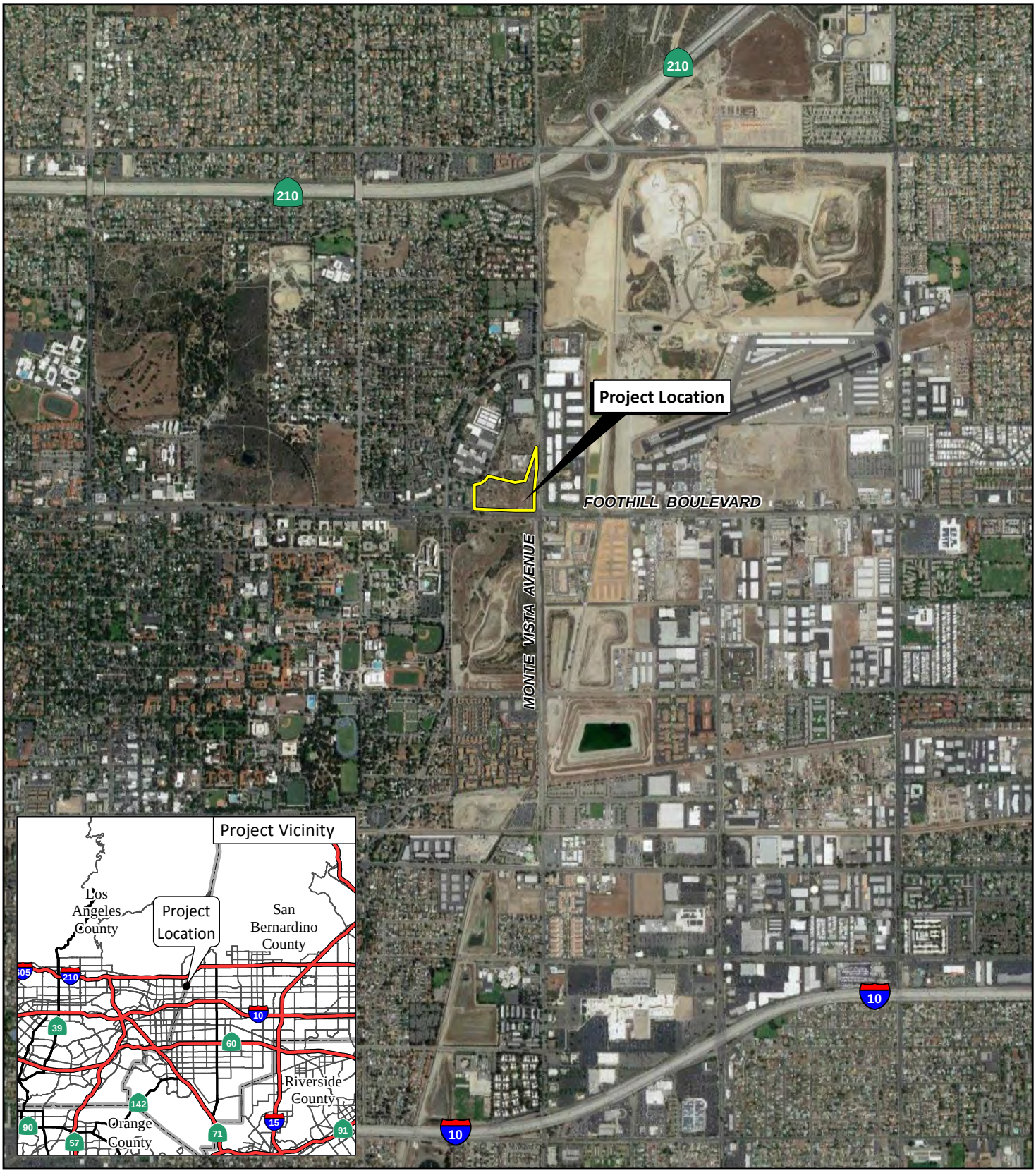
2.6 METHODOLOGY

The analysis in this Initial Study provides an environmental review of the project pursuant to CEQA. The details of the proposed project and associated actions have been characterized in this section and are also addressed in detail throughout Section 3.0 of this Initial Study.

2.7 INITIAL STUDY APPENDICES/REFERENCE DOCUMENTS

The Initial Study is based on the following environmental documents and technical studies:

Appendix A: Geotechnical Investigation



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LEGEND

Project Location

FIGURE 1

N

0 1000 2000

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SOURCE: Google (2018)

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The Commons

Regional and Project Location

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FIGURE 2A

The Commons

Aerial View from South Looking North Across Site

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LSA

FIGURE 2B

The Commons

Aerial View from East Looking Southwest Across Site

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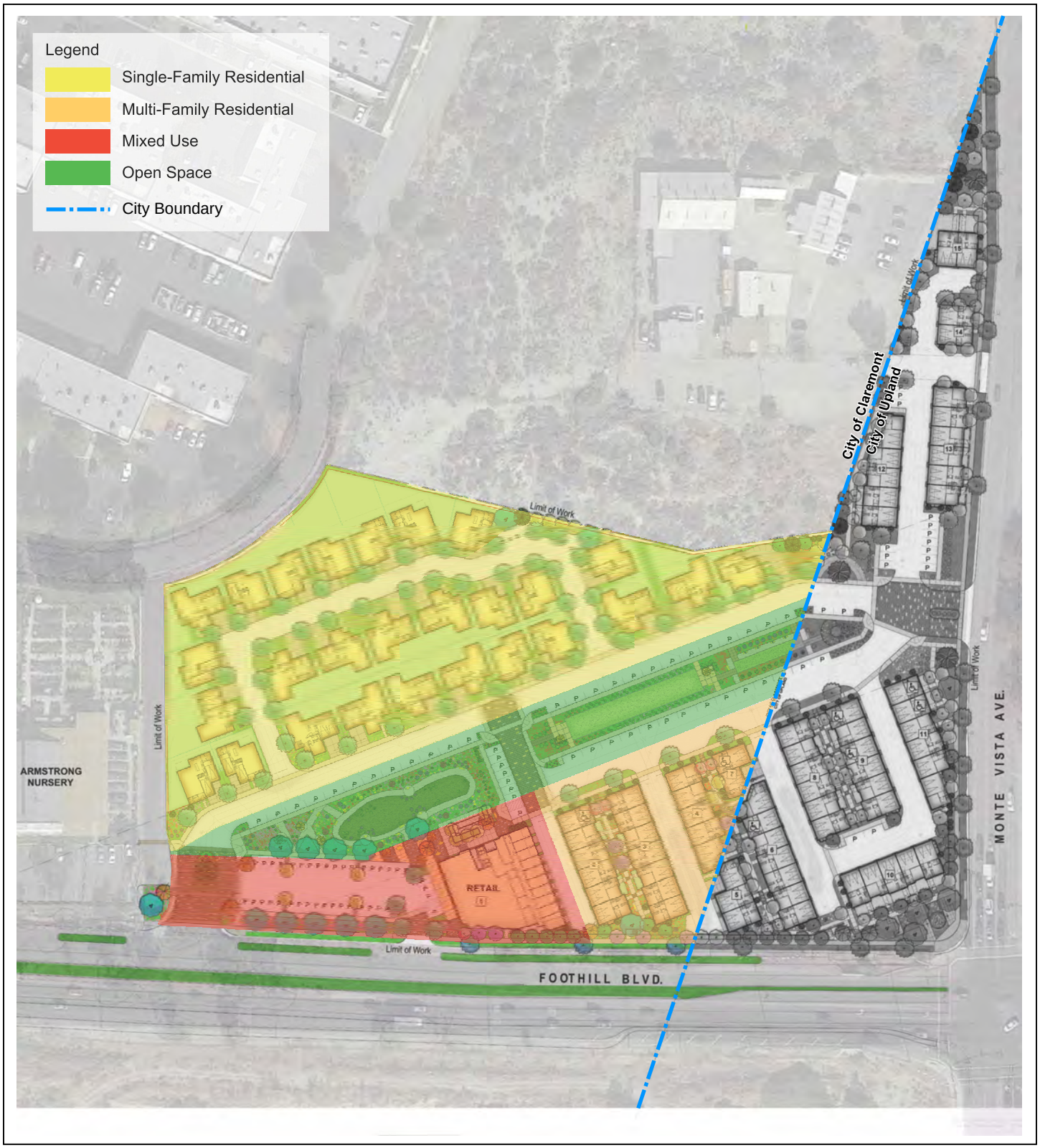

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FIGURE 3

N

0 100 200

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SOURCE: KTGY Group, Inc. (9/2019)

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The Commons

Conceptual Site Plan

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FIGURE 4A

The Commons

Perspective of Single Family Residential Building

SOURCE: KTGY Architecture + Planning (2/4/2019)

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FIGURE 4B

The Commons

Perspective of Mixed-Use Building

SOURCE: KTGY Architecture + Planning (2/4/2019)

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FIGURE 4C

The Commons

Perspective of Townhome Building

SOURCE: KTGY Architecture + Planning (2/4/2019)

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3.0 INITIAL STUDY/ENVIRONMENTAL CHECKLIST FORM

1. Project Title:

The Commons

2. Lead Agency Name and Address:

City of Claremont
Community Development Department, Planning Division
207 Harvard Avenue
Claremont, California 91711

3. Contact Person and Phone Number:

Jennifer Davis, Contract Planner (909) 399-5470
jdavis@romoplanninggroup.com

4. Project Location:

The project site is located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the cities of Claremont and Upland. The project site occupies Assessor's Parcel Numbers (APNs) 8307-003-066 (Los Angeles County) and Assessor's Parcel Numbers 1006-312-02 through 04 (San Bernardino County).

5. Project Sponsor's Name and Address:

Clare Properties
10940 Wilshire Boulevard, Suite 1960
Los Angeles, California 90024

6. General Plan Surrounding Land Use Designation:

North – Business Park (City of Claremont)

East – Medium Density Residential (SFR-M) and Institutional (I) (City of Upland)

South – Institutional (City of Claremont)

West – Commercial (City of Claremont)

7. Zoning Surrounding Project Site:

North – Business/Industrial Park (B/IP) (City of Claremont)

East – Single-Family Residential RS-7,500 (RS-7.5) and Public (PB) (City of Upland)

South – Institution Educational (IE) (City of Claremont)

West – Commercial Highway (CH) (City of Claremont)

8. Description of Property:

The project is a Specific Plan of residential/mixed-use development on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the cities of Claremont and

Upland. The proposed project will convert the majority of 9.5 acres of underutilized and vacant land at the entrance of the City of Claremont into a residential/mixed-use village. The project will provide open and park space, retail options within the neighborhood, and residential attached and detached housing. The development will have a large open space area running through the middle of the site to provide an emergency landing area for aircraft utilizing Cable Airport.

9. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?

Please refer to Checklist Section 18 (Tribal Cultural Resources). Consultation was conducted for the project.

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

3.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a potentially significant impact as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Energy
☐ Geology/Soils	☒ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☒ Hydrology/Water Quality	☒ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

3.2 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of the initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: Lynn Calvert-Hayes Date: November 18, 2019
Lynn Calvert-Hayes, AICP for the City of Claremont

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

1. Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Less than Significant Impact. Scenic vistas near the project site are dominated by the hillsides and lower slopes of the San Gabriel Mountains to the north. According to the City of Claremont's Hillside Ordinance, "The ordinance provides the framework for allowing residential development in the hillsides within concentrated areas where the terrain is flatter and easier to develop." The project site will not be in a hillside area within Claremont. According to the City of Upland General Plan, there are no designated scenic views or vistas within the City. Policy CC-1.6 of the Community Character Element of the City's General Plan requires development to enhance public view corridors of the San Gabriel Mountains, where feasible.

The project is not located within the hillside portions of Claremont or Upland and would not block views of the San Gabriel Mountains. Views of the hillsides and mountains to the north as well as other topographic features to the south will continue to be available from vantage points along Monte Vista Avenue. Views of the hillsides and the distant San Bernardino Mountains and other topographic features to east will continue to be available from vantage points along Foothill Boulevard. The project would have a **less than significant impact** on a scenic vista and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings and historic buildings within a State scenic highway?	☐	☐	☒	☐

Less than Significant Impact. The segment of Foothill Boulevard adjacent to the project area was formerly designated as Route 66 prior to its delegation by Caltrans to Claremont. As cited in the cultural resources study prepared for the proposed project, the section of former Route 66 was evaluated by Caltrans in 2010. Caltrans concluded this portion of then designated Route 66 lacked sufficient integrity to contribute to the significance of Route 66 as a whole and was not a "historical resource" under CEQA. The portion of the project frontage on Foothill Boulevard located in Upland is still designated Route 66. For the same reasons as concluded for the segment in Claremont, the project frontage within Upland lacks sufficient integrity to contribute to the significance of Route 66 as a whole and is not a "historical resource" under CEQA. The project site is not located within the area of a scenic highway. The project would not substantially affect scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway. Impacts would be **less than significant** and no mitigation is required. No further analysis of this subject is required in the EIR.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project	☐	☐	☐	☒

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?				

No Impact. See the response to Checklist Question 1.A. The project site is in an urbanized area in the Cities of Claremont and Upland. The project would be developed in accordance with the land use and development standards contained The Commons Specific Plan and applicable provisions of the two Cities' development codes, resulting in a planned and orderly residential master planned community. Accordingly, no significant degradation to the visual character of the project site or the surrounding area would occur, since the project site is zoned for commercial highway and single-family residential. **No impact** would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

d) Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Less than Significant Impact. Lighting will be used on the property for nighttime illumination of the area. The project has the potential to create some impact, given that the site is vacant, and has the potential to create a new source of lighting. Views would not be affected because outdoor lighting will comply with the Claremont Municipal Code requirements for the portion within Claremont and the Upland Municipal Code requirements for the portion within Upland. The City of Claremont General Plan states streetlights and safety lights at signalized intersections provide for public safety. The City created a Landscape and Lighting District Program in 1990 to help cover the cost of street lighting as well as landscaping within public rights-of-way.

Through adherence to applicable Claremont and Upland standards, the project would not generate excessive light or glare. Impacts would be **less than significant** and no mitigation is required. No further analysis of this subject is required in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

2. Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact. Farmland maps are compiled by the California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP), pursuant to the provisions of Section 65570 of the California Government Code. These maps utilize data from the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey and current land use information and use eight mapping categories to represent an inventory of agricultural resources within the county.

As classified by the FMMP,[3] the project site is designated as "Other Land." This category consists of land that is vacant and nonagricultural. As no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is located on site, no conversion of any such farmland would occur. **No impact** would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

No Impact. Williamson Act contracts restrict land development of contract lands.[4] These contracts typically limit land use to agriculture, recreation, and open space, unless otherwise stated in the contract. The project site is located in "Urban and Built-Up land" (land occupied by structures with a building density of at least 1 unit per 1.5 acres or approximately 6 structures to a 10-acre parcel) and therefore is not subject to a Williamson Act Conservation Contract. The proposed project would not conflict with a Williamson Act contract. Therefore, the proposed project will not conflict with existing

[3] California Department of Conservation, *Farmland Mapping and Monitoring Program.*

[4] The Williamson Act is a procedure authorized under State law to preserve agricultural lands as well as open space. Property owners entering into a Williamson Act contract receive a reduction in property taxes in return for agreeing to protect the land's open space or agricultural values.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

zoning for agricultural uses or with a Williamson Act Conservation Contract.[5] **No impact** would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

c) Conflict with existing zoning for or cause rezoning of forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒

No Impact. The City does not contain forestry-related or timberland zoning. No forest land is located within or near the project site; therefore, no rezoning of forest land would occur. **No impact** would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact. As detailed in response to Checklist Question 2.C, neither City contains forestry-related or timberland zoning. No forest land is located within or near the project site; therefore, no conversion of forest land would occur. The project will have **no impact** related to loss of forest land or conversion of forest land to non-forest use. No mitigation is required. No further analysis of this subject is required in the EIR.

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact. As no agricultural uses exist on site, the proposed project would not result in the conversion of agricultural land to a non-agricultural use. Similarly, no forestry uses exist on site. In the absence of land designated for agricultural use or forestry use, **no impact** would occur. No mitigation is required. No further analysis of this subject is required in the EIR.

[5] *San Bernardino County Williamson Act FY 2015/2016 (Sheet 2 of 2*). State of California Department of Conservation, California Important Farmland Finder. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/ (accessed December 4, 2018).

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

3. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐

Potentially Significant Impact. The project site is in the South Coast Air Basin (Basin), which is managed by the South Coast Air Quality Management District (SCAQMD). The United States Environmental Protection Agency (EPA) has designated the status of the Basin as nonattainment for ozone (O_3), coarse inhalable particulate matter less than 10 microns in size (PM_{10}), and fine inhalable particulate matter less than 2.5 microns in size ($PM_{2.5}$) under the California Ambient Air Quality Standards. Under the National Ambient Air Quality Standards, the EPA has designated the status of the Basin as nonattainment for O_3 and $PM_{2.5}$.

The SCAQMD and Southern California Association of Governments (SCAG) are responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The applicable AQMP is the SCAQMD Final 2016 AQMP.[6] Consistency with the AQMP would be achieved if the project complies with all applicable SCAQMD rules and regulations and is consistent with the growth forecasts in the applicable plan. Consistency with growth forecasts can be established by demonstrating that the project is consistent with the land use plan used to generate the growth forecast.

The proposed project could have a potentially significant impact by conflicting with applicable provisions of the AQMP. A technical air quality study is being prepared to address the potential impacts regarding air quality from the proposed project. The EIR will summarize the findings in the technical study and will analyze the significance of the potential impacts, as well as potential mitigation measures, if any.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?	☒	☐	☐	☐

Potentially Significant Impact. The project could generate short-term and long-term air pollutants resulting in a cumulatively considerable increase in criteria pollutants. A technical air quality study is being prepared to address the effects on air quality from construction and operation of the proposed project. The potential impacts regarding criteria pollutants, the significance of the potential impacts, as well as potential mitigation measures, if any, will be addressed in the EIR.

c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐

[6] *Final 2016 Air Quality Management Plan*. South Coast Air Quality Management District, March 2016.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Potentially Significant Impact. The SCAQMD identifies the following as sensitive receptors: long-term healthcare facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, childcare centers, and athletic facilities. There are no sensitive receptors located within the project area that may be affected by the project; however, the air quality report will analyze the potential impacts regarding sensitive receptors, the significance of the potential impacts, as well as the potential mitigation measures, if any, will be addressed in the EIR.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less than Significant. SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property."

During construction, the various diesel-powered vehicles and equipment in use on the site may create other emissions, including objectionable odors, from exhaust. Additionally, the installation of asphalt may generate odors. These odors are temporary and not likely to be noticeable beyond the project boundaries. Project construction would include best available control measures as required by SCAQMD Rule 1113 for architectural coatings. Construction is not anticipated to result in VOC emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, nor would it result in a cumulatively considerable net increase of VOCs. Compliance with these rules would ensure that impacts from other emissions such as objectionable odors associated with construction activities remain less than significant.

The proposed uses are not anticipated to emit any objectionable odors during operation of the project. The type of facilities that are considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. Residential and general commercial facilities are not associated with foul odors. Therefore, other emissions such as objectionable odors posing a health risk to existing and future off-site uses would not occur as a result of the proposed project. Impacts related to generation of other emissions such as objectionable odors affecting substantial numbers of people would be **less than significant.** No mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

4. Biological Resources

Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐

Potentially Significant Impact. A Biological Resources Assessment is being prepared for the proposed project. Potential impacts to any identified candidate, sensitive, or special-status species will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☒	☐	☐	☐

Potentially Significant Impact. A Biological Resources Assessment is being prepared for the proposed project. Potential impacts to any identified riparian habitat or other sensitive natural communities will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐

Potentially Significant Impact. A Biological Resources Assessment is being prepared for the proposed project. Potential impacts to any identified wetlands will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Potentially Significant Impact. A Biological Resources Assessment is being prepared for the proposed project. Potential impacts to any identified wildlife movement, wildlife corridors, or wildlife nursery sites will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐

Potentially Significant Impact. A Biological Resources Assessment is being prepared for the proposed project. Potential conflicts with local policies or ordinances protecting biological resources will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

No Impact. The project site is not within any adopted habitat conservation plans, natural community conservation plans, or any other regional planning areas identified by the USFWS, CDFW, or the City.[7,8,] Therefore, implementation of the proposed project would not conflict with the provisions of any adopted local or regional conservation plans. **No impact** to adopted habitat conservation plans would occur and no mitigation is required.

[7] *California Natural Diversity Data Base, RareFind 5 and Biogeographic Information and Observation System online mapping tool.* California Department of Fish and Wildlife. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data (accessed December 4, 2018).

[8] *Information for Planning and Consultation, Facilities.* United States Fish and Wildlife Service. https://ecos.fws.gov/ipac/location/VKT4QFYV5FHP5FCSEJAK4YRDEM/resources#facilities (accessed October 15, 2019).

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

5. Cultural Resources

Would the project:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐

Potentially Significant Impact. A Cultural Resources Assessment is being prepared for the proposed project to address the potential impacts to historic resources. The significance of the potential impacts and the potential mitigation measures, if any, will be fully analyzed in the EIR to reduce impacts to less than significant where possible.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐

Potentially Significant Impact. A Cultural Resources Assessment is being prepared for the proposed project to address the potential impacts to archaeological resources. The significance of the potential impacts and the potential mitigation measures, if any, will be fully analyzed in the EIR to reduce impacts to less than significant where possible.

c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Less than Significant Impact. In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and deposition pursuant to Public Resources Code (PRC) Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative the MLD may inspect the site of the discovery. The construction contractor, project proponent, and the County Coroner are required to comply with the provisions of California Code of Regulations (CCR) Section 15064.5(e), PRC Section 5097.98, and Section 7050.5 of the State's Health and Safety Code. Compliance with these provisions would ensure that any potential impacts to unknown buried human remains would be **less than significant** by ensuring appropriate examination, treatment, and protection of human remains as required by State law. No mitigation is required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
6. Energy				
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐

Potentially Significant Impact. Potential impacts from wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

Potentially Significant Impact. Potential impacts from inconsistencies with or obstruction of renewable energy or energy efficiency plans will be fully analyzed in the EIR and mitigation measures will be identified, where required to reduce impacts to less than significant where possible.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

7. Geology and Soils

The analysis below is based on the geotechnical investigation prepared for the proposed project by Alta California Geotechnical Inc., dated June 20, 2018 located in Appendix A.

Would the project:

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ☐ ☐ ☒ ☐

Less than Significant Impact. Regionally, the project site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of southern California where right lateral major active fault zones predominantly trend northwest–southeast. The Peninsular Ranges province is composed of plutonic and metamorphic rock, with lesser amounts of Tertiary volcanic and sedimentary rock, Quaternary drainage infills and sedimentary veneers. Several large, active fault systems including the Elsinore-Whittier, Newport-Inglewood, and the San Andreas occur in the region surrounding the site. These fault systems have been studied extensively and in a large part control the geologic structure of southern California.[9]

The nearest known active faults (movement occurring 11,000 years ago) are the Sierra Madre fault, the Clamshell-Sawpit fault, and the San Jacinto fault, located approximately 2.8, 12.6, and 14.5 miles from the site. [10] According to the City's General Plan EIR, the project site is not located within the Alquist-Priolo Earthquake Fault Zone. Given that there is not a fault located on site, the potential for ground rupture is considered to be **less than significant**; therefore, no mitigation is required.

ii) Strong seismic ground shaking? ☐ ☐ ☒ ☐

Less than Significant Impact. Like all of Southern California, the project site could have the potential for strong seismic ground shaking because of a large earthquake. The type and magnitude of seismic hazards affecting the site are dependent on the distance to the epicenter of the fault and the intensity and magnitude of the seismic event. All future construction and development would be required to comply with applicable provisions of the most current edition of the California Building Code (CBC) at the time of construction and the City's adopted building codes pursuant to the City's Municipal Code. These specific requirements would ensure potential impacts from strong seismic ground shaking are **less than significant**. No mitigation is required.

[9] *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

[10] Ibid.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Less than Significant Impact. Liquefaction occurs primarily in saturated, loose, fine-to-medium-grained alluvial soils in areas where the groundwater table is within 50 feet of the surface. Shaking causes the soils to lose strength and act as a liquid. Liquefaction-related effects include the loss of strength, lateral spreading, and flow failures or slumping. In general, the more recently that sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that are considered are groundwater, confining stresses, relative density, and the intensity and duration of seismically-induced ground shaking. Groundwater was not encountered during the subsurface investigation, which extended to a depth of 20 feet. The regional groundwater map indicates that the historic high groundwater level is 40 to 50 feet. Based on the depth of groundwater and the underlying soil type (primarily gravel), the potential for liquefaction is considered to be minimal.[11] The site is not located within a designated liquefaction hazard zone. Therefore, liquefaction is not considered to be a hazard at the project site. Impacts would be **less than significant** and no mitigation is required.

iv) Landslides?	☐	☐	☒	☐

Less than Significant Impact. The topography at the project area is relatively flat and since there are no hillside areas, the risk of landslides is not considered for design purposes. [12]Detailed grading plans would be reviewed and approved by the City pursuant to Section 17.013.020, *Application Submittal and Review,* of the City Municipal Code to ensure that appropriate design features are implemented. Impacts would be **less than significant** and no mitigation is required.

b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less than Significant Impact. Construction activities have the potential to expose bare soil to wind and/or water, which could have the potential to result in soil erosion or loss of topsoil. In order to address the potential for erosion, the project is required to implement Best Management Practices (BMPs) during the construction phase that would reduce erosion in accordance with the National Pollutant Discharge Elimination System (NPDES) regulations. BMPs are standard conditions and presented in instances where the proposed project would not create a significant impact, but would be required to adhere to regulatory requirements in order to ensure impacts do not become significant. These BMPs would be selected as part of the Storm Water Pollution Prevention Plan (SWPPP) that is required to address erosion and discharge impacts associated with the proposed on-site grading.

The project must also comply with the City's grading permit requirements, pursuant to Municipal Code Chapter 15.52, *Grading Restrictions,* which would ensure that construction practices include measures to protect exposed soils such as covering stockpiled soils and use of straw bales and silt fences to minimize off-site sedimentation.

[11] *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

[12] Ibid.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

This would ensure that the proposed project would have a **less than significant** impact related to soil erosion or loss of topsoil. No mitigation is required. No further analysis of this subject is required in the EIR.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐

Less than Significant Impact. Liquefaction occurs in saturated, loose, fine-to-medium-grained alluvial soils in areas where the groundwater table is within 50 feet of the surface. Shaking will cause soils to lose strength and act as a liquid. The effects that are related to liquefaction include strength loss, lateral spreading, and flow failures or slumping. Based on the depth of groundwater and the underlying soil type (primarily gravel), the potential for liquefaction is minimal on the project site. [13]

Lateral spreading is a type of liquefaction-induced ground failure associated with the lateral displacement of surficial blocks of sediment resulting from liquefaction in a subsurface layer. Once liquefaction transforms the subsurface layer into a fluid mass, gravity plus the seismic inertial forces may cause the mass to move downslope toward a free face (such as a river channel or an embankment). Lateral spreading may cause large horizontal displacements and such movement typically damages pipelines, utilities, bridges, and structures.

Factors that contribute to slope failure and landslides include slope height and steepness, shear strength and orientation of weak layers in the underlying geologic units, and pore water pressures.

Ground subsidence is a gradual settling or sinking of the ground surface with little or no horizontal movement, although fissures (cracks and separations) can result from lowering of the ground surface. Most of the damage caused by subsidence is the result of oil, gas, or groundwater extraction from below the ground surface. Ground subsidence may occur as a response to natural forces such as earthquake movements, which can cause abrupt elevation changes of several feet or densification of low density granular soils during an earthquake event that may cause several inches of settlement. Ground subsidence is not likely to occur on the project site.

Hydro-compaction, or soil collapse, typically occurs in recently deposited Holocene (less than 11,000 year before present time) soils that were deposited in an arid or semi-arid environment. Soils prone to collapse are commonly associated with man-made fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. Sudden substantial settlement may occur when saturated, collapsible soils lose their cohesion. An increase in surface water infiltration (such as from irrigation) or a rise in the groundwater table, combined with the weight of a building or structure, may initiate settlement, causing foundations and walls to crack. Based on the composition of the onsite soils

[13] *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

(primarily gravel) and the anticipated minimal fill loads, the potential for hydro-collapse onsite is minimal and should be within foundation tolerances upon the completion of the recommended unsuitable soil removals. [14]

According to the Geotechnical Investigation conducted on the project site, groundwater was not encountered during the subsurface investigation which extended to a depth of 20 feet. The site is not located within a designated liquefaction hazard zone. Given that there was no groundwater encountered on site and that the project site is relatively flat, the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse to occur makes this a **less than significant** impact and no mitigation is required. No further analysis of this subject is required in the EIR.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Less than Significant Impact. Expansive soils generally have a significant amount of clay particles that can give up water (shrink) or take in water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The extent of shrink/swell is influenced by the amount and kind of clay in the soil. The measures to protect life and property from potentially expansive soils include over excavating on-site native and non-native soils, and replacing them with properly compacted fill. According to the geotechnical investigation, expansion index testing was performed on samples taken during the subsurface investigation. Based on the results, it is anticipated that the majority of materials on site are "very low" to "low" in expansion potential. It would be required that the applicant prepare and submit detailed grading plans as specific improvements and developments are proposed prior to receiving grading permits pursuant to Section 17.50.040, *Application Submittal and Review,* of the City Municipal Code. These plans would be prepared in conformance with applicable standards of the City for compliance with the most current edition of the CBC at the time of construction. This would ensure development proposed as part of the project would be protected from expansive soil. Impacts would be **less than significant** and no mitigation is required. No further analysis of this subject is required in the EIR.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

No Impact. Septic systems are on-site systems designed for safe disposal of biological sanitary waste. Although septic tanks are usually within rural areas, if they are not sited, designed or maintained properly, they can be detrimental to the environment and human health; especially if clean groundwater supplies become contaminated.

[14] *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

According to the City of Claremont's General Plan, septic tanks are feasible as long as they are in areas where housing units are at lower densities, are properly maintained, and do not aggregate nitrate.

As a matter of policy, the City of Claremont requires that all properties within the City limits to connect to its sewer system because of nitrate issues within the Sphere of Influence. Properties within the Sphere of Influence and under the jurisdiction of Los Angeles County that use septic tanks are encouraged to annex into the City and connect to the public sewer system.

The proposed project will connect to an existing sewer system; therefore, it would not require the construction or expansion of septic tanks or wastewater disposal systems and **no impact** would occur. No mitigation is required. No further analysis of this subject is required in the EIR.

f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Less Than Significant Impact. The project site is underlain by young alluvial fan deposits sourced from alluvial fan outwash from nearby canyons and drainages and artificial fill.[15] These deposits are not old enough to contain a paleontological resource or site or unique geologic feature. The alluvial deposits in this area are thick (greater than 20 feet below ground subsurface) and subsurface disturbance would not be at a depth that would have the potential to be in deposits that may contain paleontological resources. Impacts to paleontological resources are not considered significant. Therefore, a **less than significant** impact would occur. No mitigation is required. No further analysis of this subject is required in the EIR.

[15] *Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California*, Alta California, Geotechnical Inc., June 20, 2018.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
8. Greenhouse Gas Emissions				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐

Potentially Significant Impact. An Air Quality/Greenhouse Gas Impact Assessment is being prepared to address the potential impacts regarding greenhouse gas emissions and the significance of the potential impacts, as well as the mitigation measures, if any, will be addressed in the EIR.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Potentially Significant Impact. An Air Quality/Greenhouse Gas Impact Assessment is being prepared for the proposed project. Potential impacts regarding GHG reduction plans or Climate Action Plans and the significance of the potential impacts, as well as the mitigation measures, if any, will be addressed in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

9. Hazards and Hazardous Materials

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ☐ ☐ ☒ ☐

Less than Significant Impact. Construction of the project would include the routine transportation, use, and disposal of construction-related hazardous materials such as fuels, oils, solvents, and other materials. These materials are typical of materials delivered to construction sites and do not constitute a significant hazard to the public or environment. Best Management Practices (BMPs) would be implemented to ensure a less than significant impact. Because of this, impacts are considered to be less than significant and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ☐ ☐ ☒ ☐

Less than Significant Impact. Potential hazardous materials such as fuel, paint products, lubricants, solvents, and cleaning products may be used and/or stored on site during construction of the proposed project. These materials are typical materials delivered to construction sites. Due to the amount of anticipated site improvements (i.e., development of 90 residential units/5,000 square feet of commercial uses), only small quantities of these materials are expected to be used during construction, so they are not considered hazardous to the public at large. Impacts are considered to be less than significant and no mitigation is required. No further analysis of this subject is required in the EIR.

These materials are similar to household chemicals and solvents already in general use throughout the City of Claremont and Upland and in the vicinity of the project site. Impacts are considered to be less than significant and no mitigation is required. No further analysis of this subject is required in the EIR.

During construction, the transport, use, and storage of hazardous materials during operation will be regulated by the Los Angeles County Fire District and the California Occupational Safety and Health Administration. Transport of these hazardous materials by truck and rail on State highways and rail lines will be regulated by the United States Department of Transportation Office of Hazardous Materials Safety. Therefore, a less than significant impact would occur and no mitigation is required.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ☐ ☐ ☐ ☒

No Impact. There are no schools within one-quarter mile of the project site. The closest school, Pitzer College, is located in the City of Claremont and is approximately 0.6 mile from the project site. There are

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

no proposed schools within one-quarter mile of the project site. Therefore, no impact would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐

Less than Significant Impact. Pursuant to Government Code Section 65962.5, the Hazardous Waste and Substances Sites List has been compiled by the California Environmental Protection Agency Hazardous Materials Data Management Program. The Department of Toxic Substances Control (DTSC) compiles information from known databases to make up the Cortese List.

Based on a Phase I Environmental Site Assessment (ESA) Report prepared in 2018, no evidence of prior uses that would have released petroleum-based product or other hazardous materials or substances on the project site was discovered. No structures exist on the site, although remnants of a hydraulic lift associated with a former building was observed. The ESA concluded no documented, significant, historic occurrences of petroleum or hazardous materials contamination were discovered at the subject property. No significant existing or historic on-site sources of petroleum or hazardous materials contamination were discovered. Because of the lack of significant environmental contamination, no further investigation was recommended. For these reasons, impacts are considered less than significant and no mitigation is required.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☒	☐	☐	☐

Potentially Significant Impact. The closest airport in proximity to the project site is Cable Airport, located within 1.5 miles to the east. The project site is not governed by the Cable Airport Land Use Compatibility Plan (CALUCP), which stops at the San Bernardino/Los Angeles County line. The potential project impacts from exposure of residences and employees to aircraft safety concerns, the significance of the potential impacts and the mitigation measures, if any, will be fully analyzed in the EIR.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Less than Significant Impact. Fire protection and emergency medical response services are being provided by the San Bernardino County Fire District (SBCFD) in Upland and the Los Angeles County Fire Department in Claremont. The nearest fire station to the project site is San Bernardino County Fire Station 164 located at 1825 N Campus Avenue in the City of Upland (approximately 4.8 miles northwest of the project site). The City of Claremont maintains mutual aid agreements with surrounding cities,

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

which allow for the services of the nearby fire departments to assist the City of Claremont and Upland during major emergencies.

The project would be designed and operated per applicable standards required by the City of Upland for new development with regard to public safety. Policy PFS-2.11 of Upland's General Plan requires new development to be accessible to emergency vehicles and not impede the ability of service providers to provide adequate emergency response. Adherence to the emergency access measures required by the City of Upland would ensure a less than significant impact related to implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

g) Expose people or structures, either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☒	☐	☐	☐

Potentially Significant Impact. According to the City of Claremont General Plan Fire Hazard Map, the portion of the project site that is located in Claremont is not within a high fire hazard severity area. According to the City of Upland General Plan Fire Hazard Map, the portion of the site that is located in Upland is not located in a high fire hazard zone. Fire services in the City of Claremont are provided to residents of Claremont through a contract with the consolidated Fire Protection District of Los Angeles County. Los Angeles County Fire is responsible for the protection of life and property from losses due to fire, explosion, and other disasters.

Policy SAF-4.6 in the City of Upland's General Plan "requires all development in areas of potential wildland fire hazards, shown in the High Fire Hazard Map, to include clearance around structures, fire-resistant ground cover and fire-resistant roofing materials." Design and construction of the project in accordance with the 2016 California Building Code (CBC) which includes design features such as ignition-resistant materials and incorporation of fire sprinklers that would minimize any risk of exposure of persons or property to wildfires. Impacts from wildfires will be **potentially significant** and will be evaluated in the EIR under wildfire.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
10. Hydrology and Water Quality				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☒	☐	☐	☐

Potentially Significant Impact. Drainage and water quality reports are being prepared for the proposed project to address potential impacts to water quality standards or waste drainage requirements, significance of potential impacts, and potential mitigation measures, if any, will be fully analyzed in the EIR.

b) Substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐

Potentially Significant Impact. Drainage and water quality reports are being prepared for the proposed project to address the potential impacts to groundwater supplies, significance of the potential impacts, and mitigation measures, if any, will be fully analyzed in the EIR.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would: i) Result in substantial erosion or siltation on or off site; ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; iii) Create or contribute runoff water which would exceed the capacity of existing or planned storm-water drainage systems or provide substantial additional sources of polluted runoff; or iv Impede or redirect flood flows?	☒	☐	☐	☐

Potentially Significant Impact. Drainage and water quality reports are being prepared for the proposed project to address the potential impacts, significance of potential impacts and mitigation measures, if any, will be fully addressed in the EIR for impacts associated with erosion, siltation, storm-water runoff, and drainage patterns.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
d) Result in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☒	☐	☐	☐

Potentially Significant Impact. Drainage and water quality reports are being prepared for the proposed project to address the potential impacts, significance of potential impacts and mitigation measures, if any, will be fully addressed in the EIR for impacts associated from the release of project water quality pollutants during floods, tsunamis, or seiche zones.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

Potentially Significant Impact. Drainage and water quality reports are being prepared for the proposed project to address the potential impacts, significance of potential impacts and mitigation measures, if any, will be fully addressed in the EIR for impacts associated with water quality management plans and sustainable groundwater management plans.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
11. Land Use and Planning				
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒

Less than Significant Impact. The project site is located at the northwest corner of Monte Vista Avenue and Foothill Boulevard in both Claremont and Upland. The site is surrounded by vacant land to the south plus the existing Armstrong Garden Center and ARCO Station to the west and an office park to the east across Monte Vista. Development of the site would complete development of the properties along the north frontage of Foothill Boulevard between Claremont Boulevard and Monte Vista Avenue. The project would not divide an established community. No impact would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

Potentially Significant Impact. The Claremont portion of the site is currently designated in the Claremont General Plan as Commercial intended for a "broad range of retail, professional office and service-oriented businesses. This category accommodates uses that typically attract vehicular traffic. The designation applies to properties along Foothill Boulevard, Indian Hill Boulevard and the east end of Base Line Road." The Upland portion of the site is designated in the Upland General Plan for Single-Family Medium Residential (SFR-M) and Institutional (I). The Single-Family Medium Residential designation is intended for "new and existing single-family neighborhoods with slightly higher densities than areas designated as Single-Family Low. This designation is implemented primarily in older existing neighborhoods and in transition zones between lower-density residential uses and higher-density commercial, industrial, and multi-family residential land uses". The site is also designated for Institutional (I). This designation "is for large private institutions."

The proposed project includes General Plan Amendments (GPAs)/zone changes (ZCs) from the current designations/zoning to Specific Plan. Upon approval of the proposed project, land use and development will be governed by The Commons Specific Plan resulting in mixed-use (residential and commercial) development. The EIR will analyze potential project conflicts with any land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating an environmental impacts.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

12. Mineral Resources

Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☒	☐

Less than Significant Impact. The project site is located within Mineral Resource Zone 2 (MRZ-2), which is defined as:

> *Areas where adequate information indicates that significant mineral resources are present, or where it is judged that a high likelihood for their presence exists. Land included in MRZ-2 is of prime importance because it contains known economic mineral deposits.*

The State Geologist is responsible for identifying and calculating the amount of aggregate resources contained in areas classified as MRZ-2. The State Geologist further limits the aggregate resource calculations to areas within "Sectors," classified as MRZ-2 that have current land uses deemed compatible with potential mining.

The identification of aggregate resources provides local governments information on areas that remain accessible for extraction. The criteria for identifying resource areas do not consider land use commitments that may restrict the accessibility to the resource; therefore, the amount of available resource may be overestimated. Through the development of local General Plans, it is expected that local jurisdictions will identify areas suitable for the extraction of aggregate and other materials. In the case of the Claremont and Upland General Plans, the project site is not designated as a potential area for mineral resources or mining. Therefore a **less than significant** impact would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

Less than Significant Impact. The site is currently vacant and undeveloped land and the project includes the approval of a specific plan for the development of 90 residential and 5,000 square feet of retail on a site that is vacant. No mineral processing activity occurs on the site or in the vicinity, nor is the site designated for mineral extraction or processing. A **less than significant** impact would occur and no mitigation is required. No further analysis of this subject is required in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
13. Noise				
Would the project:				
a) Cause generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐

Potentially Significant Impact. A noise and vibration impact study is being prepared for the proposed project. Potential project impacts from temporary or permanent increases in ambient noise levels in the vicinity of the project in excess of standards will be fully analyzed in the EIR and mitigation measures will be identified, where required.

b) Generate excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐

Potentially Significant Impact. A noise and vibration impact study is being prepared for the proposed project. Potential project impacts from groundborne vibration or groundborne noise levels will be fully analyzed in the EIR and mitigation measures will be identified, where required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project are to excessive noise levels?	☒	☐	☐	☐

Potentially Significant Impact. A noise and vibration impact study is being prepared for the proposed project. Potential project impacts from exposure of residence or employees to excessive noise levels from aircraft associated with the Cable Airport will be fully analyzed in the EIR and mitigation measures will be identified, where required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

14. Population and Housing

Would the project:

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

Less than Significant Impact. The project is located in an undeveloped area and would include the construction of 105 residential and retail units. The latest statistical figures published by the Southern California Association of Governments (SCAG) for the City's average household size assume 2.9 persons per housing unit for Upland and 2.61 persons per housing unit for Claremont. Sixty-two dwelling units are proposed Claremont and 48 dwelling units in Upland so the proposed project could increase the City of Claremont's population by approximately 162 persons[16] and the City of Upland's population by approximately 139 persons[17] (total of 301 persons). The project does not include construction of new roadways or infrastructure beyond what would serve only the project site, which includes the extension of utilities, and water and sewer lines. The project is not expected to increase growth in the area since there will be no need to increase the existing capacities of wastewater or water treatment facilities. Therefore, the project would not induce substantial population growth in an area, either directly or indirectly. Impacts would be **less than significant** and no mitigation is required. No further analysis of this subject is required in the EIR.

b) Displace substantial amounts of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact. The project site is located on undeveloped land. There are no structures on site and no people will be displaced. **No impacts** from displacement of people that would necessitate the construction of replacement housing elsewhere will occur. No mitigation is required. No further analysis of this subject is required in the EIR.

[16] 2.61 persons/dwelling unit × 62 units = 161.82 persons in Claremont
[17] 2.9 persons/dwelling unit × 48 units = 139.2 persons in Upland

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

15. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection? ☐ ☐ ☒ ☐

Less than Significant Impact. The project site is located in an urbanized area and proposes the construction of 27 single-family homes, 68 townhomes, 15 flats, and 5,000 square feet of retail space on a 9.5-acre site in the Cities of Claremont and Upland. Table A provides a list of fire stations within 5 miles of the project site.

Table A: Fire Stations Located within Five Miles of the Project Site

Fire Station	Address	Distance From Project Site
Montclair Fire Station	8901 Monte Vista Ave, Montclair	4,741 feet south
San Bernardino County Fire Station 163	1350 N Benson Ave, Upland	1.21 miles northeast
Los Angeles County Fire Department Station 101	606 W Bonita Ave, Claremont	1.43 miles southwest
Los Angeles County Fire Department Station 62	3701 N Mills Ave, Claremont	2.14 miles northwest
Los Angeles County Fire Department Station 102	2040 Sumner Ave, Claremont	2.74 miles northwest
San Bernardino County Fire Station 161	475 N 2nd Ave, Upland	2.97 miles southeast
San Bernardino County Fire Station 164	1825 N Campus Ave, Upland,	3.62 miles northeast

In the City of Claremont, the Fire Department is responsible for the protection of life and property from losses due to fire, explosion, and other disasters. The City receives wildland fire protection from the Los Angeles County Fire Department's County Forester and Fire Warden. The City has three Los Angeles County fire stations at various locations, since the County serves emergency cases within the County regardless of city boundaries, services from stations in Pomona, San Dimas, or Glendora can be dispatched depending on availability and distance. Los Angeles County Station 101 also houses a paramedic squad that handles medical emergencies along with the crews on the engines.[18]

The City of Upland is also under automatic aid agreement with the County of San Bernardino to provide fire protection to the areas bounded by Pomello Drive, Mills Avenue, and Foothill Boulevard. All emergency calls are answered by police dispatchers, who redirect fire-related services to the Fire Department.

The City of Upland's Fire Department Policy ensures sufficient levels of staff in order to maintain fire protection and emergency medical services to the community. Response times strive to improve and fire station locations are planned to maintain or enhance current response levels.

[18] https://www.ci.claremont.ca.us/living/fire-department, accessed October 1, 2019.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

Design features incorporated into the structural design and layout of the proposed project would keep service demand increases to a minimum. For example, the project will be constructed in accordance with the 2016 CBC, which requires all new structures to incorporate construction techniques and materials such as roofs, eaves, exterior walls, vents, appendages, windows, and doors resistant to and/or to perform at high levels against ignition during the exposure to fires. Fire sprinklers would be incorporated into the building design to further reduce fire risk and service demand. Additionally, the project is required to incorporate adequate emergency water flow, early warning systems and evacuation routes, and to identify and mitigate any fire hazards during the development review process. Furthermore, the project would be required to pay Development Impact Fees (DIFs) used to fund capital costs associated with constructing new public safety structures and purchasing equipment for new public safety structures.

Any construction of future fire protection facilities in the Cities would require project-level environmental review and site-specific mitigation as appropriate in order to ensure significant environmental impacts are avoided or mitigated. It is reasonable to conclude construction of the proposed project in accordance with the 2016 CBC would be adequately serviced by existing Fire Department facilities. Therefore, the project would not generate demand for new or physically altered governmental facilities or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts. Impacts associated with the need to expand fire protection services and facilities in order to maintain acceptable levels of service would be **less than significant**. No mitigation is required. No further analysis of this subject is required in the EIR.

b) Police protection? ☐ ☐ ☒ ☐

Less than Significant Impact. The City of Claremont Police Department (CPD) responds to emergency situations within the City and patrols neighborhoods to promote a safe environment. The CPD also utilizes reserve police officers who perform similar duties as regular police officers and enhance police services to the community. The Claremont City Council authorized the collection of fees from users of certain non-essential police services that are not directly related with the protection of life and property. The fees are designed to provide cost recovery for these non-emergency services. Fees are based upon formulas approved by Council, and are adjusted every July, or when there is a significant change in a cost factor.[19]

The nearest police station in the City of Claremont is located at 570 W. Bonita Avenue, Claremont, approximately 1.49 miles southwest of the project site. Response time for critical calls is a maximum of 3 minutes.[20]

Police services within the City of Upland are provided by the Upland Police Department (UPD). The nearest UPD station is located at 1499 West 13th Street (1.28 miles east of the project site).

The City of Upland uses a multilayered approach to law enforcement and crime protection. This refers to

[19] https://www.ci.claremont.ca.us/government/departments-divisions/police-department/department-services, accessed October 1, 2019.

[20] City of Claremont Police Department 2018 Annual Report, https://www.ci.claremont.ca.us/home/showdocument?id=13322, accessed October 1, 2019.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

a range of measures such as the use of best practices in law enforcement or ensuring that the siting and landscaping of buildings is a deterrent to crime. Upland has also partnered with neighboring cities and communities for preventing crime.

Compliance with California Vehicle Code 21806(A)(1), which requires all vehicles to yield to emergency vehicles, would ensure response times to the project site are not significantly altered. The project would be designed and operated per applicable standards required by the Cities for new development with regard to public safety.

The Cities monitor staffing levels to ensure that adequate police protection and response times continue to be provided as individual development projects are proposed and on an annual basis as part of the City Council's budgeting process. Therefore, the proposed project would not result in a significant reduction in police response times because of the continual monitoring of police staffing levels by the Cities.

Funding for new police facilities commensurate with the increased demand for services in the Cities would be provided from capital improvement fees levied on new development. These DIFs are one-time charges applied to new development and are imposed to raise revenue for the construction or expansion of capital facilities located out of the project boundaries of a new development that benefit the area. DIFs enable the Cities to collect fair-share fees from new development projects to fund new infrastructure and services. DIFs are collected for specific infrastructure needs and are deposited into different accounts representing these requirements.

Any future construction of new or expansion of existing police protection facilities would be subject to project-level environmental review and site-specific mitigation as appropriate in order to ensure significant environmental impacts are avoided or mitigated. However, it is reasonable to conclude the proposed specific plan in accordance with the 2016 CBC would not require new or physically altered police protection facilities, the construction of which could cause significant environmental impacts. Therefore, impacts would be **less than significant** and no mitigation is required. No further analysis of this subject is required in the EIR.

c) Schools? ☐ ☐ ☒ ☐

Less than Significant Impact. Although the project includes a residential component, and it is anticipated some residents are expected to be of school-age. Therefore, the project is expected to generate any schoolchildren, the addition of which could cause negative impacts to existing or future school facilities or programs.

California Government Code (Section 65995[b]) establishes the base amount of allowable developer fees imposed by school districts. These base amounts are commonly referred to as "Level 1 fees" and are subject to inflation adjustment every two years. School districts are placed into a specific "level" based on school impact fee amounts that are imposed on the development. With the adoption of Senate Bill 50 and Proposition 1A in 1998, schools meeting certain criteria can now adopt Level 2 and 3 developer fees.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

The amount of fees that can be charged over the Level 1 amount is determined by the district's total facilities needs and the availability of State matching funds. If there is State facility funding available, districts are able to charge fees equal to 50 percent of their total facility costs, termed "Level 2" fees. If, however, there are no State funds available, "Level 3" fees may be imposed for the full cost of their facility needs.

Per California Government Code, "The payment or satisfaction of a fee, charge, or other requirement levied or imposed … are hereby deemed to be full and complete mitigation of the impacts … on the provision of adequate school facilities." The project will be required to pay these development fees in accordance with Government Code 65995 and Education Code 17620. Through payment of development fees in accordance with Government Code 65995 and Education Code 17620, no impact related to school services would occur. No mitigation is required. No further analysis of this subject is required in the EIR.

d) Parks? ☐ ☐ ☒ ☐

Less than Significant Impact. The project site contains recreational facilities including the Central Park and Linear Park (1,200 square feet), which are located on site and open to the residents of the proposed project. The addition of residential/commercial structures would provide access to these two parks, but the proposed project would not result in substantial adverse physical impacts to existing parks within the two cities. Therefore, impacts would be less than significant and no additional mitigation is required. No further analysis of this subject is required in the EIR.

e) Other public facilities? ☐ ☐ ☒ ☐

Less than Significant Impact. The proposed project would serve as a community resource to improve the health of its residents and it would result in improved curbs, gutters, sidewalks, and bicycle lanes along the project site frontage and approach roadways, which are public facilities. It is reasonable to conclude the payment of required fees, taxes, and other payments by the project proponent would sufficiently offset any incremental increase in demand for governmental services. But for the proposed project as analyzed throughout this Initial Study, the construction of new or expansion of existing public facilities is not required. Impacts to other public facilities would be less than significant and no mitigation is required. No further analysis of this subject is required in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
16. Recreation				
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

Less than Significant Impact. As the population grows within the City, the need for park and other recreational facilities rises due to the additional strain on upkeep and maintenance that is required to be implemented a City. The addition of 110 residential units and 5,000 square feet of retail is expected to increase the population of Claremont and Upland by a total of 301 residents. The proposed project includes the construction of Central Park and Linear Park on the project site (refer to response to Checklist Question 15d.). There are three parks located within two miles of the project site: Greenbelt Park (1.37 miles northeast of the site), Cabrillo Park (1.40 miles southeast of the site), and Baldy View Park (1.91 miles southeast of the site).

It is not possible to determine with any reasonable certainty, the location, frequency or intensity of use project residents may have on public park/recreation facilities. The proposed project includes various recreational amenities for its employees and residents. Furthermore, any physical impacts resulting from development of the proposed on-site recreational facilities are addressed throughout this Initial Study and mitigated as necessary to levels below significance thresholds.

Through payment of in lieu fees in accordance with the Quimby Act in conjunction with development of the proposed on-site recreational facilities, the project would offset any increased demand on public parks and recreational facilities in the Cities. In lieu fees will be used in part to maintain existing park facilities and/or construct new park facilities at a time and place determined appropriate by each City. The maintenance of existing parks or construction of new park and recreation facilities would be actions independent of the proposed project. The CEQA review for such actions would occur at a time on a level commensurate with each specific City sponsored park development project. Therefore, the proposed project would have **less than significant** impacts related to the increased use of public park and recreation facilities or construction or expansion of park or recreation facilities. No mitigation is required. No further analysis of this subject is required in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
17. Transportation				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☒	☐	☐	☐

Potentially Significant Impact. A traffic impact study is being prepared for the proposed project. Potential project conflicts with programs, plans, ordinances, or policies addressing the affected circulation system will be fully analyzed in the EIR and mitigation measures will be identified, where required.

b) Would the project conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b)?	☒	☐	☐	☐

Potentially Significant Impact. A traffic impact study is being prepared for the proposed project. Potential project conflicts or inconsistency with *CEQA Guidelines* Section 15064.3 regarding vehicle miles traveled analysis will be fully analyzed in the EIR and mitigation measures will be identified, where required.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐

Potentially Significant Impact. A traffic impact study is being prepared for the proposed project. Potential traffic hazards from project design features or incompatible land uses will be fully analyzed in the EIR and mitigation measures will be identified, where required.

d) Result in inadequate emergency access?	☒	☐	☐	☐

Potentially Significant Impact. A traffic impact study is being prepared for the proposed project. Potential project impacts regarding emergency access will be fully analyzed in the EIR and mitigation measures will be identified, where required.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

18. Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

Potentially Significant Impact. The City of Claremont has commenced consultation and coordination with affected tribes. The consultation is not complete, therefore; it is not possible at this time to determine if there are known tribal cultural resources listed or eligible for listing on the project site or that would be affected by development of the project. Impacts to tribal cultural resources are considered to potentially significant and will be analyzed in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
19. Utilities and Service Systems				
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?	☐	☐	☒	☐

Less than Significant Impact. The approval of drainage features/improvements, electrical power and natural gas hook-ups, and telecommunication facilities hook-ups will occur through the building plan check process. As part of this process, all project-related drainage features would be required to meet the Cities of Claremont and Upland's Public Works Department and Santa Ana RWQCB standards. On-site project-related drainage features would be designed, installed, and maintained per Public Works Department standards and the requirements identified in the Final Water Quality Management Plan.

The utility purveyors, Southern California Edison for electric and Southern California Gas Company for natural gas, will require the developer to tie into existing lines in the project vicinity. The project will not result in the construction of new or expanded water or wastewater treatment facilities (refer to responses to Checklist Questions 19b and 19c). The proposed project will be required to connect to existing water and wastewater infrastructure to provide the necessary construction and water/sewer needs for the project. The connection point would be from lines within existing adjacent roadways (Foothill Boulevard). No new water, sewer infrastructure, or construction or relocation of electric power, natural gas lines are anticipated with implementation of the project. Therefore, the impacts would be less than significant and no mitigation is required. No further analysis is required in the EIR.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐

Less than Significant Impact. Water will be provided to the project site by Golden State Water Company (GSWC). GSWC provides drinking water to approximately 11,000 customers in the Claremont Customer Service Area (CSA), which includes Claremont and portions of Montclair, Pomona and Upland (Claremont System Service Area). Local water comes from two sources: 60 percent comes from local groundwater supplies, which Golden State Water maintains, and the balance is imported from the Metropolitan Water District of Southern California (MWD) via Three Valleys Municipal Water District. In accordance with the 2015 Urban Water Management Plan for Claremont,[21] the Los Angeles County Sanitation District (LACSD) provides a reliable supply of recycled water that meets California recycled

[21] 2015 Urban Water Management Plan for Claremont, Golden State Water Company, July 2016. https://www.gswater.com/download/Claremont_2015_UWMP-Final-Draft.pdf accessed October 1, 2019.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

water quality standards set forth in Title 22 of the California Code of Regulations. LACSD is the lead agency in implementing the recycled water plan and distribution network. GSWC works closely with LACSD in planning a potential recycled water distribution system and identifying potential recycled water customers.

The 2015 Urban Water Management Plan for Claremont demonstrates the reliability of water supplies to meet projected annual water demands for the Claremont System during a normal, a single dry year, and multiple dry years through 2040. The projected water demand per capita within the Claremont System is projected at 328 gpd. The proposed project is projected to use 80,360 gpd of potable water. Sufficient water supplies will be available to the project, and GWC does not require new water supply sources or resources to provide water to the project. Therefore, the project will have a less than significant impact related to insufficient water supplies and no mitigation is required. No further analysis is required in the EIR.

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

Less than Significant Impact. Wastewater in the Claremont System is collected by gravity sewers and lift stations owned by the cities of Claremont and Pomona, as well as by LACSD. The wastewater is transported through LACSD-owned trunk sewers to LACSD's Pomona Water Reclamation Plant (WRP). The City of Claremont is also responsible for ensuring that new development is properly connected to the LACSD wastewater collection system.

The Pomona Water Reclamation Plant (WRP) provides primary, secondary, and tertiary treatment for a design capacity of 15 million gallons per day (mgd) (approximately 16,800 acre feet per year (AFY). The average per capita wastewater generation factor for the Pomona WRP is 66 gallons per day (gpd) (about 0.07 AFY).[22] The plant serves a population of approximately 130,000 people. The treated effluent is reused at over 190 different reuse sites throughout the area, including irrigation of parks, schools, golf courses, landscaping and greenbelts, irrigation and dust control at the Spadra Landfill and industrial use by local paper manufacturers.[23] Claremont's inability to use recycled water for productive purposes is because of the lack of necessary infrastructure and distance from regional treatment plants.

Using a wastewater generation rate of 66 gpd, the proposed project is estimated to generate approximately 16,170 gdp[24] which is 0.0010 percent of the capacity of the Pomona WRP. As a matter of policy and to protect public health, the City of Claremont does not allow the use of septic tanks in conjunction with new development within its boundaries and also requires the connection to the City's

[22] Ibid.

[23] 2015 Urban Water Management Plan for Claremont, Golden State Water Company, July 2016. https://www.gswater.com/download/Claremont_2015_UWMP-Final-Draft.pdf accessed October 1, 2019.

[24] 245 persons × 66 gdp = 16,170 gpd

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

wastewater collection system. To ensure the proper disposal of wastewater and to protect groundwater quality, the wastewater collected within the City is treated and filtered before it is returned to basins.

The City of Upland requires that all new development located within the City limits is required to connect to the public wastewater collection system. The General Plan also ensures that all wastewater collection and conveyance facilities are constructed to serve the ultimate buildout of all developments and should be done in coordination with the applicable regional agencies, which are responsible for providing treatment services. The General Plan requires new development to grant conditional approval of new development on the availability of sufficient capacity in the wastewater collection and treatment system to serve the project. Due to the policies stated in the City's General Plan and because the project will follow the wastewater treatment requirements of the wastewater purveyor, a less than significant impact would occur and no mitigation is required. No further analysis is required in the EIR.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐

Less than Significant Impact. Solid waste collection is a "demand-responsive" service, and current service levels can be expanded and funded through user fees without difficulty. The City of Claremont's Community Services Department provides trash collection and recycling services to all residents and businesses in Claremont. The City has long been a leader in providing innovative solid waste disposal programs. Curbside recycling began here in 1983, years before most other cities even considered providing collection of recyclable materials. Its operation has remained on the leading edge of refuse and recycling technology by adding automated containers, commingled recycling, green waste collection, and variable rates. Waste is generally hauled to the Puente Hills Material Recovery Facility (MRF) where is sorted for recyclable materials and residual waste if transferred to permitted landfills.

Solid waste generated in the City of Upland is collected and transported by the City's contract waste hauler, Burrtec Waste Industries. Once collected, solid waste is transported to sorting/disposal facilities permitted to accept residential and commercial solid waste, with each facility's operations routinely inspected by regional and state regulatory agencies for compliance with all applicable statutes and regulations. Burrtec Waste Industries operates three material recovery facilities in southern California, which sort and process recyclable materials from solid waste. Non-recyclable solid waste would likely go to the Mid-Valley Landfill, located in Rialto.

According to Department of Resources Recycling and Recovery (CalRecycle), the business sector generates more than half of the solid waste in California (approximately 68% of waste disposed). While significant commercial recycling already occurs, much of the commercial sector waste disposed in landfills is clean enough to be recycled. CalRecycle recently adopted Assembly Bill 341, implementing a mandatory commercial recycling requirement for medium-to-large businesses and multi-family complexes. Per the California Green Building Standards Code (CalGreen), all new residential, commercial, and mixed use construction projects in Claremont are required to divert a minimum of 65

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

percent of construction and demolition (C&D) waste from landfill disposal.

The City of Upland's policies on solid waste generation is solid waste is to be minimized and collected, stored, transported, and recycled in safe, sanitary, and environmentally acceptable ways. The policies strive to exceed the State's goal of diverting solid waste from landfills. It is required that trash, recycling, and green waste is picked up to ensure a safe and sanitary environment. The collection and recycling of household hazardous waste as well as e-waste, used oil and filter container recycling, and sharps disposal is provided at the City Yard.

In accordance with the United Stated EPA, the generation rate of solid waste is 4.4 pounds per day per person.[25] The proposed project is expected to increase the area population by 301 people. The proposed project would generate approximately 1,324 pounds per day of solid waste (241.7 tons per year) for the residential portion of the project site. The CalRecycle uses a solid waste generation rate of 0.046 pounds per square foot per day for commercial/retail uses.[26] Based on 5,000 square feet of commercial uses in the Claremont portion of the proposed project, 230 pounds per day would be generated by the commercial portion of the project. The total solid waste generated by the proposed project would be approximately 1,554 pounds per day or 283.6 tons per year. Given the recycling requirements and solid waste standards of the Cities of Claremont and Upland, the proposed project will not generate solid waste in excess of the capacity of local infrastructure. The project will implement these standards for solid waste. Therefore, a **less than significant** impact would occur and no mitigation is required. No further analysis is required in the EIR.

e) Comply with federal, State, and local management reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Less than Significant Impact. The City requires all development to adhere to all source reduction programs set forth in the Source Reduction and Recycling Element (SRRE) for the disposal of solid waste, which also includes yard waste. This project would adhere to the SRRE and, like all development, also comply with other applicable local, State, and federal solid waste disposal standards. Impacts are considered less than significant and no mitigation is required. No further analysis is required in the EIR.

[25] https://www.epa.gov/sites/production/files/2016-11/documents/2014_smmfactsheet_508.pdf accessed October 1, 2019.
[26] https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates/ accessed October 1, 2019.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact

20. Wildfire

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Potentially Significant Impact. According to the City of Claremont General Plan Fire Hazard Map, the portion of the project site that is located in Claremont is not within a high fire hazard severity area. According to the City of Upland General Plan Fire Hazard Map, the portion of the site that is located in Upland is not located in a high fire hazard zone. Fire services in the City of Claremont are provided to residents of Claremont through a contract with the consolidated Fire Protection District of Los Angeles County. Los Angeles County Fire is responsible for the protection of life and property from losses due to fire, explosion, and other disasters.

Policy SAF-4.6 in the City of Upland's General Plan "requires all development in areas of potential wildland fire hazards, shown in the High Fire Hazard Map, to include clearance around structures, fire-resistant ground cover and fire-resistant roofing materials." Design and construction of the project in accordance with the 2016 California Building Code (CBC) which includes design features such as ignition-resistant materials and incorporation of fire sprinklers that would minimize any risk of exposure of persons or property to wildfires. Impacts from wildfires will be **potentially significant** and will be evaluated in the EIR.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☒	☐	☐	☐

Potentially Significant Impact. The proposed project site is within an area prone to wildfire. Three sides of the site are developed including the east and south borders containing arterial roadways. An existing retail commercial center is located to the west. The land bordering the site to the north is undeveloped; however, the area is not fully vegetated because of prior ground disturbances including several structures on the north side of a driveway (Maryland Avenue) off Monte Vista Avenue. In addition, there is a nearby fire station (San Bernardino County Fire Station 165 located at 1257 Airport Drive, Upland) approximately 0.5 mile from the project site. The project site is located approximately 2 miles from the foothills of the San Gabriel Mountains and approximately 1 mile from an area of vacant land containing dense natural vegetation northeast of Monte Vista Avenue. These areas have a potential of a wildfire and could pose a threat to the project. The project will be developed in accordance with the regulations and standards outlined in the California Building Code and fire codes. Station 165 is a first responder to fire emergencies and response times will be adequately serving this project area. Therefore, impacts from wildfires will be **potentially significant** and will be evaluated in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐

Less Than Significant Impact. The project site is located in an urbanized area. Implementation of the project will not require the installation or maintenance of such infrastructure beyond connections to utilities surrounding the site. Existing infrastructure will support the project and will be further described in Section 19, Utilities and System Services in the EIR. Therefore, impacts are **less than significant** and no mitigation is required. No further analysis is required in the EIR.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Less Than Significant Impact. The project site is relatively flat, therefore the project will not be susceptible to risk of flooding or landslides. Therefore, impacts to people and structures will be **less than significant** and no mitigation is required. No further analysis is required in the EIR.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
21. Mandatory Findings of Significance				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐

Potentially Significant Impact. The proposed project's impacts to biological resources and cultural resources will be analyzed in the EIR. Therefore, impacts to biological resources and historical resources could be potentially significant. Any required mitigation measures will be included in the EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐

Potentially Significant Impact. Impacts of the proposed project were not determined to be significant on aesthetics, agricultural and forestry resources, geology and soils, mineral resources, population and housing, public services and utilities, recreation; therefore, the cumulative discussion of these issues will not be carried over to the EIR. The proposed project's potential cumulative impacts related to air quality, biological resources, cultural resources, greenhouse gases, hydrology, noise, traffic and wildfire will be analyzed in EIR and any mitigation measures related to cumulative impacts will be identified in the EIR. Any required mitigation measures to reduce cumulative impacts will be included in the EIR.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Potentially Significant Impact. Impacts related to air pollution, drainage, greenhouse gas emissions, noise, traffic, and wildfire that could potentially affect human beings directly or indirectly will be analyzed in the EIR. These impacts are potentially significant and mitigation measures will be identified in the EIR, where required. Potential effects on humans from seismic related hazards have been addressed in responses to Checklist Questions 7.a and 7.c in this Initial Study with the conclusion that such impacts are less than significant and no further discussion will be included in the EIR.

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APPENDIX A

GEOTECHNICAL ENGINEERING INVESTIGATION

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June 20, 2018
Project No. 2-0128

Attention: Mr. Matt Waken

Subject: ***GEOTECHNICAL INVESTIGATION***
Foothill East project on Foothill Boulevard at Monte Vista Avenue
Cities of Claremont and Upland, California

References: Appendix

Dear Mr. Waken:

Presented herein is Alta California Geotechnical, Inc.'s (Alta's) geotechnical investigation of the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard in the Cities of Claremont and Upland, California. This report is based on Alta's recent subsurface investigation, laboratory testing, engineering analyses, and review of the referenced reports.

Alta's review of the geotechnical data and conceptual plan indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions;
- Recommendations for remedial and site grading, including unsuitable soil removals;
- Geotechnical site construction recommendations;
- Preliminary foundation design parameters.

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

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APPENDIX C: LABORATORY TESTING
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APPENDIX F: GRADING DETAILS

1.0 INTRODUCTION

The following report presents Alta's findings, conclusions and geotechnical recommendations for the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California.

1.1 Purpose

The purpose of this report is to examine the existing onsite geotechnical conditions and assess their impacts on the proposed development. The property is depicted on the enclosed Site Plan (Plate 1). This report is suitable for use in developing grading plans and preliminary construction cost estimates.

1.2 Scope of Work

Alta's *Scope of Work* for this geotechnical investigation included the following:

- Reviewing the referenced reports and air photos (Appendix A);
- Site geologic mapping;
- Excavating, logging, and sampling ten (10) excavator test pits to a maximum depth of 20-feet below the existing surface (Appendix B);
- Conducting preliminary infiltration testing;
- Conducting laboratory testing on samples obtained during our investigation (Appendix C);
- Evaluating engineering geologic and geotechnical engineering data, including laboratory data, to develop recommendations for site remedial grading, import soil, foundations and utilities;
- Preparing this report and accompanying exhibits.

1.3 Report Limitations

The conclusions and recommendations presented in this report are based on the field and laboratory information generated during this investigation, and a review of the referenced reports. The information contained in this report is

intended to be used for development of grading plans and preliminary construction cost estimates.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The irregular-shaped, approximately 6.4± -acre Foothill East project is located in the northwest corner of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California. The property slopes gently to southwest from approximate elevations 1360 to 1330. It is bounded on the south by Foothill Blvd, on the east by Monte Vista Avenue, on the west by an Armstrong Garden Center, and north by Andrew Drive and open space. Some concrete flatwork exists in the western portion of the site and a concrete debris pile exists along the north western boundary. Moderate growth of shrubs and weeds cover most of the site.

Historic aerial photos are available as far back as 1938. The photos indicate that a structure previously stood on the western portion of the site but was demolished by 1994. Running water once flowed over the site before the San Antonio Creek Channel had been constructed. (Historic Aerials, 2018).

2.2 Proposed Development

It is our understanding that the site is to be redeveloped into a mixed residential and commercial development. Alta anticipates that conventional cut-and-fill grading techniques will be used to develop the site for the support of wood-frame and stucco construction with shallow foundations and reinforced concrete slabs-on-grade, and associated improvements.

3.0 SITE INVESTIGATION

3.1 Investigation and Laboratory Testing

Alta conducted a subsurface investigation on May 30, 2018 consisting of the excavation, logging and select sampling of ten (10) excavator test pits. The

locations of the test pits are shown on enclosed Plate 1 and the test pit logs are presented in Appendix B.

Laboratory testing was performed on bulk samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

Alta conducted infiltration testing on June 1, 2018 in general conformance with the San Bernardino County Technical Guidance Document for WQMP. Infiltration testing utilizing the shall percolation test procedure was undertaken in two, five (5) foot-deep test pits (P-1 and P-2), and in two, ten (10) foot-deep test pits (P-3 and P-4). The test pits were presoaked, and the water level reading were recorded every 10 minutes until the readings stabilized. The data was then adjusted to provide an infiltration rate utilizing the Porchet Method. A summary of the results is presented in Table 3-1, which do not include a factor of safety. Recommendations for infiltration BMP design are presented in Section 6.2.

Table A-Summary of Infiltration Testing (No Factor of Safety)

Test Designation	P-1	P-2	P-3	P-4
Approximate Depth of Test	5.0 ft	5.0 ft	10.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches	4 inches	4 inches
Tested Infiltration Rate	10 inches/hr	10 inches/hr	10 inches/hr	10 inches/hr

4.0 GEOLOGIC CONDITIONS

4.1 Geologic and Geomorphic Setting

Regionally, the subject site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of southern California where right lateral major active fault zones predominately trend northwest-southeast. The Peninsular Ranges province is composed of plutonic and metamorphic rock, with lesser amounts of Tertiary volcanic and sedimentary rock, Quaternary drainage in-fills and sedimentary veneers.

4.2 Stratigraphy

Based on our literature review and subsurface investigation, the site is underlain by minor amounts of undocumented artificial fill and young alluvial cobbles and sands. These geologic units are briefly described below. Their distribution is shown on enclosed Plate 1.

4.2.1 Undocumented Artificial Fill (No map symbol)

The undocumented artificial fill encountered at the site consists primarily of gray and grey brown gravelly sand in a dry, moderately dense condition. The unit was logged to a depth of two and a half (2.5) feet below the ground surface and is directly underlain by young alluvial fan deposits.

4.2.2 Young Alluvial Fan Deposits (Map symbol Qal)

The site is underlain by Holocene-age fan deposits sourced from alluvial fan outwash from nearby canyons and drainages. The alluvial deposits encountered at the site consist primarily of gray, gray brown, and tan brown cobble and gravels with sand in a dry, very loose to moderately dense condition. The unit was logged to a depth of 20 feet below the ground surface. Caving was observed in the test pits as noted in the Test Pit logs in Appendix B.

4.3 Geologic Structure

4.3.1 Tectonic Framework

Jennings and Bryant (2010) defined eight structural provinces within California that have been classified by predominant regional fault trends and similar fold structure. These provinces are in turn divided into blocks and sub-blocks that are defined by "major Quaternary faults." These blocks and sub-blocks exhibit similar structural features. Within this framework, the subject site is located within Structural Province I, which is controlled by the dominant northwest trend of the San Andreas Fault and is divided into two blocks, the Coast Range Block and the Peninsular Range Block. The Peninsular Range Block, on which this site is located, is characterized by a series of parallel, northwest trending faults that exhibit right lateral dip-slip movement. These faults are terminated by the Transverse Range block to the north and extend southward to the Baja Peninsula. These northwest trending faults divide the Peninsular Range block into eight sub-blocks. The Santa Ana Sub-block, one of the eight sub-blocks, is bound on the east by the Elsinore fault zone and on the west by the Newport-Inglewood fault zone.

4.3.2 Regionally Mapped Active Faults

Several large, active fault systems including the Elsinore-Whittier, Newport-Inglewood, and the San Andreas occur in the region surrounding the site. These fault systems have been studied extensively and in a large part control the geologic structure of southern California.

4.3.3 Geologic Structure

Based upon our site investigation and literature review, the onsite sediments are of Holocene age, and are not fractured, folded, or faulted.

4.4 Groundwater

Groundwater was not encountered during this investigation. Nearby wells indicate that groundwater in the area is greater than 115± feet below the ground surface. The seismic hazard zone report for the area (CDMG, 1998) indicates that historic high groundwater elevation is approximately 40 to 50 feet below the existing ground surface.

4.5 Earthquake Hazards

The subject site is located in southern California, which is a tectonically active area. The type and magnitude of seismic hazards affecting a site are dependent on the distance to the causative fault and the intensity and magnitude of the seismic event. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction and/or ground lurching.

4.5.1 Local and Regional Faulting

The nearest known active faults (movement occurring ≤ 11,000 years ago) are the Sierra Madre fault, the Clamshell-Sawpit fault, and the San Jacinto fault, located approximately 2.8, 12.6, and 14.5 miles from the site (USGS, 2008).

4.5.2 Seismicity

Ground shaking hazards caused by earthquakes along other active regional faults exist. The 2016 California Building Code requires use-modified spectral accelerations and velocities for most structural designs. Seismic design parameters using soil profile types identified in the 2016 California Building Code are presented in Section 7.3.

4.5.3 Surface Rupture

Active faults are not known to exist within the project and a review of Special Publication 42 indicates the site is not within the California State

designated Alquist-Priolo earthquake fault zones (Bryant and Hart, 2007). Accordingly, the potential for fault surface rupture on the subject site is very low.

4.5.4 Liquefaction

Seismic agitation of relatively loose saturated sands, silty sands, and some silts can result in a buildup of pore pressure. If the pore pressure exceeds the overburden stresses, a temporary quick condition known as liquefaction can occur. Liquefaction effects can manifest in several ways including: 1) loss of bearing; 2) lateral spread; 3) dynamic settlement; and 4) flow failure. Lateral spreading has typically been the most damaging mode of failure.

In general, the more recent that a sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that must be considered are: groundwater, confining stresses, relative density, and the intensity and duration of seismically-induced ground shaking.

Groundwater was not encountered during the subsurface investigation which extended to a depth of 20 feet. The regional groundwater map indicates that the historic high groundwater level is 40 to 50 feet (CDMG, 1998). Based on the depth of groundwater and the underlying soil type (primarily gravel), it is our opinion that the potential for liquefaction is minimal at the site.

4.5.5 Dry Sand Settlement

Dry sand settlement is the process of non-uniform settlement of the ground surface during a seismic event. Based on our subsurface investigation and our removal/recompaction recommendations, the

potential for dry sand settlement is anticipated to be low and within foundation design tolerances.

4.5.6 Seismically Induced Landsliding

Due to a lack of slopes within or nearby the property, seismically induced landsliding is not anticipated to pose a danger to the site.

5.0 ENGINEERING PROPERTIES AND ANALYSIS

5.1 Materials Properties

Presented herein is a general discussion of the engineering properties of the onsite materials that will be encountered during construction of the proposed project. Descriptions of the soil (Unified Soil Classification System) are presented on the boring logs in Appendix B.

5.1.1 Excavation Characteristics

Based on the data provided from the subsurface investigation, it is our opinion that the majority of the onsite materials possess favorable excavation characteristics such that conventional equipment can be utilized. Gravels, cobbles, and boulders will be encountered in excavations onsite. The largest dimension boulder encountered during our subsurface investigation was three (3) feet in diameter.

5.1.2 Over-Sized Rock

Over-sized rock (>12-inches) will be generated from excavations onsite. This rock may be incorporated into the compacted fill section based on the recommendations presented in Section 6.2.2.

5.1.3 Compressibility

The undocumented artificial fill and upper portions of the young alluvial fan deposits onsite are considered compressible and unsuitable to support the proposed improvements. Recommended removal depths are presented in Section 6.1.2.

5.1.4 Hydro-Consolidation

Hydro-consolidation is the effect of introducing water into soil that is prone to collapse. Upon loading and initial wetting, the soil structure and apparent strength are altered resulting in almost immediate settlement. That settlement can have adverse impacts on engineered structures, particularly in areas where it is manifested differentially. Differential settlements are typically associated with differential wetting, irregularities in the subsurface soil conditions, or irregular loading patterns.

Based on the composition of the onsite soils (primarily gravel) and the anticipated minimal fill loads, the potential for hydro-collapse onsite is minimal and should be within foundation tolerances upon the completion of the recommended unsuitable soil removals.

5.1.5 Expansion Potential

Expansion index testing was performed on samples taken during our subsurface investigation. Based on the results, it is anticipated that the majority of materials onsite are "very low" to "low" in expansion potential ($0 \leq EI \leq 50$, Appendix C) when tested per ASTM D: 4829.

5.1.6 Earthwork Adjustments

The values presented in Table 5-2 are deemed appropriate for estimating purposes and may be used in an effort to balance earthwork quantities. As is the case with every project, contingencies should be made to adjust the earthwork balance when grading is in-progress and actual conditions are better defined.

TABLE 5-2 Earthwork Adjustment Factors		
Geologic Unit	**Adjustment Factor Range**	**Average**
Young Alluvial Fan Deposits/afu	Shrink 10% to 20%	15%

5.1.7 Chemical Analyses

Chemical testing was performed on samples of material underlying the proposed site. Soluble sulfate test results indicate that the soluble sulfate concentrations of the soils tested are classified as negligible (Class S0) per ACI 318-14. Negligible chloride levels were detected in the onsite soils. Additional discussions on corrosion are presented in Section 7.9. Corrosion tests results are presented in Appendix C.

5.2 Engineering Analysis

Presented below is a general discussion of the engineering analysis methods that were utilized to develop the conclusions and recommendations presented in this report.

5.2.1 Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases. If it is desired to use Coulomb forces, a separate analysis specific to the application can be conducted.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Alta's findings during our subsurface investigation, the laboratory test results, our staff's previous experience in the area, it is Alta's opinion that the development of the site is feasible from a geotechnical perspective. Presented below are Alta's

recommendations that should be incorporated into site development and construction plans. All grading shall be accomplished under the observation and testing of the project geotechnical consultant in accordance with the recommendations contained herein and the City of Upland/Claremont criteria.

6.1 Remedial Grading Recommendations

6.1.1 Site Preparation

Vegetation, construction debris, and other deleterious materials are unsuitable as structural fill material and should be disposed of off-site prior to commencing grading/construction. Any septic tanks, seepage pits or wells should be abandoned as per the County of Los Angeles/San Bernardino Department of Health Services.

6.1.2 Disposal of Existing Concrete

Existing concrete flatwork and debris associated with the previously demolished structure should be removed prior to the placement of engineered fill. The demolished concrete may be incorporated into compacted, engineered fills after it is crushed to a maximum size of six (6) inches. Prior to placement as engineered fill any protruding steel rebar should be cut from the concrete pieces and disposed of offsite. These recommendations should be approved by the Cities of Claremont and Upland.

6.1.3 Unsuitable Soil Removals

The undocumented artificial fill and the uppermost portions of the young alluvial fan deposits onsite are compressible and as such, are not suitable to support the proposed structures. Accordingly, it is recommended to completely remove the undocumented artificial fills and the highly weathered portions of the underlying alluvial across the site and as close to the property boundaries as possible.

Accordingly, in design fill and shallow cut areas, it is recommended to remove and re-compact the upper five (5) feet of existing soils on the building pads. In design cut areas, the building pad should be overexcavated to provide a minimum of two (2) feet below the bottom of the footings (Provided the 5-foot minimum removal is provided). This recommended removal combined with the foundation recommendations presented in Section 7.1 should provide suitable support for the proposed structures.

For fill areas in streets, in general, a minimum removal and recompaction of the upper two (2) feet of native soils is recommended. For cuts greater than two feet (2) in street areas, removals are not required. For cuts less than two (2) feet, the two (2) foot removal and recompaction applies.

The Project Geotechnical Consultant should observe the removal bottom prior to placing fill. If unsuitable soils such as undocumented artificial fill are exposed upon the completion of the removals recommended above, additional removals may be required. This recommended removal is based on the assumptions that limited fill above the existing ground surface will be placed onsite.

6.2 General Earthwork Recommendations

6.2.1 Compaction Standards

All fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D-1557. Fill material should be moisture conditioned to optimum moisture or above, and as generally discussed in Alta's Earthwork Specification Section presented in Appendix E. Compaction shall be

achieved with the use of sheepsfoot rollers or similar kneading type equipment. Mixing and moisture conditioning will be required in order to achieve the recommended moisture conditions. Over-sized material should be handled based on the recommendations presented below in Section 6.2.2.

6.2.2 Over-Sized Rock Disposal Requirements

Oversized rock (>12 inches) is present in the underlying young alluvial fan deposits onsite. It is recommended that either the oversized rock be placed in fills in non-structural areas, or deep enough so as not to impact footing and utility construction. Placement of individual rocks in fill shall be conducted as per the details provided on Plate G- 15 (Appendix F).

6.2.3 Groundwater/Seepage

It is anticipated that groundwater will not be encountered during construction. It is possible that perched water conditions could be encountered depending on the time of year construction occurs.

6.2.4 Documentation of Removals

All removal/over-excavation bottoms should be observed and approved by the project Geotechnical Consultant prior to fill placement. Consideration should be given to surveying the removal bottoms and undercuts after approval by the geotechnical consultant and prior to the placement of fill. Staking should be provided in order to verify undercut locations and depths.

6.2.5 Treatment of Removal Bottoms

At the completion of removals/over-excavation, the exposed removal bottom should be ripped to a minimum depth of eight (8) inches, moisture-conditioned to above optimum moisture content and compacted in-place to the project standards.

6.2.6 Fill Placement

After removals, scarification, and compaction of in-place materials are completed, additional fill may be placed. Fill should be placed in eight-inch bulk maximum lifts, moisture conditioned to optimum moisture content or above, compacted and tested as grading/construction progresses until final grades are attained.

6.2.7 Mixing

Mixing of materials may be necessary to prevent layering of different soil types and/or different moisture contents. The mixing should be accomplished prior to and as part of compaction of each fill lift.

6.2.8 Import Soils

Import soils, if necessary, should consist of clean, structural quality, very low expansive, compactable materials similar to the on-site soils and should be free of trash, debris or other objectionable materials. The project Geotechnical Consultant should be notified not less than 72 hours in advance of the locations of any soils proposed for import. Import sources should be sampled, tested, and approved by the project Geotechnical Consultant at the source prior to the importation of the soils to the site. The project Civil Engineer should include these requirements on plans and specifications for the project.

6.2.9 Utility Trenches

6.2.9.1 Excavation

Utility trenches should be supported, either by laying back excavations or shoring, in accordance with applicable OSHA standards. Slight to moderate caving was observed in Alta's trenches, as such, the existing site soils are classified as Soil Types "B" and "C" per OSHA standards. Upon completion of

the recommended removals and recompaction, the artificial fill will be classified as Soil Type "B", while the underlying alluvium will still be classified as either "B or "C". The Project Geotechnical Consulting should be consulted if geologic conditions vary from what is presented in this report.

6.2.9.2 Backfill

Trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D-1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks, or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils. Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

Under-slab trenches should also be compacted to project specifications. If select granular backfill (SE > 30) is used, compaction by flooding will be acceptable.

6.2.10 Backcut Stability

Temporary backcuts, if required during unsuitable soil removals, should be made no steeper than 1:1 without review and approval of the geotechnical consultant. Flatter backcuts may be necessary where geologic conditions dictate and where minimum width dimensions are to

be maintained. Caving was observed in the test pits onsite, indicating that backcuts in the upper soils may need to be shallower than 1:1.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

Preliminary infiltration testing was conducted at the site as part of this investigation, and the results are presented in Section 3.2. Based on our testing, the infiltration rates at the site are high. As such, infiltration-type WQMP systems are feasible.

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping

subgrade. Care should be taken in designing systems that control the storm water as much as possible. A methodology for dealing with overflow should the infiltration system become clogged or full should be developed and maintained.

It is recommended that the Project Geotechnical Consultant observe the BMP excavations during construction to verify that the infiltration rates presented herein are appropriate. If it is determined that rates may be variable, additional infiltration testing should be undertaken.

If infiltration-type storm water systems are proposed, additional infiltration testing may be required at site-specific locations when the location and elevations for infiltration structures are determined.

6.4 Boundary Conditions

The site is bounded in areas by existing improvements such as Foothill Drive, Monte Vista Avenue, Andrew Drive and the Armstrong Nursery. Construction of retaining/screen walls or other improvements along these boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story, wood-frame residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to the individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design

recommendations should be made based upon specific structure sitings, loading conditions, and as-graded soil conditions.

It is anticipated that the majority of onsite soils will possess "very low" to "low" expansion potential when tested in general accordance with ASTM Test Method D: 4829. For budgeting purposes, the following foundation design requirements for a range of potential expansion characteristics are presented.

7.1.1 Foundations

Foundations may be preliminary designed based on the values presented in Table 7-1 below.

Table 7-1
Foundation Design Parameters*

Allowable Bearing	2000 lbs/ft^2 assuming a minimum footing width and embedment of 12 inches.
Lateral Bearing	250 lbs/ft^2 at a depth of 12 inches plus 250 lbs/ft^2 for each additional 12 inches of embedment to a maximum of 2000 lbs/ft^2
Sliding Coefficient	0.35
Differential Settlement	Dynamic: Differential = 1-inch in 40 feet Static: Differential = 0.5 inch in 40 feet

*These values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building code and structural design considerations may govern depth and reinforcement requirements and should be evaluated.

7.1.2 Conventional Slab/Foundation Systems

Based on the onsite soils conditions and information supplied by the 2016 CBC, conventional slab/foundation systems may be designed in accordance with Tables 7-1 and 7-2.

TABLE 7-2 CONVENTIONAL FOUNDATION DESIGN PARAMETERS	
Expansion Potential	***Very Low to Low***
Soil Category	I
Design Plasticity Index	10
Minimum Footing Embedment	12 inches*
*The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.	
Minimum Footing Width	12-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.
Minimum Footing Reinforcement	No. 4 rebar, two (2) on top, two (2) on bottom
Minimum Slab Thickness	4 inches (actual)
Minimum Slab Reinforcement	No. 3 rebar spaced 18 inches on center, each way
Under-Slab Requirement	See Section 7.2
Slab Subgrade Moisture	Minimum of 110 percent of optimum moisture to a depth of 12 inches prior to placing concrete.
Footing Embedment Adjacent to Swales and Slopes	If exterior footings adjacent to drainage swales are to exist within five (5) feet horizontally of the swale, the footing should be embedded sufficiently to assure embedment below the swale bottom is maintained. Footings adjacent to slopes should be embedded such that at least five- (5) feet is provided horizontally from edge of the footing to the face of the slope.
Garages	A grade beam reinforced continuously with the garage footings shall be constructed across the garage entrance, tying together the ends of the perimeter footings and between individual spread footings. This grade beam should be embedded at the same depth as the adjacent perimeter footings. A thickened slab, separated by a cold joint from the garage beam, should be provided at the garage entrance. Minimum dimensions of the thickened edge shall be six (6) inches deep. Footing depth, width and reinforcement should be the same as the structure. Slab thickness, reinforcement and under-slab treatment should be the same as the structure.

7.1.3 Post-Tensioned Slabs/Foundation Design Recommendations

Post-tensioned slabs for the project may be preliminarily designed utilizing the parameters presented in Tables 7-1 and 7-3. The parameters presented herein are based on methodology provided in the Design of Post-Tensioned Slabs-On-Ground, Third Edition, by the Post-Tensioning Institute, in accordance with the 2016 CBC.

TABLE 7-3
POST-TENSION SLAB DESIGN PARAMETERS

Category	Expansion Potential	Minimum Embedment	Edge Lift		Center Lift	
			Em (ft)	Ym (inch)	Em (ft)	Ym (inch)
I	Very Low to Low	12 inches	5.1	0.61	9.0	0.26
Slab Subgrade Moisture						
Category I	Minimum 110% of optimum moisture to a depth of 12 inches prior to pouring concrete					
Embedment*						
The minimum outer footing embedment presented herein are based on expansion indexes. The structural engineer should verify the minimum embedment based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code. If mat slabs are utilized, alternate embedment depths can be provided.						
Moisture Barrier						
A moisture barrier should be provided in accordance with the recommendations presented in Section 7.2						
The parameters presented herein are based on procedures presented in the Design of Post-Tensioned Slabs-On-Ground, Third Edition. No corrections for vertical barriers at the edge of the slab, or for adjacent vegetation have been assumed. The design parameters are based on a Constant Suction Value of 3.9 pF.						

7.2 Moisture Barrier

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive and should be capable of effectively preventing the migration of water and reducing the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as Visqueen, placed between two to four inches of clean sand, has been used for this purpose. The use of this system or other systems can be considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

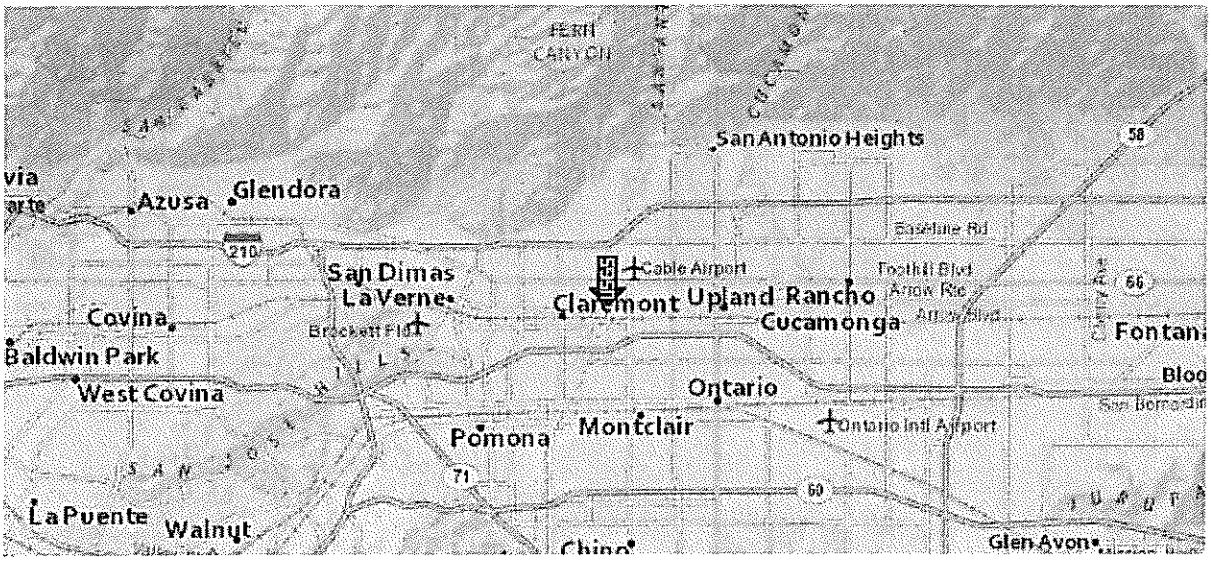
7.3 Seismic Design

The site has been identified as "D" site class in accordance with Table 20.3-1 of ASCE 7-10. Utilizing this information, the computer program USGS Seismic Design Maps Version 3.1.0 and ASCE 7-10 criterion, the spectral response accelerations that can be utilized for the project are presented on Figure 1. These parameters should be verified by the structural engineer. Additional parameters should be

USGS Design Maps Summary Report

User–Specified Input

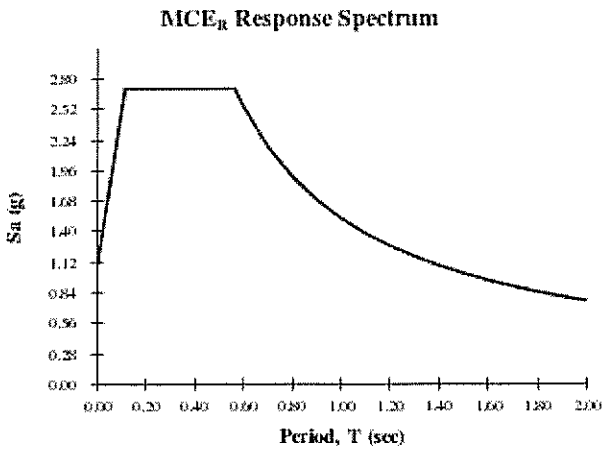
Report Title	2-0128 Tue June 19, 2018 17:07:43 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.1076°N, 117.7001°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

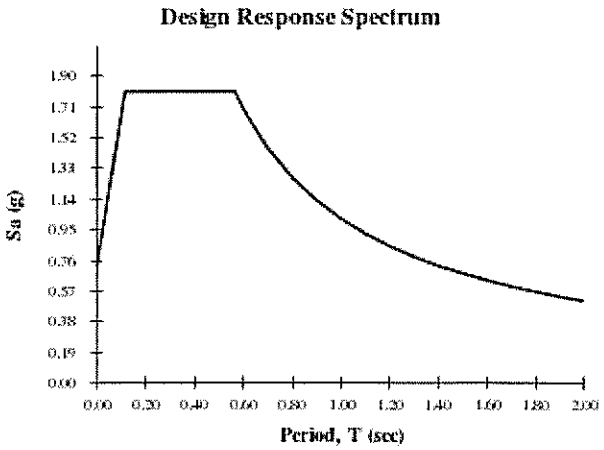


USGS–Provided Output

S_S =	2.706 g	S_{MS} =	2.706 g	S_{DS} =	1.804 g
S_1 =	1.016 g	S_{M1} =	1.525 g	S_{D1} =	1.016 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

FIGURE 1

determined by the structural engineer based on the Occupancy Category of the proposed structures.

7.4 Fence and Garden Walls

Block walls, if used, should be embedded a minimum of 2 feet below the lowest adjacent grade. Construction joints (not more than 20 feet apart) should be included in the block wall construction. Side yard walls should be structurally separated from the rear yard wall.

7.5 Footing Excavations

Soils from the footing excavations should not be placed in slab-on-grade areas unless properly compacted and tested. The excavations should be cleaned of all loose/sloughed materials and be neatly trimmed at the time of concrete placement. The Project Geotechnical Consultant should observe the footing excavations prior to the placement of concrete to determine that the excavations are founded in suitably compacted material.

7.6 Retaining Walls

Retaining walls should be founded on engineered fill and should be backfilled with granular soils that allow for drainage behind the wall. Suitable free-draining backfill material may need to be imported to the site. Foundations may be designed in accordance with the recommendations presented in Table 7-1, above. Unrestrained walls, free to horizontally move 0.0005H (for dense cohesionless backfill), may be designed to resist lateral pressures imposed by a fluid with a unit weight determined in accordance with the Table 7-4 below. The table also presents design parameters for restrained (at-rest) retaining walls. These parameters may be used to design retaining walls that may be considered as restrained due to the method of construction or location (corner sections of unrestrained retaining walls).

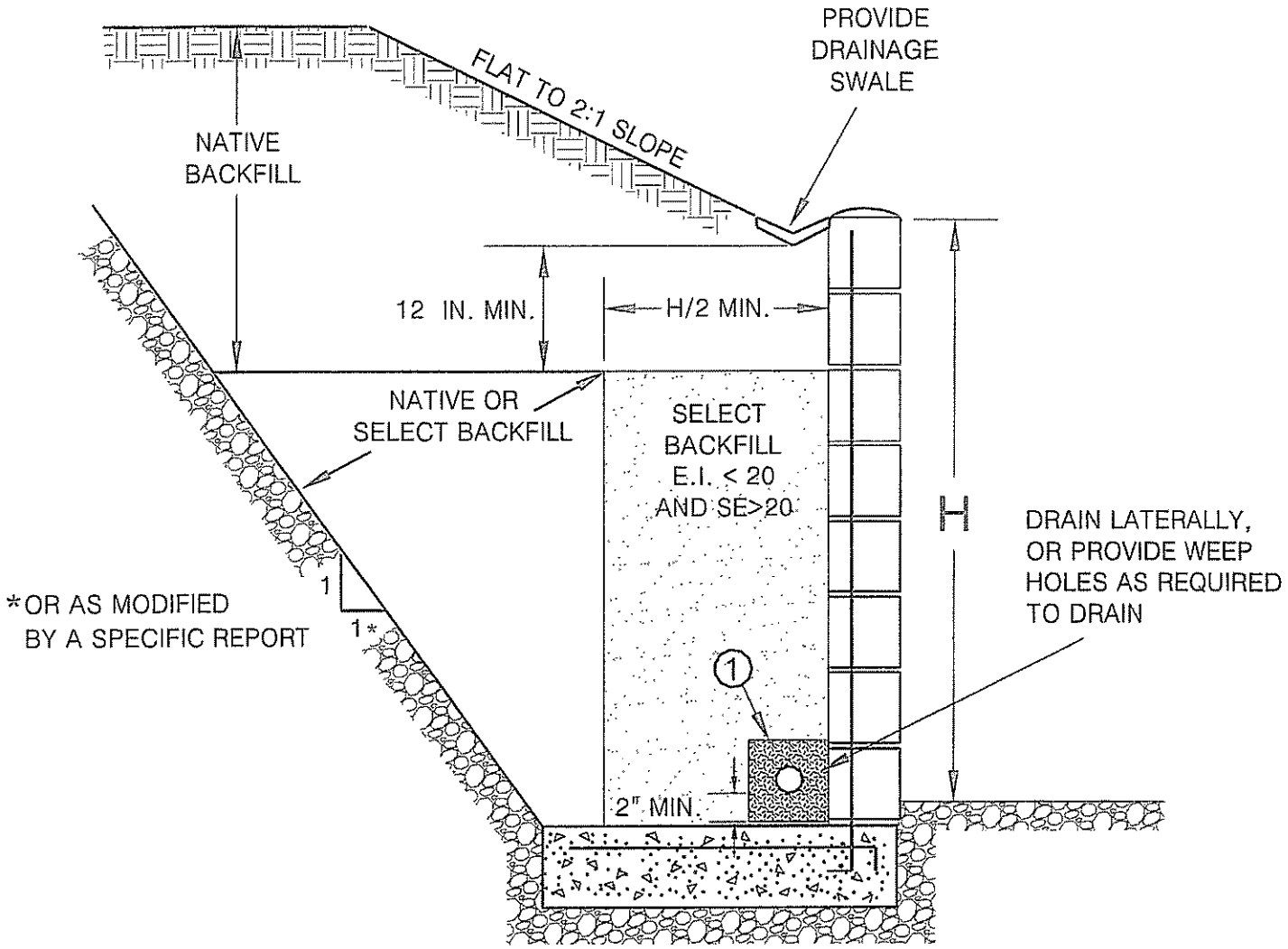
TABLE 7-4 Equivalent Fluid Pressures for 90% Compacted Fill (Select Material)		
Backfill	**Active Pressure (psf/ft)**	**At-Rest Pressure (psf/ft)**
Level	35	55

Per the requirements of the 2016 CBC, the seismic force acting on the retaining walls with backfill exceeding 6-feet in height may be resolved utilizing the formula $24H^2$ lb/lineal ft (H=height of the wall). This force acts at approximately 0.6H above the base of the wall (inverted triangle). The seismic value can be converted as required by the retaining wall engineer. Retaining walls should be designed in general accordance with Section 1807A.2 of the 2016 CBC.

- Restrained retaining walls should be designed for "at-rest" conditions.
- The design loads presented in the above table are to be applied on the retaining wall in a horizontal fashion and as such friction between wall and retained soils should not be allowed in the retaining wall analyses.
- Additional allowances should be made in the retaining wall design to account for the influence of construction loads, temporary loads, and possible nearby structural footing loads.
- Select backfill should be granular, structural quality backfill with a Sand Equivalent of 20 or better and an ASCE Expansion Index of 20 or less. The backfill must encompass the full active wedge area. The upper one foot of backfill should be comprised of native on-site soils (see Plate A).
- The wall design should include waterproofing (where appropriate) and backdrains or weep holes for relieving possible hydrostatic pressures. The backdrain should be comprised of a 4-inch perforated PVC pipe in a 1 ft. by 1 ft., ¾-inch gravel matrix, wrapped with a geofabric. The backdrain should be installed with a minimum gradient of 2 percent and should be outletted to an appropriate location. For subterranean walls this may include drainage by sump pumps.
- No backfill should be placed against concrete until minimum design strengths are achieved in compression tests of cylinders.

It should be noted that the allowable bearing and lateral bearing values presented in Table 7-1 are based on level conditions at the toe. Modified design

RETAINING WALL BACKFILL DETAIL



(1)

PIPE: 4-INCH PERFORATED PVC, SCHEDULE 40, SDR35 OR APPROVED ALTERNATE MINIMUM 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE

ROCK: MINIMUM VOLUME OF 1 CU. FT. OF 3/4-IN. MAX. ROCK PER. LINEAL FOOT OF PIPE, OR APPROVED ALTERNATE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

parameters can be presented for retaining walls with sloping condition at the toe. Other conditions should be evaluated on a case by case basis.

7.7 Exterior Slabs and Walkways

Exterior concrete slabs and walkways should be designed and constructed in consideration of the following recommendations.

7.7.1 Subgrade Compaction

The subgrade below exterior concrete slabs should be compacted to a minimum of 90 percent relative compaction as determined by ASTM Test Method: D 1557.

7.7.2 Subgrade Moisture

The subgrade below concrete slabs should be moisture conditioned to a minimum of 110 percent of optimum moisture prior to concrete placement.

7.7.3 Concrete Slab Thickness

Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

7.7.4 Concrete Slab Reinforcement

Utilization of reinforcement for flatwork and driveways is subject to a cost/benefit analysis. Reinforcement will decrease the amount of cracking that may occur in flatwork, however, planning for occasional repairs may be more cost effective. Utilizing closely spaced control joints is likely more cost-effective than utilizing reinforcement. The majority of the soils onsite are classified as very low to low in expansion potential. Consideration should be given to reinforcing flatwork with irregular (non-square/rectangular) shapes.

7.7.5 Control Joints

Weakened plane joints should be installed on walkways at intervals of approximately eight feet (maximum) or less. Exterior slabs should be designed to withstand shrinkage of the concrete.

7.8 Concrete Design

As stated in Section 5.1.7, negligible concentrations of sulfates were detected in the onsite soils. Therefore, the use of sulfate resistant concrete is not required per ACI 318-14 at this time. Post-grading conditions should be evaluated, and final recommendations made at that time.

7.9 Corrosion

The onsite soils are corrosive to buried metal objects. Consideration should be given to protecting buried metals from corrosion. Typical measures may include using non-corrosive backfill, protective coatings, wrapping, plastic pipes, or a combination of these methods. A corrosion engineer should be consulted if specific design recommendations are required by the improvement designer.

Per ACI 318-14, an exposure class of C1 would be applicable to metals encased in concrete (rebar in footings) due to being exposed to moisture from surrounding soils.

7.10 Site Drainage

Positive drainage away from the proposed structures should be provided and maintained. Roof, pad and lot drainage should be collected and directed away from the structures toward approved disposal areas through drainage terraces, gutters, down drains, and other devices. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures. Residents or Homeowner Associations should be made aware that they are responsible for maintenance and cleaning of

all drainage terraces, down drains, and other devices that have been installed to promote site and structure drainage.

7.11 Pavement Design

Pavement sections for the proposed streets shall be designed based on laboratory testing conducted on samples taken from the soil subgrade. Preliminarily, based on an assumed R-Value of 30, the pavement may be designed utilizing the sections presented in Table 7-4. These sections should be verified upon the completion of grading, based on R-Value testing.

Table 7-4
Preliminary Pavement Sections

Traffic Index	Pavement Section Options OR	
5.0	3-inch AC on 6-inch AB	4-inch AC on 4-inch AB
5.5	3-inch AC on 7-inch AB	4-inch AC on 5-inch AB
6.0	3.5-inch AC on 7.5-inch AB	4-inch AC on 6.5-inch AB
AC-Asphalt Concrete AB-Caltrans Class II Base		

The underlying subgrade soil should be suitably moisture conditioned, processed and compacted to a minimum 90 percent of the laboratory maximum density (ASTM: D 1557) to at least twelve (12) inches below subgrade. After subgrade compaction, the exposed grade should then be "proof"-rolled with heavy equipment to ensure the grade does not "pump" and is verified as non-yielding. Aggregate base should consist of Class 2 (Caltrans) aggregate base and should be compacted to at least 95 percent of the maximum laboratory dry density as determined in accordance with ASTM Test Method: D 1557.

Preparation for compaction operations and pavement construction operations should be accomplished in accordance with the current requirements of the City of Claremont/Upland and under the observation and testing of the project geotechnical consultant.

8.0 LOT MAINTENANCE

Ongoing maintenance of the improvements is essential to the long-term performance of structures. As such, the owners must implement certain maintenance procedures. The attached " Maintenance and Improvement Considerations" presented in the Appendix D may be included as part of the sales packet to educate the owners in issues related to drainage, maintenance, backyard improvements, etc. The following recommendations should also be implemented.

8.1 Lot Drainage

Roof, pad and lot drainage should be collected and directed away from structures and slopes and toward approved disposal areas. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures and slopes. Residents should be made aware that they are responsible for maintenance and cleaning of all drainage terraces, down drains, and other devices that have been installed to promote structure and slope stability.

8.2 Burrowing Animals

Residents or owners should undertake a program for the elimination of burrowing animals.

9.0 FUTURE PLAN REVIEWS

This report represents a geotechnical review of the site. As the project design for the project progresses, site specific geologic and geotechnical issues should be considered in the design and construction of the project. Consequently, future plan reviews may be necessary. These reviews may include reviews of:

- Grading Plans
- Foundation Plans
- Utility Plans

These plans should be forwarded to the project Geotechnical Consultant for review.

10.0 CLOSURE

10.1 Geotechnical Review

For the purposes of this report, multiple working hypotheses were established for the project, utilizing the available data and the most probable model is used for the analysis. Future information collected during the proposed grading operations is intended to evaluate the hypothesis and as such, some of the assumptions summarized in this report may need to be changed. Some modifications of the grading recommendations may become necessary, should the conditions encountered in the field differ from the conditions hypothesized in this report.

Plans and sections of the project specifications should be reviewed by Alta to evaluate conformance with the intent of the recommendations contained in this report. If the project description or final design varies from that described in herein, Alta must be consulted regarding the applicability of the recommendations contained herein and whether any changes are required. Alta accepts no liability for any use of its recommendations if the project description or final design varies and Alta is not consulted regarding the alterations.

10.2 Limitations

This report is based on the following: 1) the information obtained from Alta's laboratory testing included herein; and 2) from the information presented in the referenced reports. The findings and recommendations are based on the results of the subsurface investigation, laboratory testing, and office analysis combined with an interpolation and extrapolation of conditions between and beyond the subsurface excavation locations. However, the materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not

observed. The results reflect an interpretation of the direct evidence obtained. Work performed by Alta has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by a geotechnical consultant who is familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report.

The conclusions and recommendations included in this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of Alta.

Alta has no responsibility for construction means, methods, techniques, sequences, procedures, safety precautions, programs in connection with the construction, acts or omissions of the CONTRACTOR or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications.

APPENDIX A

REFERENCES

APPENDIX A

Selected References

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APPENDIX B

Subsurface Investigation

APPENDIX B

Subsurface Investigation

Alta's subsurface investigation consisted of excavating, logging, and sampling ten (10) excavator test pits. Details of the subsurface investigation are presented in Table B-1. The approximate locations of the exploratory excavations are shown on the accompanying site plan (Plate 1) and the Geotechnical Logs are attached.

TABLE B-1
SURFACE INVESTIGATION DETAILS

Equipment	Range of Depths	Sampling Methods	Sample Locations
Excavator	Up to 20 feet	1. Bulk	1. Bulk-Select Depth

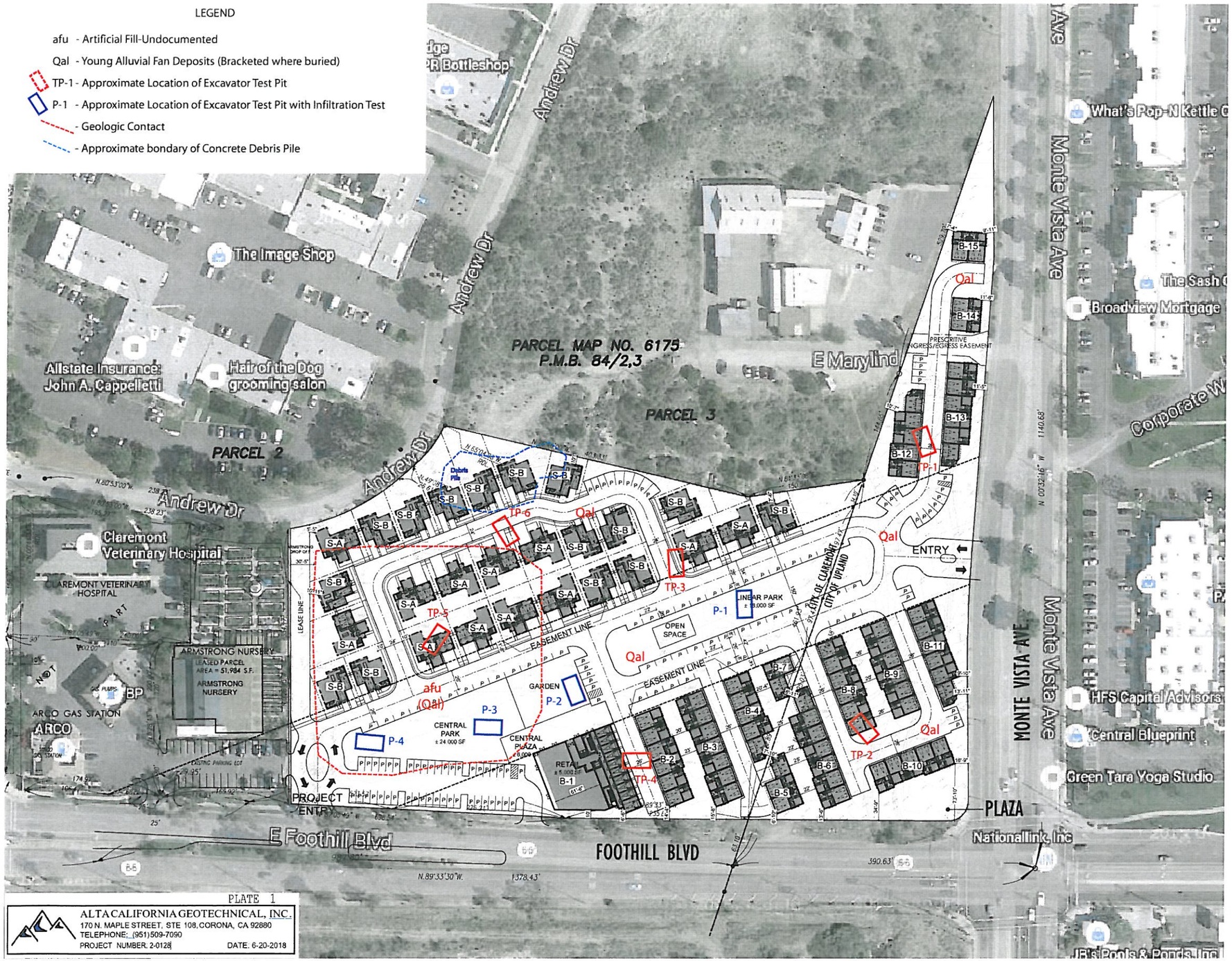

PLATE 1

ALTA CALIFORNIA GEOTECHNICAL, INC.
170 N. MAPLE STREET, STE 108, CORONA, CA 92880
TELEPHONE: (951) 509-7090
PROJECT NUMBER: 2-0128 DATE: 6-20-2018

SITE SUMMARY

Developable Acres: ±6.4 ac.

Unit Mix:

Single Family Detached

S-A Plan (2,500 sf):	±12 units (44%)
S-B Plan (2,200 sf):	±15 units (56%)
	±27 units

Townhomes

±21'x38' Towns:	±61 units
Carriage Towns:	±7 units
	±68 units

Mixed Use

Flats:	±10 units
TOTAL UNITS:	±105 units

Density: ±16.4 du/ac

Parking:

Garages:	±200 spaces	(2/unit)
Driveways:	±27 spaces	(10'x18')
On street:	±84 spaces	(8'x22' Parallel)
		(9'x18' Perpendicular)
Total:	±311 spaces	(3.0 sp/unit)

Retail Parking: ±43 spaces

Setbacks:

Front	
Residential:	7'
Retails:	5'
Sides	5'
Rear	5'

Building Separation:

SFD	10'
Townhomes	
Front to Front	20'
Side to Side	6' Min.
Rear	28'

Street Width:

Main:	26'
Main w/ Parallel parking one side (8x22):	34'
Main w/ Parallel parking both sides:	42'
Private Drive:	26' (SFD: 24')

ktgy

WALBERN DEVELOPMENTS

Walbern Development
29222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walberndevelopment.com

Foothill East
Claremont, CA
#2018-0231

SITE PLAN

0 30 60 120

A1.0

Project No.	2-0128
Date Excavated	May 31, 2018
Excavated by	James Coyne
Equipment	Caterpillar 375L Excavator

TABLE I

LOG OF TEST PITS

Test Pit No.	Depth (ft.)	USCS	Description
TP-1	0.0-20.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to fine grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 3', roots and debris, caving. @4ft. tan brown, loose to moderately dense, fine gravel <1", slight caving @5ft. coarse gravel <3" @10ft. medium to coarse grained @15ft. fine to coarse gravel <3" TOTAL DEPTH 20.0 FT NO GROUNDWATER OBSERVED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-2	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @2.5ft, trace boulders <2', roots @4.5ft, fine to medium grained tan brown, loose to moderately dense, fine gravel @9.0ft. fine to coarse gravel, trace boulder <1.5' TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 4.5 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -3	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 1.5', roots and debris, caving. @5ft. tan brown, loose to moderately dense, some sand @8ft. coarse gravel, some cobble TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -4	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 2.5', roots and debris, caving. @7.5 roots, slight caving @9ft. tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED above 9.0 ft.

Test Pit No.	Depth (ft.)	USCS	Description
TP -5	0.0-1.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	1.5-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @3ft. slight caving @9ft. tan brown, moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-6	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @5.0ft. fine to coarse grained, tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-1	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-2	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-3	0.0-2.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.5-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @8ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 8FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-4	0.0-2.0	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.0-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @7ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED NO CAVING OBSERVED

APPENDIX C

Laboratory Testing

LABORATORY TESTING

The following laboratory tests were performed on a representative sample in accordance with the applicable latest standards or methods from the ASTM, California Building Code (CBC) and California Department of Transportation.

Classification

Soils were classified with respect to the Unified Soil Classification System (USCS) in accordance with ASTM D-2487 and D-2488.

Particle Size Analysis

Modified hydrometer testing was conducted to aid in classification of the soil. The results of the particle size analysis are presented in Table C.

Expansion Index Tests

Two (2) expansion index tests were performed to evaluate the expansion potential of typical on-site soil. Testing was carried out in general conformance with ASTM Test Method D-4829. The results are presented in Table C.

Chemical Analyses

Chemical testing of a selected sample was performed by Alta. The results of these tests are presented on Table C.

TABLE C
SUMMARY OF LABORATORY TEST DATA
P.N. 2-0218

Boring/Pit No.	Depth (ft)	Soil Type	Soil Description	Group Symbol - Unified Soil Classification System	Maximum Dry Density		Direct Shear	Grain Size Analysis				Expansion Index	Sulfate Content (%)	Other Tests Remarks
					Maximum Density (pcf)	Optimum Moisture (%)		Gravel (% + No. 4 Screen)	% Sand	%Silt (0.074 to 0.005mm)	% Clay (-0.005 mm)			
TP-1	4	A	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	48	41	8	3	0	Not Detected	Chloride: 5ppm pH:6.3
TP-2	5	B	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	37	54	6	3	0	Not Detected	Chloride: 5ppm pH:6.4

APPENDIX D

Maintenance Considerations

MAINTENANCE AND IMPROVEMENT CONSIDERATIONS

General

Owners purchasing property must assume a certain degree of responsibility for improvements and for maintaining conditions around their home. Of primary importance from a geotechnical standpoint are maintaining drainage patterns and minimizing the soil moisture variation below all improvements. Such design, construction and owner maintenance provisions may include:

- Employing contractors for improvements who design and build in recognition of local building codes and specific site soils conditions.
- Establishing and maintaining positive drainage away from all foundations, walkways, driveways, patios, and other improvements.
- Avoiding the construction of planters adjacent to structural improvements. Alternatively, planter sides/bottoms can be sealed with an impermeable membrane and drained away from the improvements via subdrains into approved disposal areas.
- Sealing and maintaining construction/control joints within concrete slabs and walkways to reduce the potential for moisture infiltration into the subgrade soils.
- Utilizing landscaping schemes with vegetation that requires minimal watering. Watering should be done in a uniform manner, as equally as possible on all sides of the foundation, keeping the soil "moist" but not allowing the soil to become saturated.
- Maintaining positive drainage away from structures and providing roof gutters on all structures with downspouts that are designed to carry roof runoff directly into area drains or discharged well away from the foundation areas.
- Avoiding the placement of trees closer to the proposed structures than a distance of one-half the mature height of the tree.
- Observation of the soil conditions around the perimeter of the structure during extremely hot/dry or unusually wet weather conditions so that modifications can be made in irrigation programs to maintain relatively uniform moisture conditions.

Sulfates

Owners should be cautioned against the import and use of certain inorganic fertilizers, soil amendments, and/or other soils from offsite sources in the absence of specific information relating to their chemical composition. Some fertilizers have been known to leach sulfate compounds into soils and increase the sulfate concentrations to potentially detrimental levels.

Site Drainage

- The owners should be made aware of the potential problems that may develop when drainage is altered through construction of hardscape improvements. Ponded water, drainage over the slope face, leaking irrigation systems, overwatering, or other conditions which could lead to ground saturation must be avoided.
- No water should be allowed to flow over the slopes. No alteration of pad gradients should be allowed that would prevent pad and roof runoff from being directed to approved disposal areas.
- Drainage patterns have been established at the time of the fine grading should be maintained throughout the life of the structure. No alterations to these drainage patterns should be made unless designed by qualified professionals in compliance with local code requirements and site-specific soils conditions.

Slope Drainage

- Residents should be made aware of the importance of maintaining and cleaning all interceptor ditches, drainage terraces, down drains, and any other drainage devices, which have been installed to promote slope stability.
- Subsurface drainage pipe outlets may protrude through slope surfaces and/or wall faces. These pipes, in conjunction with the graded features, are essential to slope and wall stability and must be protected in-place. They should not be altered or damaged in any way.

Planting and Irrigation of Slopes

- Seeding and planting of the slopes should be planned to achieve, as rapidly as possible, a well-established and deep-rooted vegetal cover requiring minimal watering.
- It is the responsibility of the landscape architect to provide such plants initially and of the residents to maintain such planting. Alteration of such a planting scheme is at the resident's risk.
- The resident is responsible for proper irrigation and for maintenance and repair of properly installed irrigation systems. Leaks should be fixed immediately.
- Sprinklers should be adjusted to provide maximum uniform coverage with a minimum of water usage and overlap. Overwatering with consequent wasteful runoff and serious ground saturation must be avoided.
- If automatic sprinkler systems are installed, their use must be adjusted to account for seasonal and natural rainfall conditions.

Burrowing Animals

- Residents must undertake a program to eliminate burrowing animals. This must be an ongoing program in order to promote slope stability.

Owner Improvement

Owner improvements (pools, spas, patio slabs, retaining walls, planters, etc.) should be designed to account for the terrain of the project, as well as expansive soil conditions and chemical characteristics. Design considerations on any given lot may need to include provisions for differential bearing materials, ascending/descending slope conditions, bedrock structure, perched (irrigation) water, special geologic surcharge loading conditions, expansive soil stresses, and long-term creep/settlement.

All owner improvements should be designed and constructed by qualified professionals utilizing appropriate design methodologies, which account for the on-site soils and geologic conditions. Each lot and proposed improvement should be evaluated on an individual basis.

Setback Zones

Manufactured slopes maybe subject to long-term settlement and creep that can manifest itself in the form of both horizontal and vertical movement. These movements typically are produced as a result of weathering, erosion, gravity forces, and other natural phenomenon. A setback adjacent to slopes is required by most building codes, including the California Building Code. This zone is intended to locate and support the residential structures away from these slopes and onto soils that are not subject to the potential adverse effects of these natural phenomena.

The owner may wish to construct patios, walls, walkways, planters, swimming pools, spas, etc. within this zone. Such facilities may be sensitive to settlement and creep and should not be constructed within the setback zone unless properly engineered. It is suggested that plans for such improvements be designed by a professional engineer who is familiar with grading ordinances and design and construction requirements. In addition, we recommend that the

designer and contractor familiarize themselves with the site specific geologic and geotechnical conditions on the specific lot.

APPENDIX E

Earthwork Specifications

ALTA CALIFORNIA GEOTECHNICAL, INC.
EARTHWORK SPECIFICATIONS

These specifications present the generally accepted standards and minimum earthwork requirements for the development of the project. These specifications shall be the project guidelines for earthwork except where specifically superseded in preliminary geology and soils reports, grading plan review reports or by the prevailing grading codes or ordinances of the controlling agency.

A. GENERAL

1. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

2. The project Geotechnical Engineer and Engineering Geologist, or their representatives, shall provide observation and testing services, and Geotechnical consultation for the duration of the project.

3. All clearing, grubbing, stripping and site preparation for the project shall be accomplished by the Contractor to the satisfaction of the Geotechnical Engineer/Engineering Geologist.

4. It is the Contractor's responsibility to prepare the ground surface to receive fill to the satisfaction of the Geotechnical Engineer and to place, spread, mix, moisture condition, and compact the fill in accordance with the job specifications and as required by the Geotechnical Engineer. The Contractor shall also remove all material considered by the Geotechnical Engineer to be unsuitable for use in the construction of engineered fills.

5. The Contractor shall have suitable and sufficient equipment in operation to handle the amount of fill being placed. When necessary, equipment will be shut down temporarily in order to permit the proper preparation of fills.

B. PREPARATION OF FILL AREAS

1. Excessive vegetation and all deleterious material should be disposed of offsite as required by the Geotechnical Engineer.

   Existing fill, soil, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills shall be removed and hauled from the site. Where applicable, the Contractor may obtain the

approval of the Soils Engineer and the controlling authorities for the project to dispose of the above described materials, or a portion thereof, in designated areas onsite.

After removal of the deleterious materials have been accomplished, earth materials deemed unsuitable in their natural, in-place condition, shall be removed as recommended by the Geotechnical Engineer/Engineering Geologist.

2. Upon achieving a suitable bottom for fill placement, the exposed removal bottom shall be disced or bladed by the Contractor to the satisfaction of the Geotechnical Engineer. The prepared ground surfaces shall then be brought to the specified moisture content mixed as required, and compacted and tested as specified. In localities where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to contact the proper authorities to visit the site.

3. Any underground structure such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other structures not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer and/or the controlling agency for the project.

C. ENGINEERED FILLS

1. Any material imported or excavated on the property may be utilized as fill, provided the material has been determined to be suitable by the Geotechnical Engineer. Deleterious materials shall be removed from the fill as directed by the Geotechnical Engineer.

2. Rock or rock fragments less than twelve inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets and the distribution of the rocks is approved by the Geotechnical Engineer.

3. Rocks greater than twelve inches in the largest dimension shall be taken offsite, or placed in accordance with the recommendations of the Geotechnical Engineer in areas designated as suitable for rock disposal.

4. All materials to be used as fill, shall be tested in the laboratory by the Geotechnical Engineer. Proposed import materials shall be approved by the Geotechnical Engineer 48 hours prior to importation.

5. The fill materials shall be placed by the Contractor in lifts, that when compacted, shall not exceed six inches. Each lift shall be spread evenly and shall be

thoroughly mixed to achieve a near uniform moisture condition and a uniform blend of materials.

All compaction shall be achieved at or above the optimum moisture content, as determined by the applicable laboratory standard. The Contractor will be notified if the fill materials are too wet or too dry to achieve the required compaction standard.

6. When the moisture content of the fill material is below the limit specified by the Geotechnical Engineer, water shall be added and the materials shall be blended until a uniform moisture content, within specified limits, is achieved. When the moisture content of the fill material is above the limits specified by the Geotechnical Engineer, the fill materials shall be aerated by discing, blading, mixed with dryer fill materials, or other satisfactory methods until the moisture content is within the specified limits.

7. Each fill lift shall be compacted to the minimum project standards, in compliance with the testing methods specified by the controlling governmental agency, and in accordance with recommendations of the Geotechnical Engineer.

   In the absence of specific recommendations by the Geotechnical Engineer to the contrary, the compaction standard shall be the most recent version of ASTM:D 1557.

8. Where a slope receiving fill exceeds a ratio of five-horizontal to one-vertical, the fill shall be keyed and benched through all unsuitable materials into sound bedrock or firm material, in accordance with the recommendations and approval of the Geotechnical Engineer.

9. Side hill fills shall have a minimum key width of 15 feet into bedrock or firm materials, unless otherwise specified in the soil report and approved by the Geotechnical Engineer in the field.

10. Drainage terraces and subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency and/or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

11. The Contractor shall be required to maintain the specified minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as directed by the Geotechnical Engineer and/or the governing agency for the project. This may be achieved by either overbuilding the slope and cutting

back to the compacted core; by direct compaction of the slope face with suitable equipment; or by any other procedure which produces the required result.

12. The fill portion of fill-over-cut slopes shall be properly keyed into rock or firm material; and the fill area shall be stripped of all soil or unsuitable materials prior to placing fill.

    The design cut portion of the slope should be made first and evaluated for suitability by the Engineering Geologist prior to placement of fill in the keyway above the cut slope.

13. Pad areas in cut or natural ground shall be approved by the Geotechnical Engineer. Finished surfaces of these pads may require scarification and recompaction, or over excavation as determined by the Geotechnical Engineer.

D. CUT SLOPES

1. The Engineering Geologist shall observe all cut slopes and shall be notified by the Contractor when cut slopes are to be started.

2. If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Soil Engineer shall investigate, analyze and make recommendations to remediate these problems.

3. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the superjacent, prevailing drainage.

4. Unless otherwise specified in specific geotechnical reports, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

5. Drainage terraces shall be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the Geotechnical Engineer or Engineering Geologist.

E. GRADING CONTROL

1. Fill placement shall be observed and tested by the Geotechnical Engineer and/or his representative during grading.

   Field density tests shall be made by the Geotechnical Engineer and/or his representative to evaluate the compaction and moisture compliance of each fill lift. Density tests shall be conducted at intervals not to exceed two feet of fill

height. Where sheepsfoot rollers are used, the fill may be disturbed to a depth of several inches. Density determinations shall be taken in the compacted material below the disturbed surface at a depth determined by the Geotechnical Engineer or his representative.

2. Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture content is in evidence, that particular layer or portion thereof shall be reworked until the required density and/or moisture content has been attained. Additional fills shall not be placed over an area until the previous lift of fill has been tested and found to meet the density and moisture requirements for the project and the previous lift is approved by the Geotechnical Engineer.

3. When grading activities are interrupted by heavy rains, fill operations shall not be resumed until field observations and tests by the Geotechnical Engineer indicate the moisture content and density of the fill are within the specified limits.

4. During construction, the Contractor shall properly grade all surfaces to maintain good drainage and prevent the ponding of water. The Contractor shall take remedial action to control surface water and to prevent erosion of graded areas until such time as a permanent drainage and erosion devices have been installed.

5. Observation and testing by the Geotechnical Engineer and/or his representative shall be conducted during filling and compacting operations in order that he will be able to state in his opinion that all cut and filled areas are graded in accordance with the approved specifications.

6. Upon the completion of grading activities and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work, final reports shall be submitted. No further excavation or fill placement shall be undertaken without prior notification of the Geotechnical Engineer and/or Engineering Geologist.

F. FINISHED SLOPES

All finished cut and fill slopes shall be planted and irrigated and/or protected from erosion in accordance with the project specifications, governing agencies, and/or as recommended by a landscape architect.

APPENDIX F

Grading Details

DETAIL FOR FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON

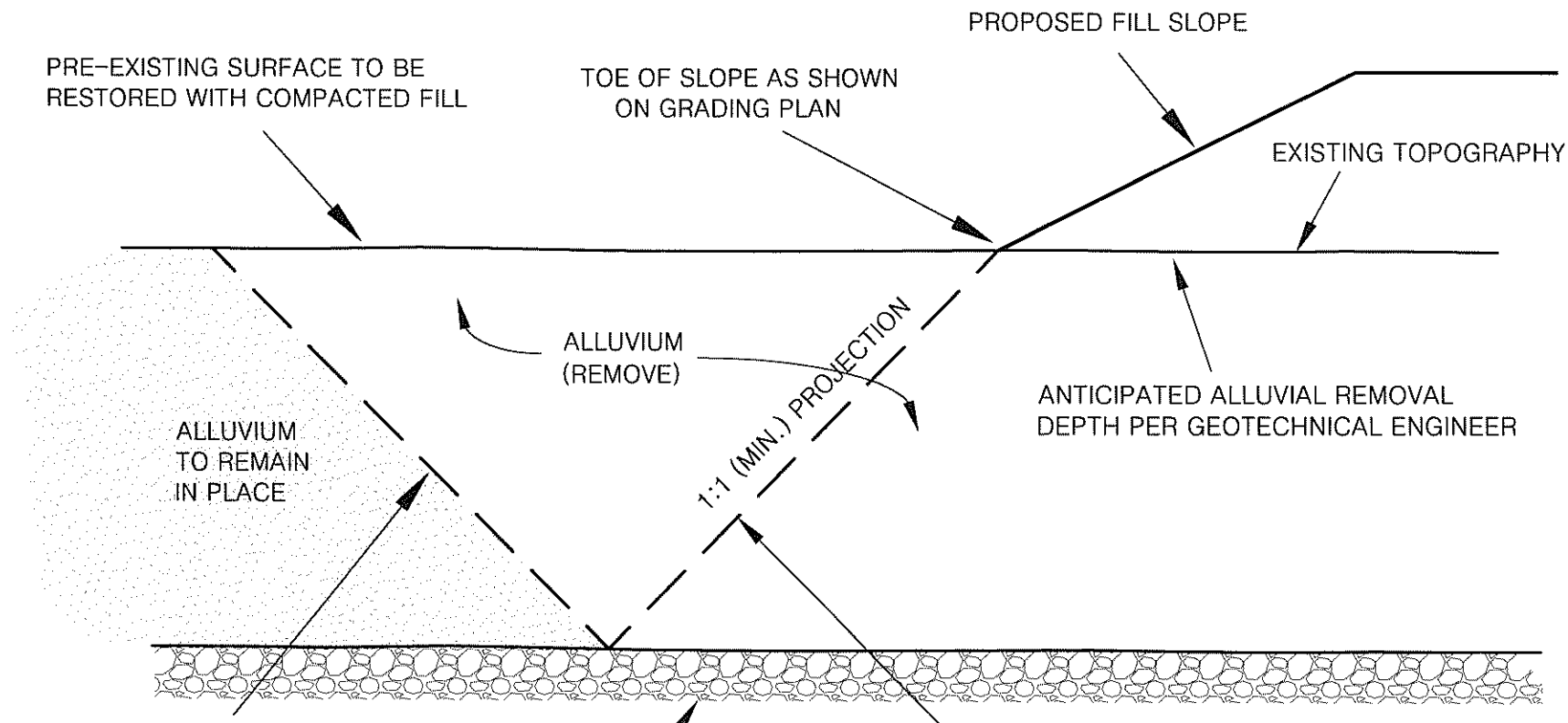

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PLATE G-1

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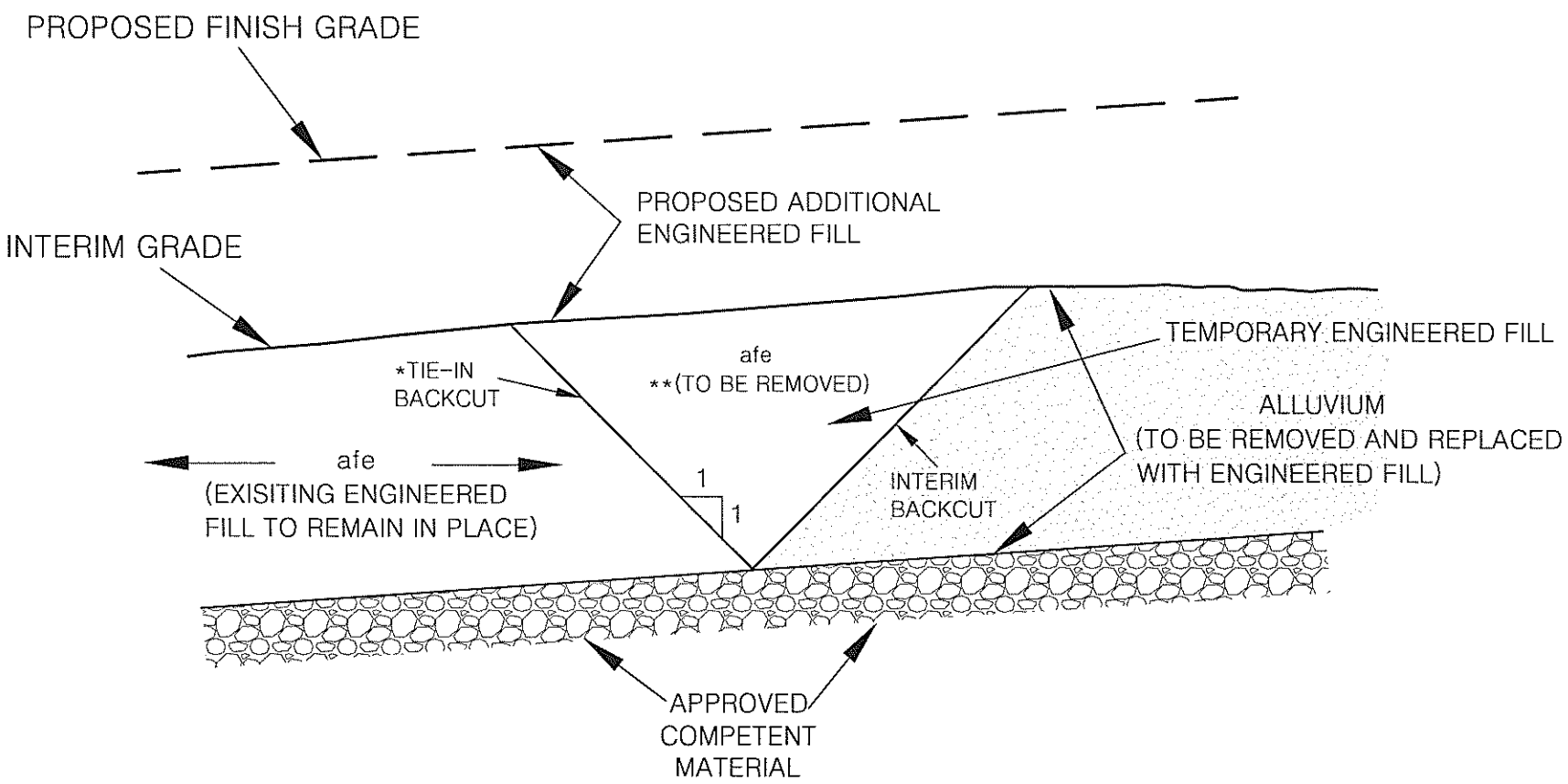
REMOVAL ADJACENT TO EXISTING FILL



*INITIATE 1:1 TIE-IN BACKCUT TO INTERCEPT TOE OF INTERIM BACKCUT

**AS PART OF TIE-IN FOR ADDITIONAL ENGINEERED FILL

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PLATE G-2

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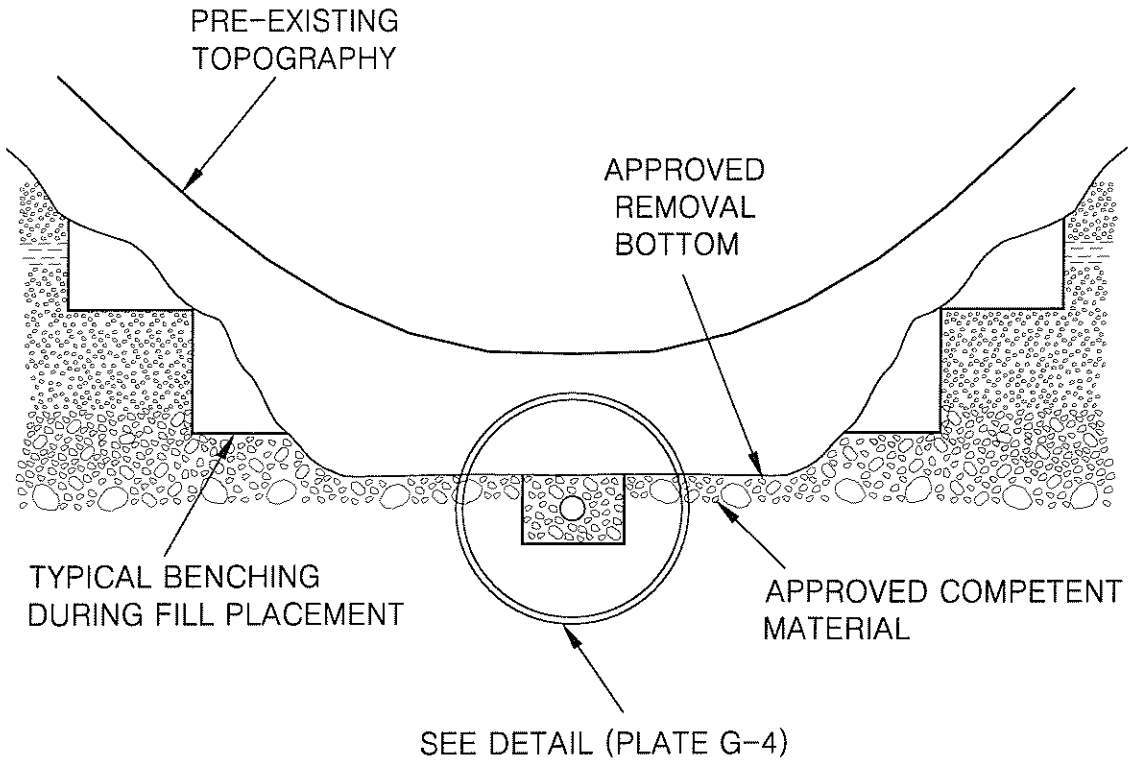
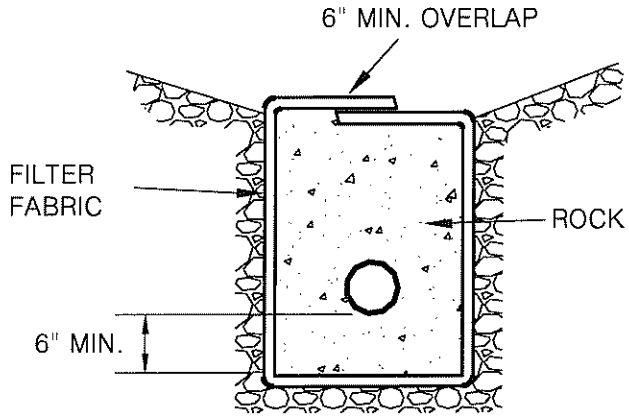
CANYON SUBDRAIN



CANYON SUBDRAIN DETAIL



PERFORATED PIPE SURROUNDED WITH ROCK AND FILTER FABRIC

ROCK: MIN. VOLUME OF 9 CU.FT. PER LINEAR FT. OF 3/4 IN. MAX. ROCK

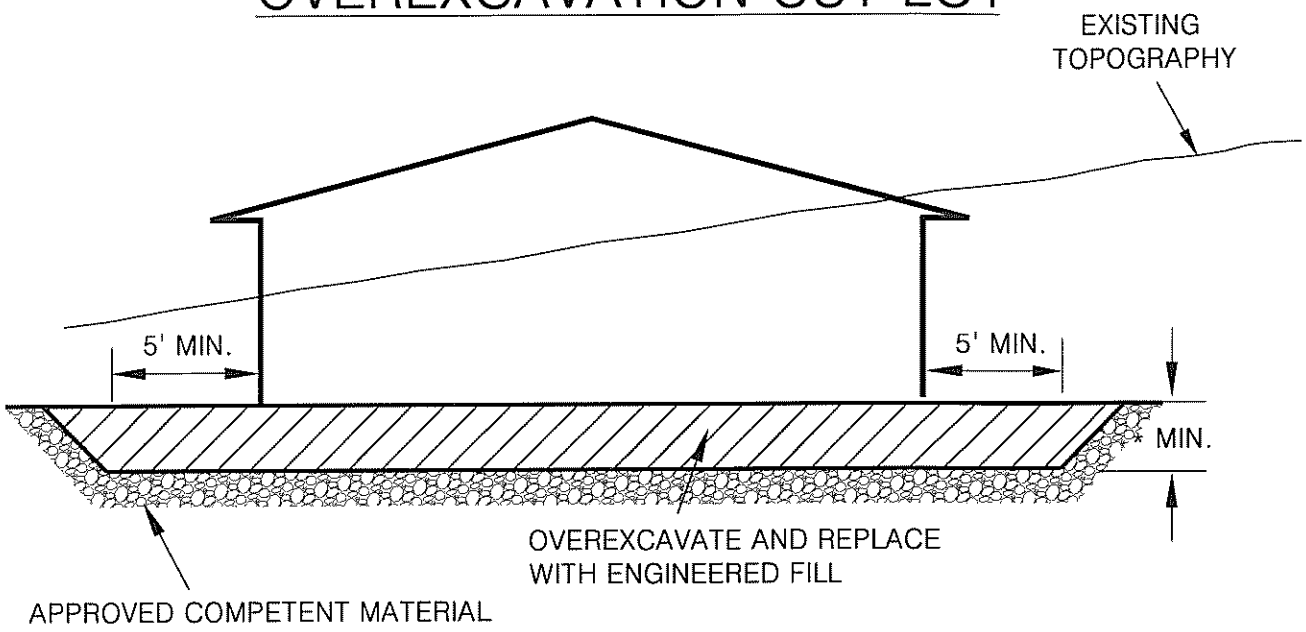
PIPE: 6 IN. ABS OR PVC PIPE WITH A MINIMUM OF 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

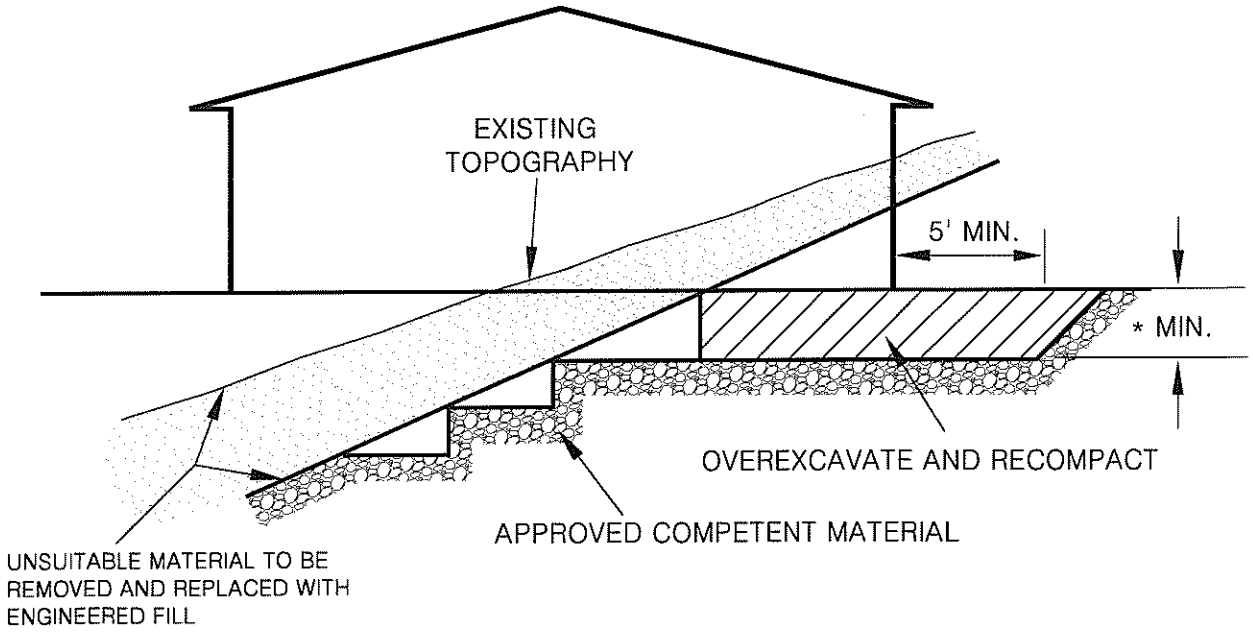
NOTES:

1. FOR CONTINUOUS RUN IN EXCESS OF 500. FT USE 8 IN. DIA. PIPE
2. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

OVEREXCAVATION CUT LOT



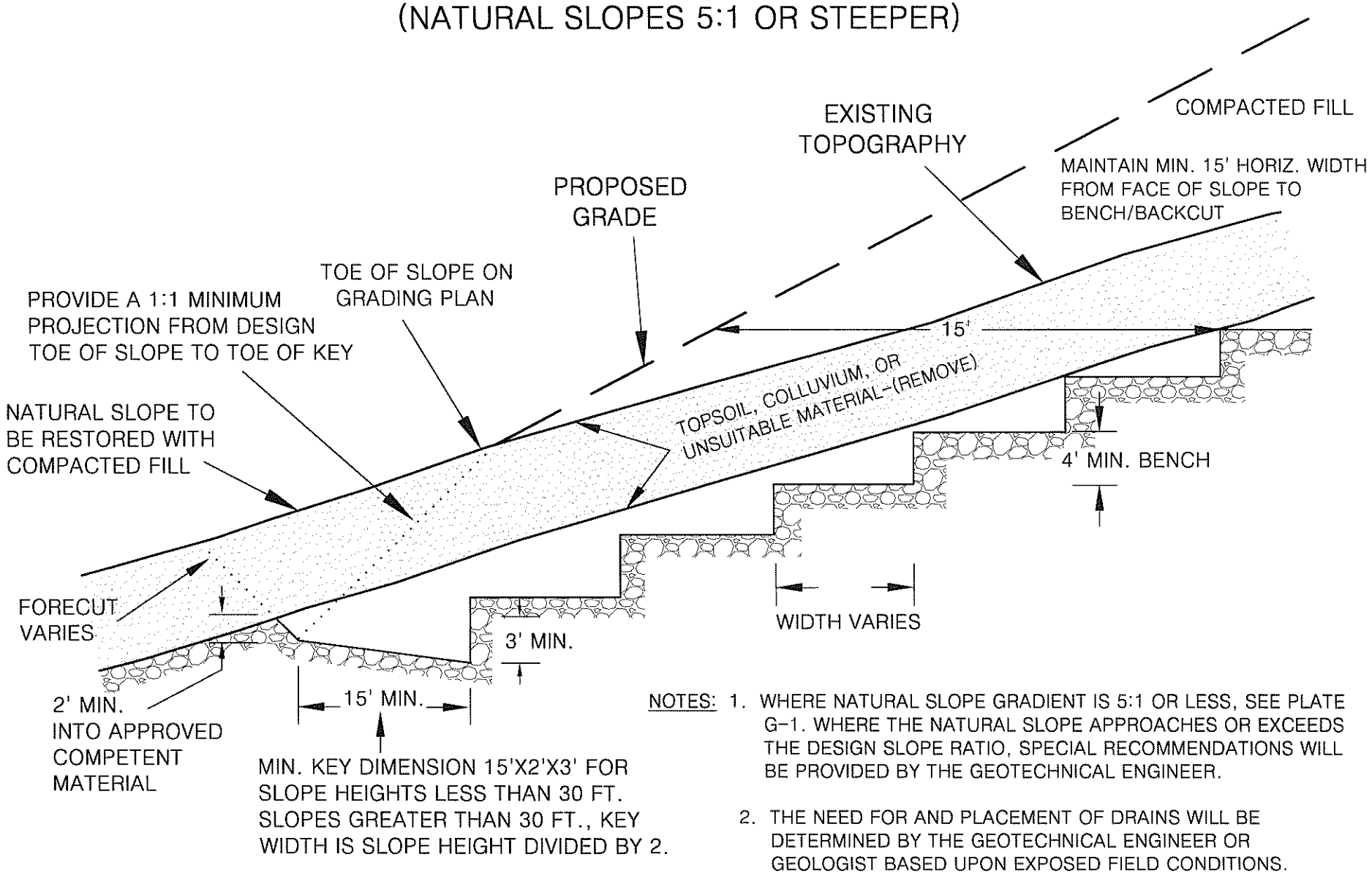
CUT-FILL LOT (TRANSITION)



*NOTE ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF ⅓ OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET (SEE PLATE G-16)

SIDE HILL SLOPE FILL DETAIL

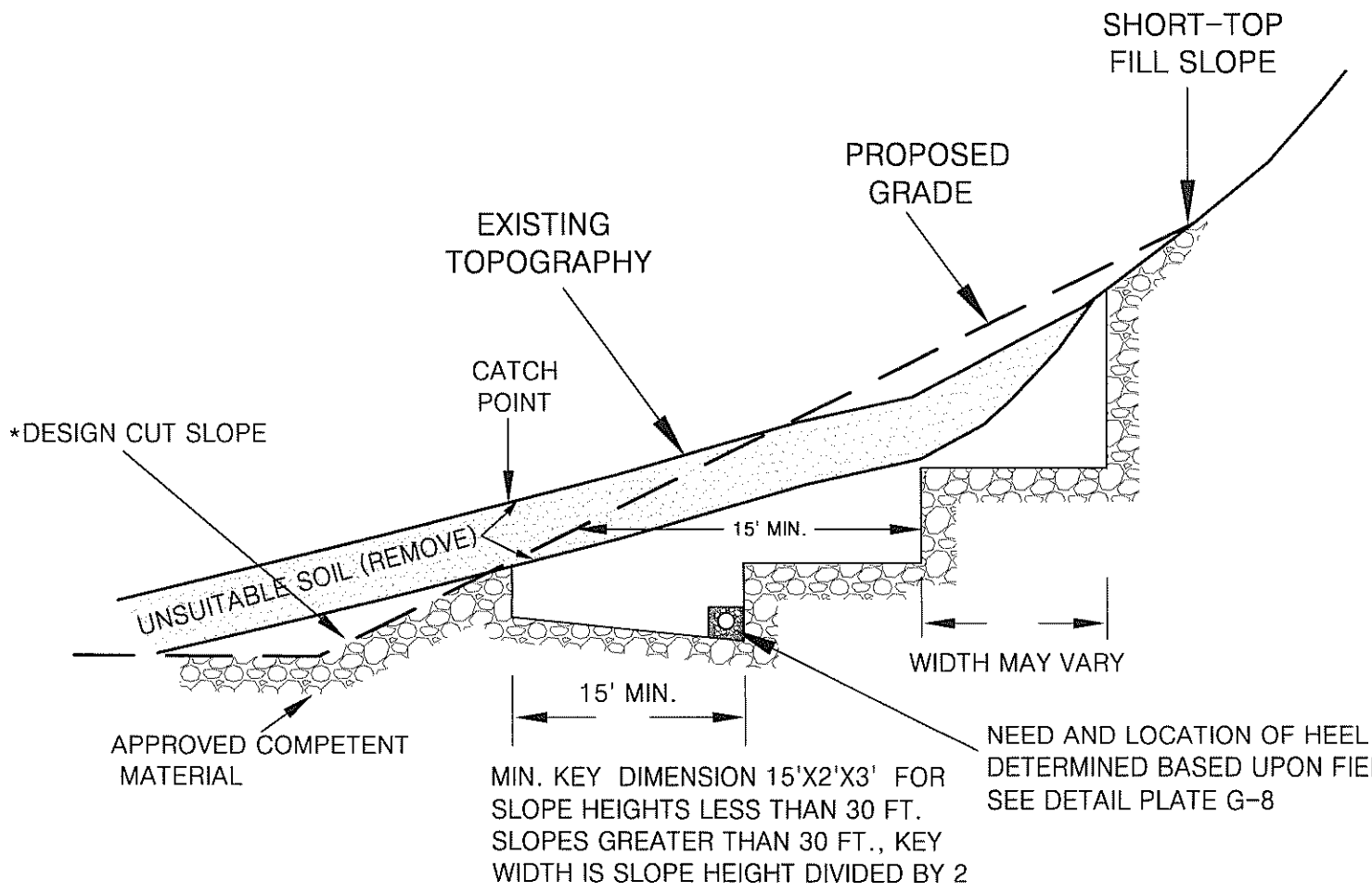
(NATURAL SLOPES 5:1 OR STEEPER)



NOTES:

1. WHERE NATURAL SLOPE GRADIENT IS 5:1 OR LESS, SEE PLATE G-1. WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
2. THE NEED FOR AND PLACEMENT OF DRAINS WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST BASED UPON EXPOSED FIELD CONDITIONS.

FILL OVER CUT SLOPE DETAIL



*THE CUT PORTION OF THE SLOPE SHOULD BE EXCAVATED AND EVALUATED BY THE ENGINEERING GEOLOGIST/GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTING THE FILL SLOPE

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PLATE G-7

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STABILIZATION/BUTTRESS FILL BACKDRAIN

NOTE:

1. ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40
2. SOLID PIPE OUTLETS TO BE PROVIDED EVERY 100 FT. AND JOINED TO PERFORATED BACKDRAIN PIPE WITH "L" OR "T"s. MIN. 2% GRADIENT.
3. GRAVEL TRENCH TO BE FILLED WITH 3/4 IN. MAXIMUM ROCK
4. THE NECESSITY FOR UPPER TIER BACKDRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST. UPPER TIER OUTLETS SHOULD DRAIN INTO PAVED TERRACE DRAINS.
5. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

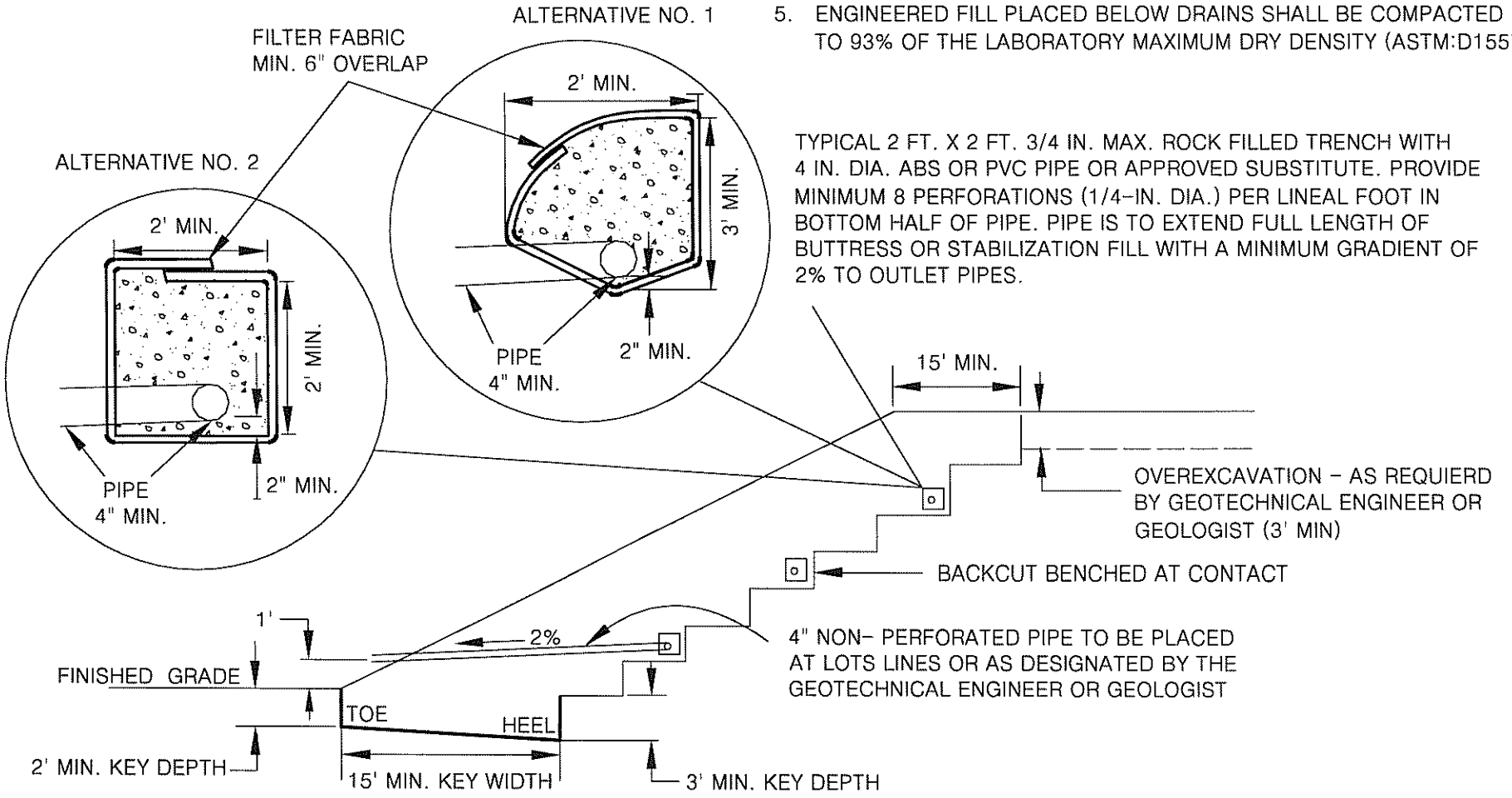

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PLATE G-8

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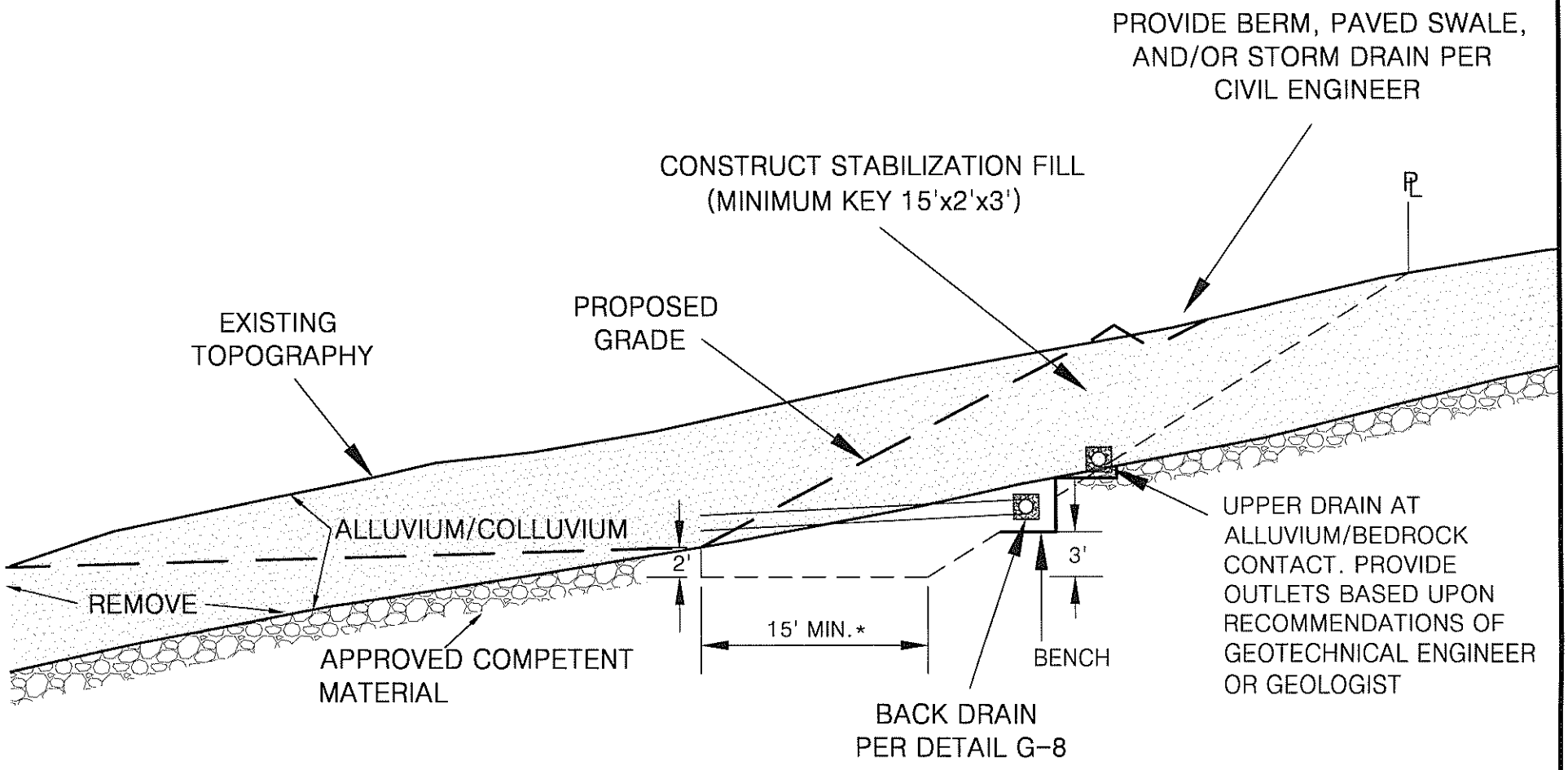
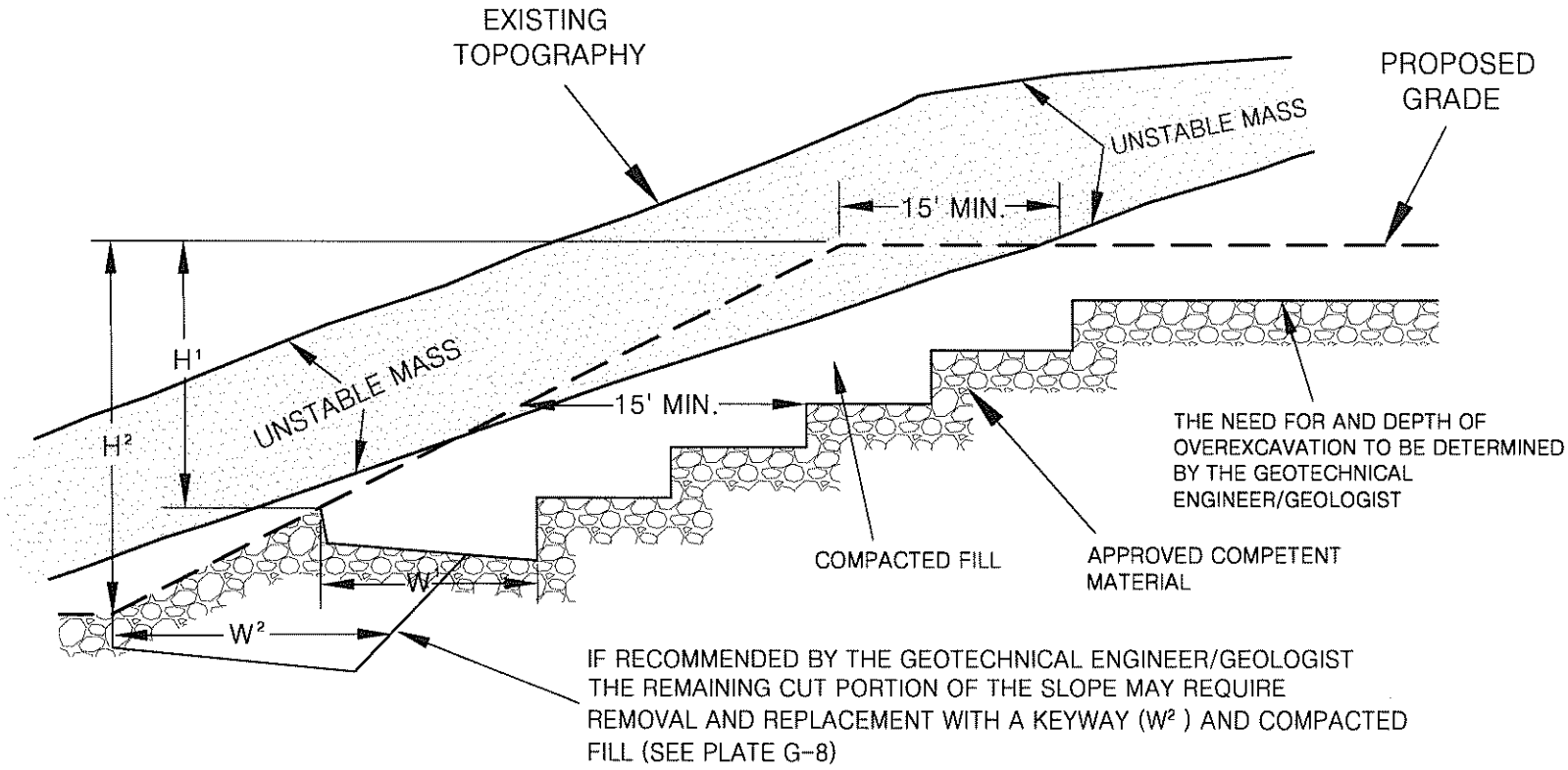
STABILIZATION FILL

(UPSLOPE ALLUVIATED AREA)



* FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

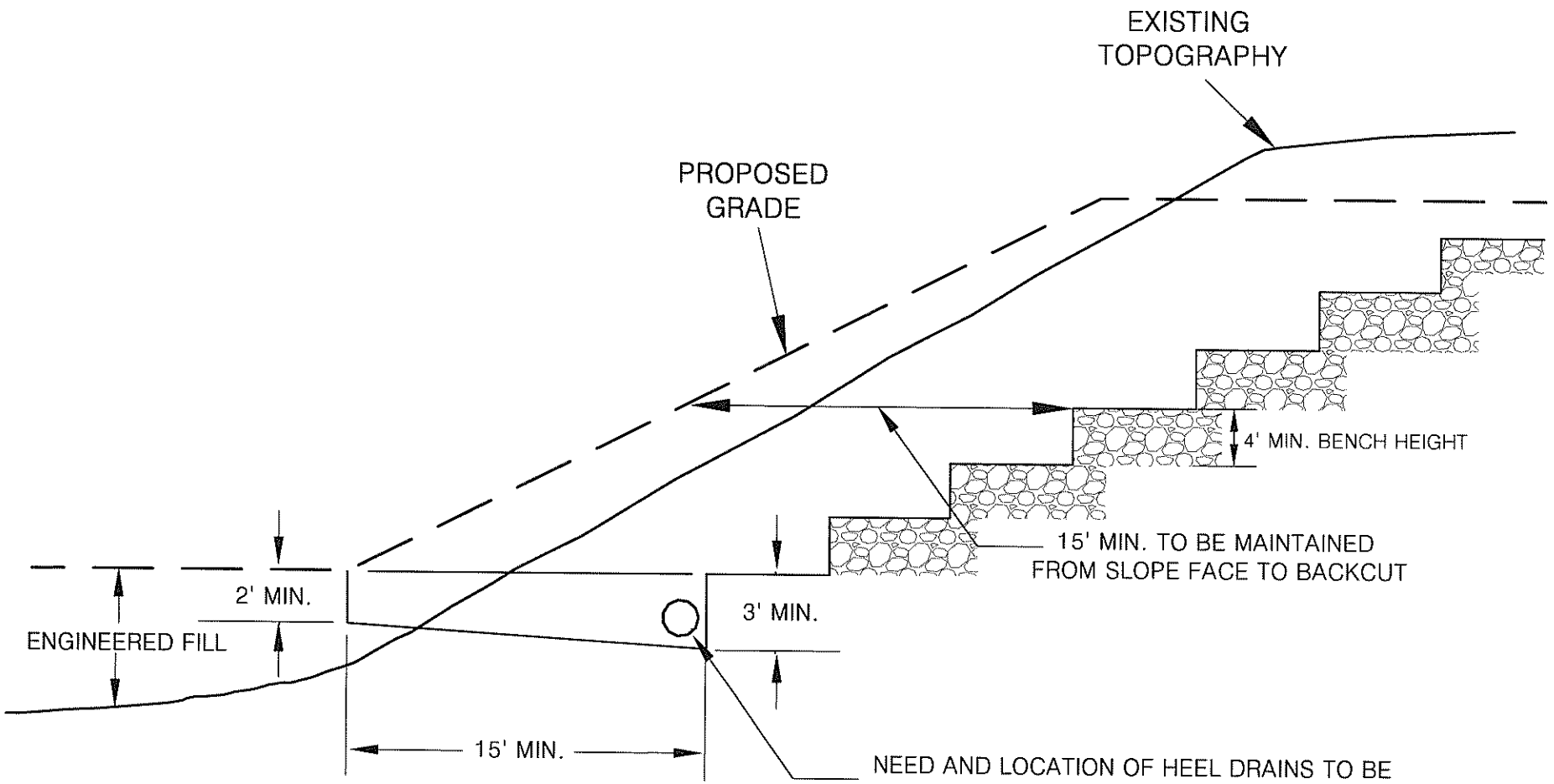
SELECTIVE GRADING DETAIL FOR STABILIZATION FILL
UNSTABLE MATERIAL EXPOSED IN PORTION OF CUT SLOPE



NOTES: 1. BACKDRAINS ARE NOT REQUIRED UNLESS SPECIFIED.

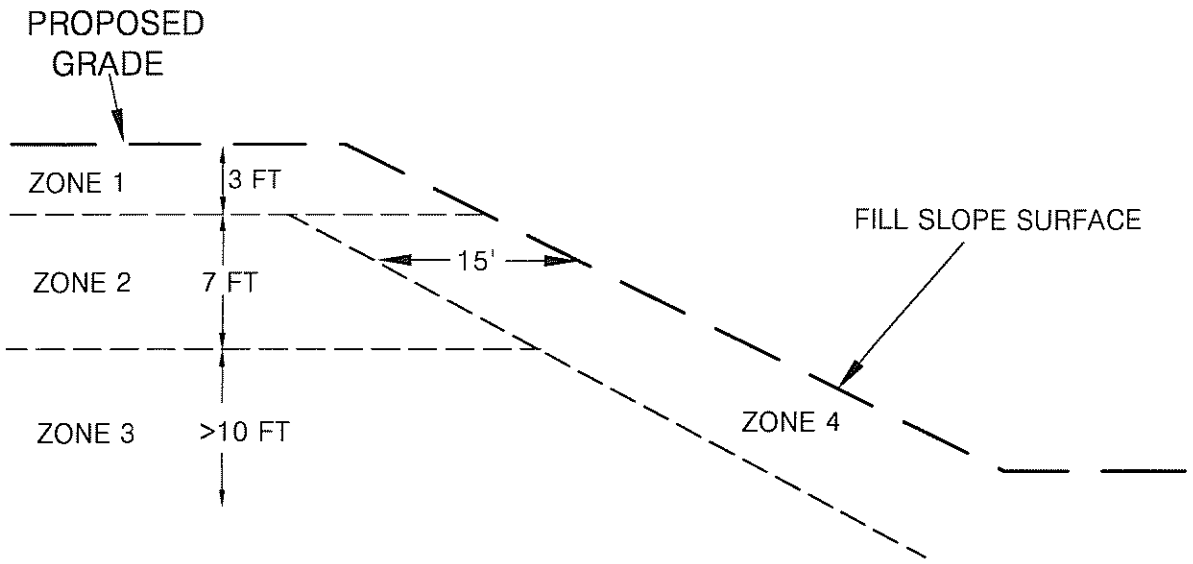
2. "W" SHALL BE EQUIPMENT WIDTH (15') FOR SLOPE HEIGHT LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET, "W" SHALL BE DETERMINED BY THE PROJECT GEOTECHNICAL ENGINEER/GEOLOGIST. AT NO TIME SHALL "W" BE LESS THAN H/2.

SKIN FILL SLOPE OVER NATURAL GROUND



MIN. KEY DIMENSIONS 15'X2'X3' FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

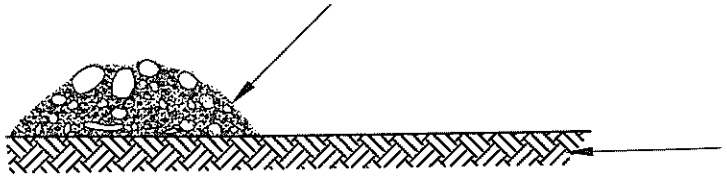
DETAIL FOR MAXIMUM PARTICLE DIMENSION



ZONE	DEPTH	PARTICLE MAX. DIMENSION	PLACEMENT METHOD
1	0-3 ft.	≤0.5 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)
2	3-10 ft.	≤2.0 ft.	ROCK BLANKETS (SEE PLATE G-13)
3	>10 ft.	≤8.0 ft.	ROCK BLANKETS (PLATE G-13) ROCK WINDROW (PLATE G-14) INDIVIDUAL ROCK BURIED (PLATE G-15)
4	15 HORIZONTAL FEET FROM FILL SLOPE FACE	≤1.0 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)

ROCK BLANKET DETAILS

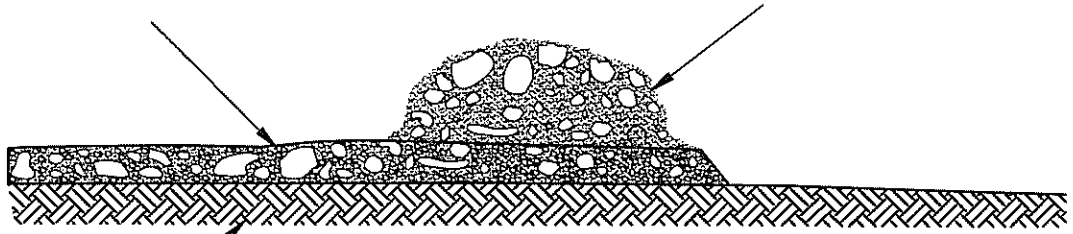
LOOSE PILE 1
LOOSE, DUMPED ROCK, GRAVEL AND SAND MIXTURE REMOVE FRAGMENTS LARGER THAT 2 FEET FOR ISOLATED BURIAL (PLATE G-15) OR WINDROW (PLATE G-10)



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

COMPACT PILE 1
SPREAD LOOSE PILE FORWARD WITH HEAVY TRACKED DOZER (D-8 OR LARGER). HEAVILY WATER, TRACK, AND APPLY ADDITIONAL SAND AND GRAVEL AS NECESSARY TO FILL VOIDS AND CREATE A DENSE MATRIX OF ROCK, COBBLES, GRAVEL AND SAND (2 FOOT MAXIMUM THICKNESS)

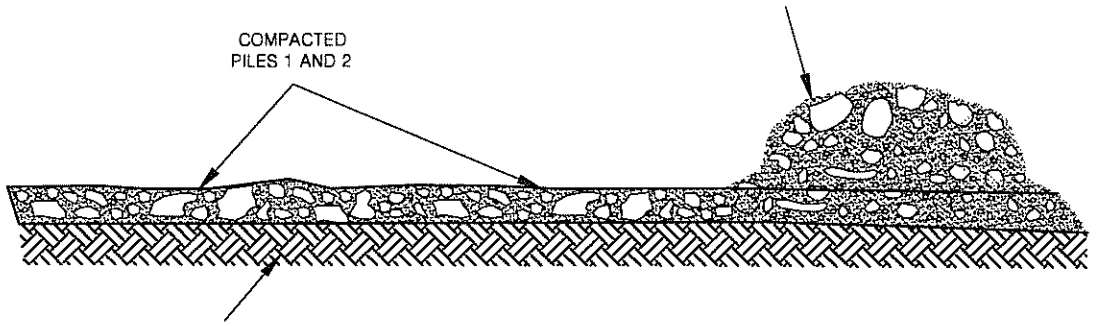
LOOSE PILE 2
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT PILE 1.



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

LOOSE PILE 3
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT EXISTING BLANKET.

COMPACTED PILES 1 AND 2

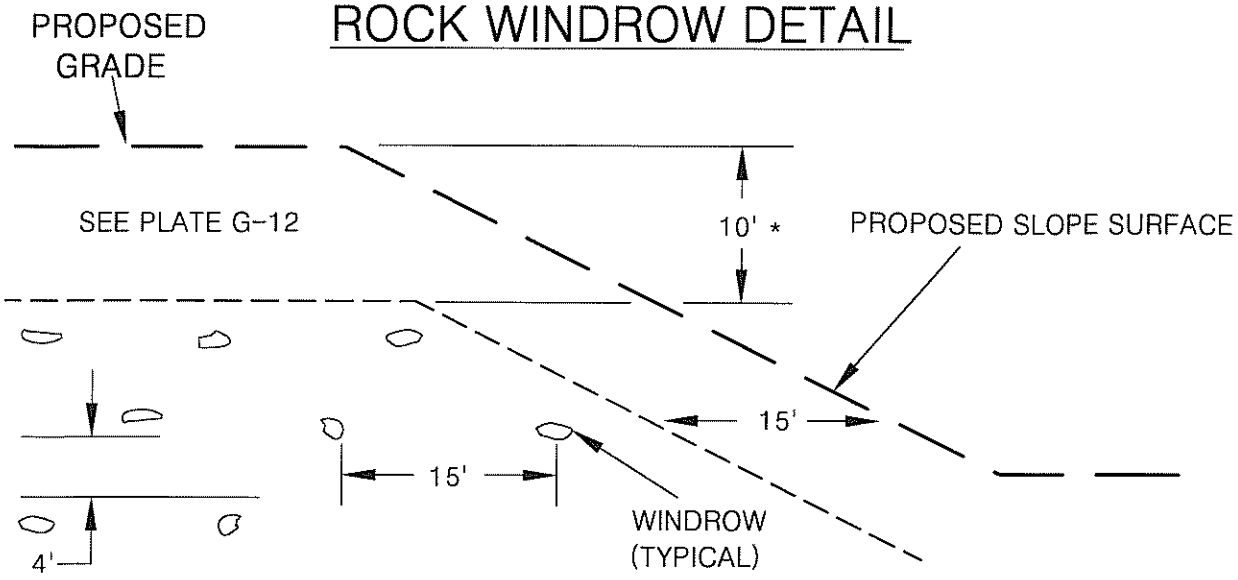


APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

OBSERVATION TESTING AND APPROVAL PROCEDURES

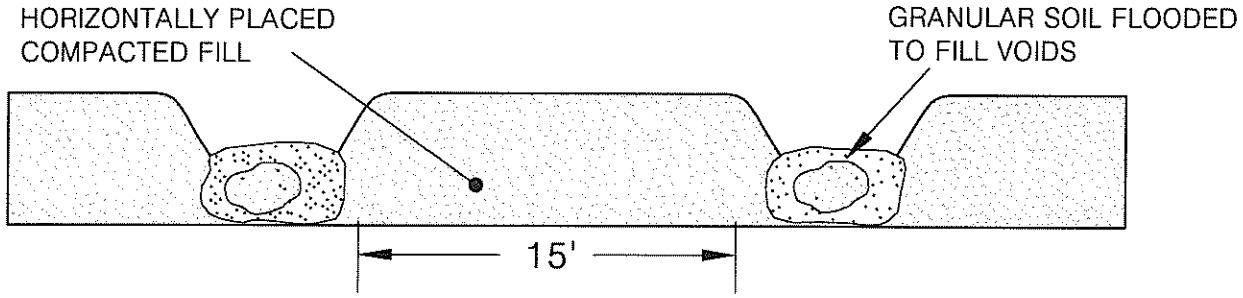
OBSERVE EQUIPMENT. SCRAPERS AND TRUCKS SHOULD BE FULLY SUPPORTED ON BLANKET WITHOUT SIGNIFICANT YIELDING. EXCAVATE TEST/OBSERVATION PITS TO CONFIRM EXISTENCE OF MIXTURE OF VARIOUS PARTICLE SIZES, WITHOUT SIGNIFICANT VOIDS, AND FORMING A DENSE, COMPACTED FILL MATRIX. TEST BY ASTM D1556, D2922 AND/OR D3017 WHEN APPROPRIATE. RECORD LIMITS AND ELEVATION OF BLANKET. ALL FILL AND COMPACTION OPERATIONS TO BE CONDUCTED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. SUBSEQUENT LIFTS TO BE APPLIED ONLY AFTER OBSERVATION AND CONFIRMATION OF SUITABILITY OF FILL AND RELEASE BY THE GEOTECHNICAL ENGINEER. BLANKETS TO BE CONSTRUCTED IN ACCORDANCE WITH PLATE G-12.

ROCK WINDROW DETAIL



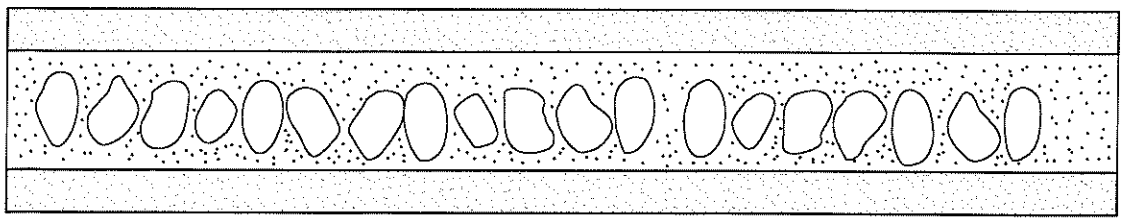
NOTE: OVERSIZED MATERIAL SHOULD BE REMOVED FROM THE 15' CLEAR ZONES WITH SPECIAL EQUIPMENT, SUCH AS A ROCK RAKE, PRIOR TO PLACING THE NEXT FILL LIFT.
*VARIANCES TO THE ABOVE ROCK HOLD DOWN MAY BE GRANTED SUBJECT TO APPROVAL BY THE OWNER, GEOTECHNICAL ENGINEER, AND GOVERNING AGENCY

TYPICAL WINDROW DETAIL (END VIEW)

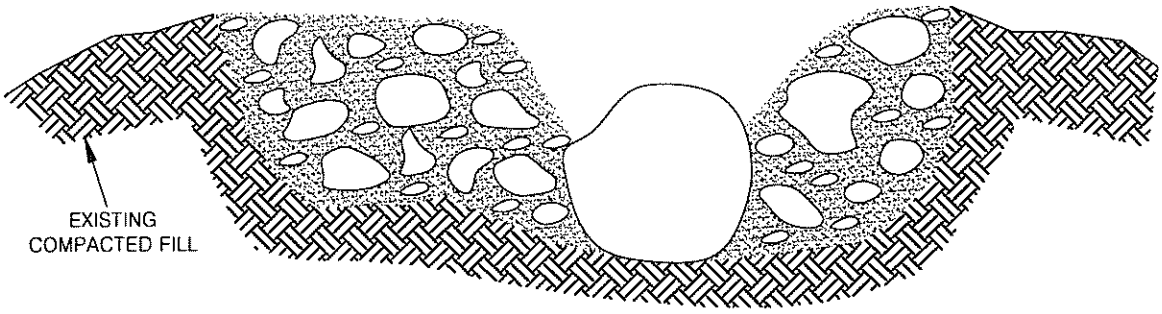


NOTE: COMPACTED FILL SHALL BE BROUGHT UP TO A HIGHER ELEVATION ALONG EACH WINDROW SO GRANULAR SOIL CAN BE FLOODED IN A "TRENCH CONDITION".

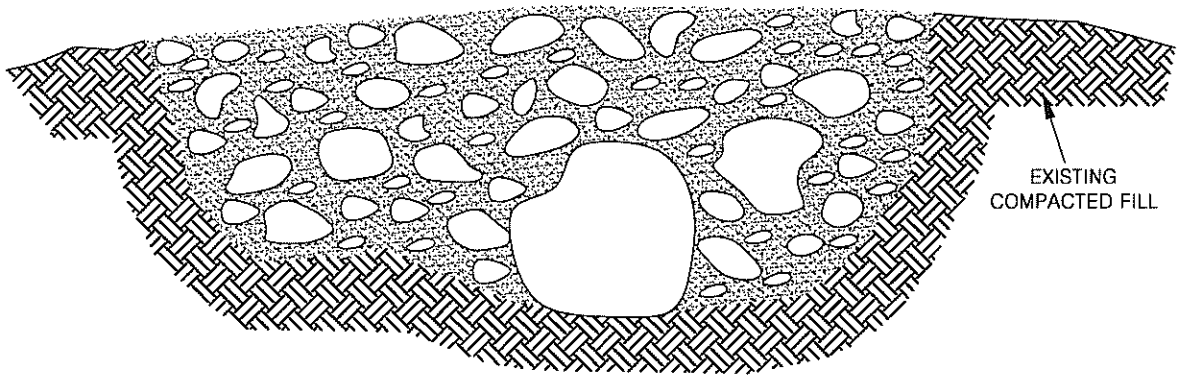
PROFILE VIEW



ISOLATED ROCK BURIAL DETAILS

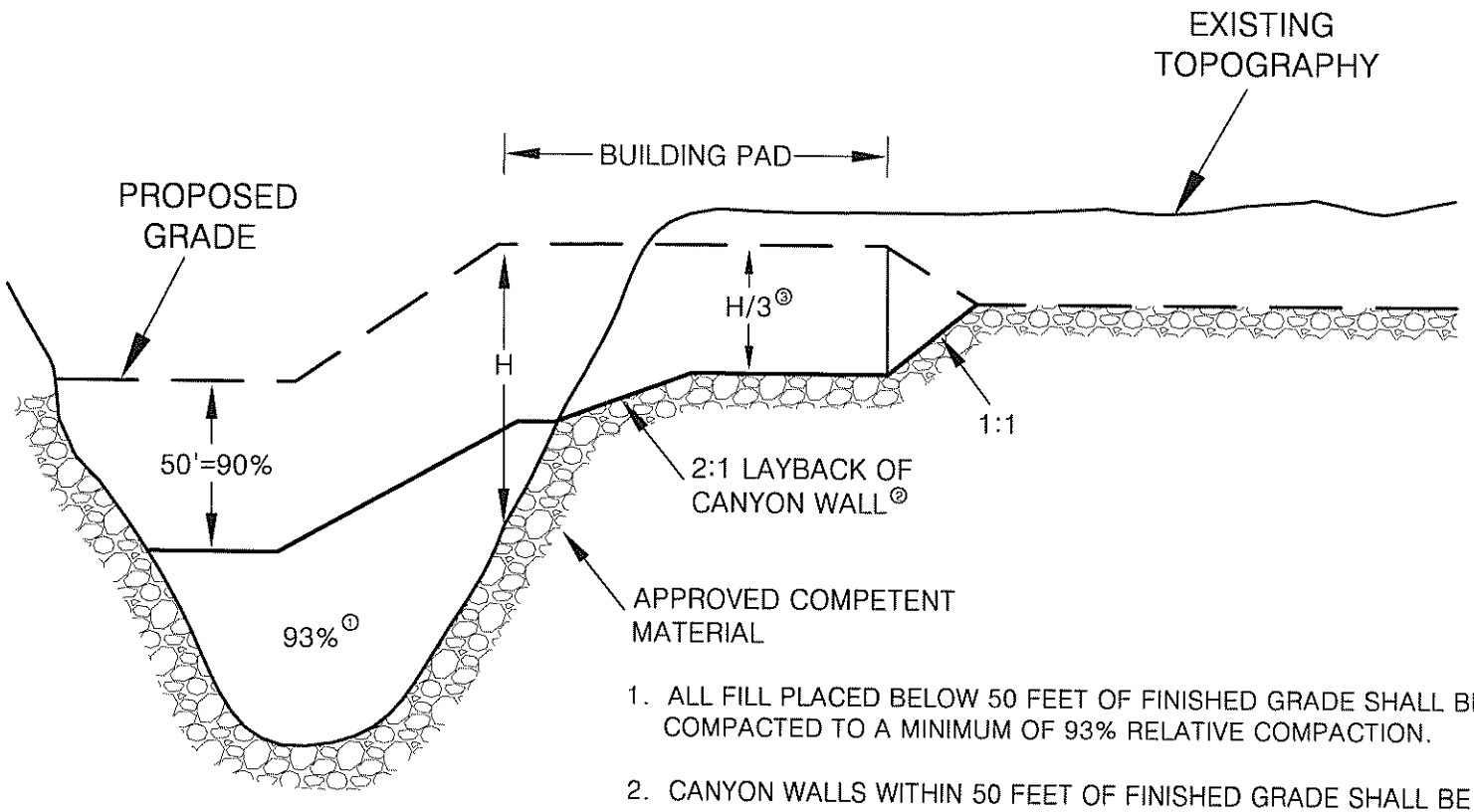


EXCAVATE HOLE INTO EXISTING FILL PRISM, PLACE BOULDER (< 8 feet in maximum dimension) INTO EXISTING COMPACTED FILL. SURROUND WITH SAND, GRAVEL, COBBLES AND WATER HEAVILY. TRACK WITH D8 OR LARGER EQUIPMENT UNTIL RESULTING FILL FULLY SUPPORTS EQUIPMENT. OBSERVE AND/OR TEST IN ACCORDANCE WITH ASTM D1556, D2922 OR D3017. ROCKS LARGER THAN 8 FEET SHALL BE FURTHER REDUCED IN SIZE BY SECONDARY BREAKING.



RELATIVE COMPACTION VS. DEPTH

CANYON WALL LAY BACK
DIFFERENTIAL FILL OVEREXCAVATION DETAILS



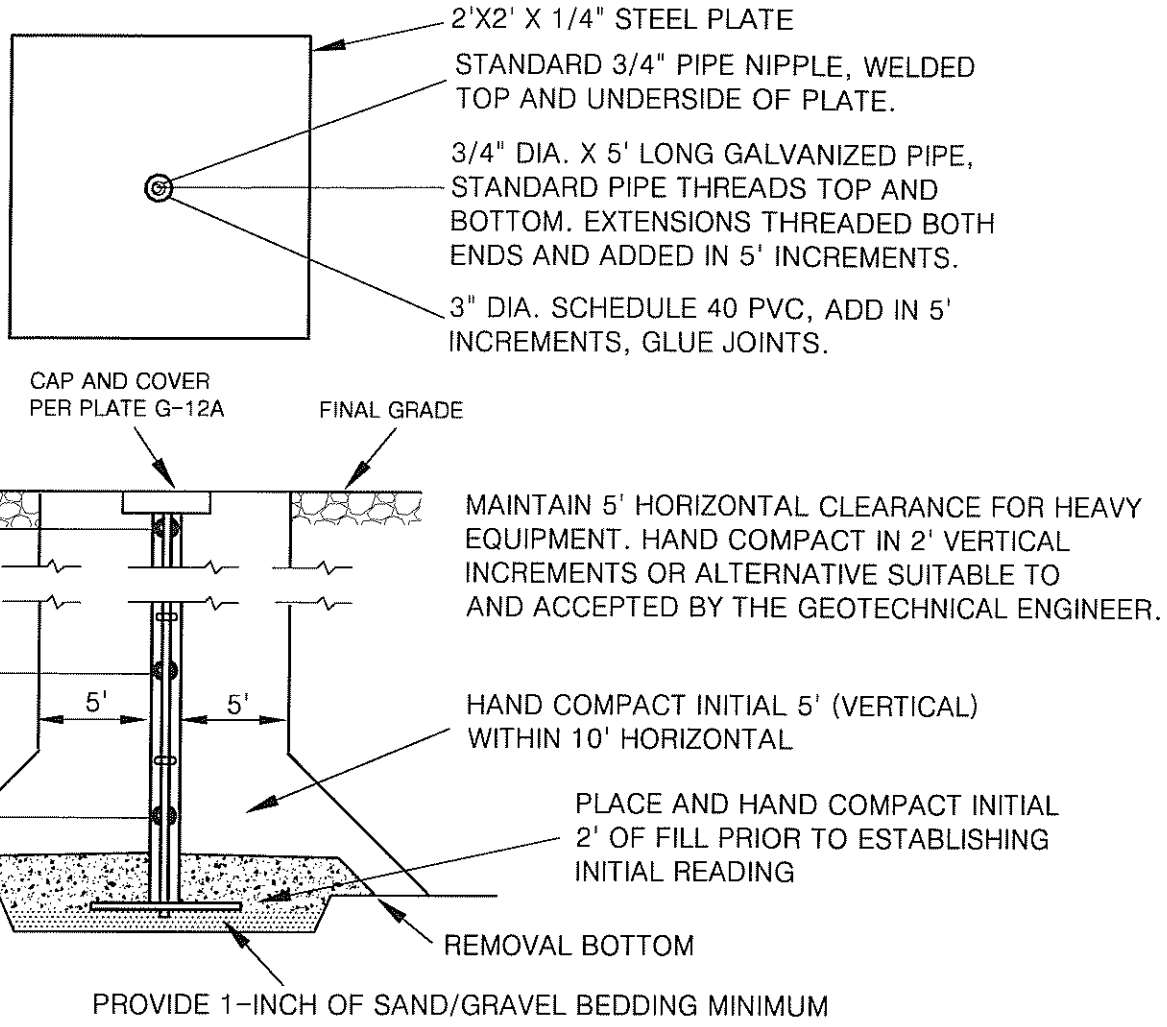
1. ALL FILL PLACED BELOW 50 FEET OF FINISHED GRADE SHALL BE COMPACTED TO A MINIMUM OF 93% RELATIVE COMPACTION.

2. CANYON WALLS WITHIN 50 FEET OF FINISHED GRADE SHALL BE LAID BACK TO A SLOPE RATIO OF 2:1 OR FLATTER.

3. ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF 1/3 OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET.

4. IF THE 2:1 LAY BACK OF THE CANYON WALL IS IMPRACTICAL, THEN AS AN ALTERNATIVE THE INCREASED COMPACTION STANDARDS IN NOTE 1 SHOULD BE EXTENDED UP TO H/3 AND THE LAY BACK WILL NOT BE REQUIRED.

SETTLEMENT PLATE DETAIL



NOTES:

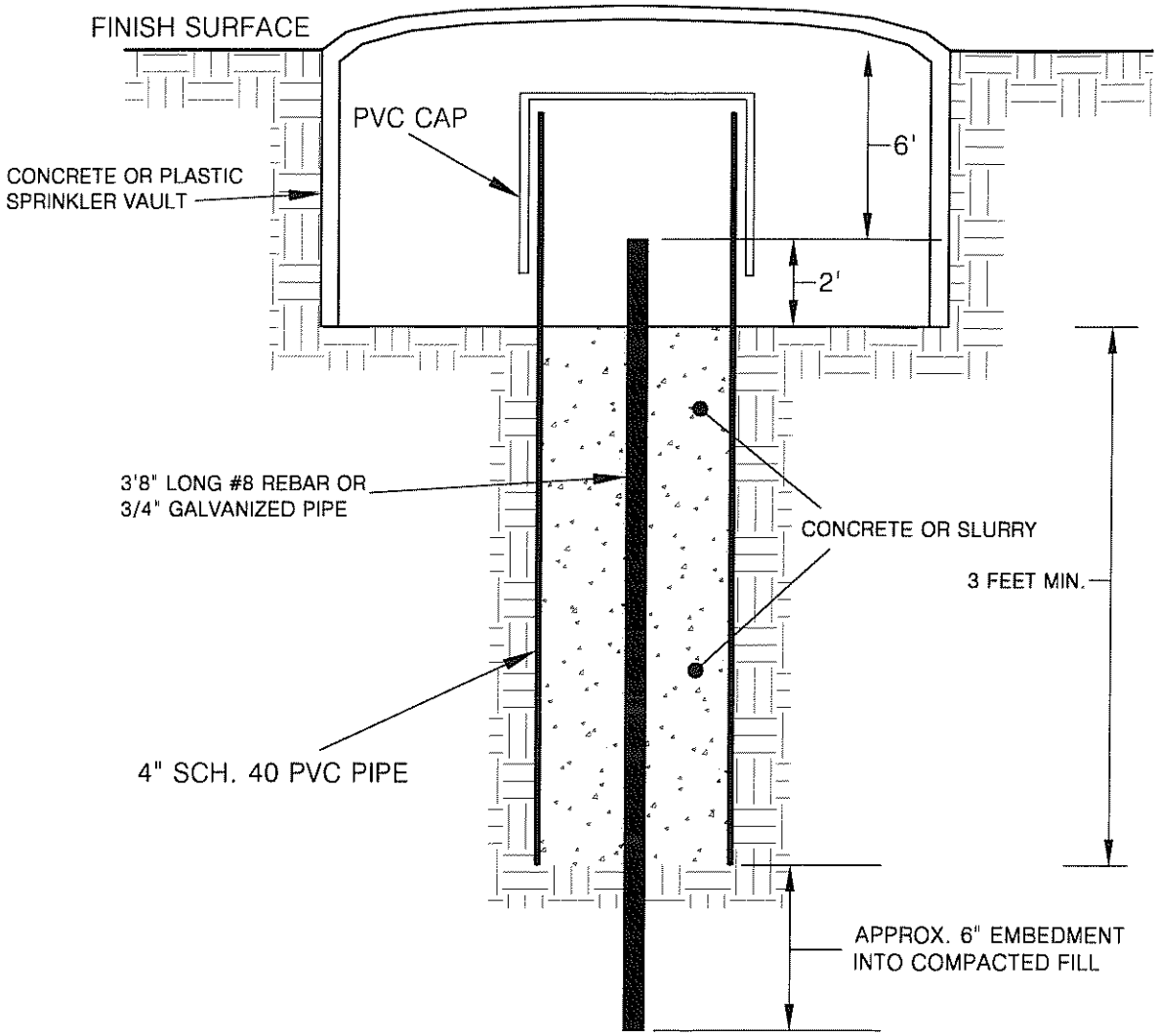
1) LOCATIONS OF SETTLEMENT PLATES SHALL BE CLEARLY MARKED AND READILY VISIBLE (RED FLAGGED) TO EQUIPMENT OPERATORS.

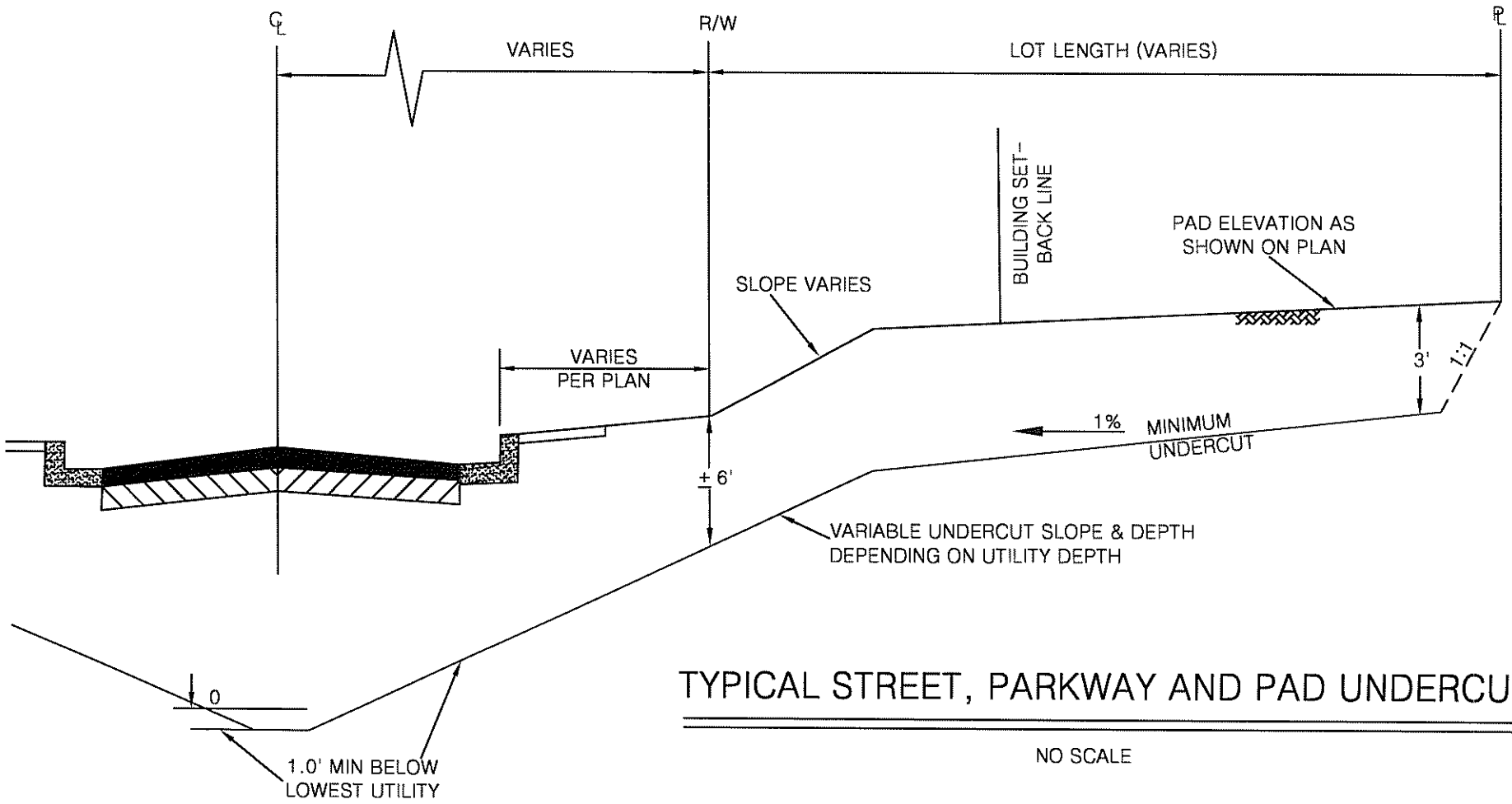
2) CONTRACTOR SHALL MAINTAIN 10' HORIZONTAL CLEARANCE FOR HEAVY EQUIPMENT WITHIN 5' (VERTICAL) OF PLATE BASE. FILL WITHIN CLEARANCE AREA SHALL BE HAND COMPACTED TO PROJECT SPECIFICATIONS OR COMPACTED BY ALTERNATIVE APPROVED BY THE GEOTECHNICAL ENGINEER.

3) AFTER 5' (VERTICAL) OF FILL IS IN PLACE, CONTRACTOR SHALL MAINTAIN 5' HORIZONTAL EQUIPMENT CLEARANCE. FILL IN CLEARANCE AREA SHALL BE HAND COMPACTED (OR APPROVED ALTERNATIVE) IN VERTICAL INCREMENTS NOT TO EXCEED 2 FEET.

4) IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE OR EXTENSION RESULTING FROM EQUIPMENT OPERATING WITHIN PRESCRIBED CLEARANCE AREA, CONTRACTOR SHALL IMMEDIATELY NOTIFY GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATE AND EXTENSION RODS TO WORKING ORDER.

SURFACE SETTLEMENT MONUMENT DETAIL





TYPICAL STREET, PARKWAY AND PAD UNDERCUT

NO SCALE

ALTA CALIFORNIA GEOTECHNICAL, INC .
VER. 3/13

PLATE G-19

PATH: C:\Users\Jinks\Desktop\Drafting\GRADING DETAILS\G-19.dwg

APPENDIX A-2:

Notice of Preparation and Comments

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CITY OF CLAREMONT

City Hall
2017 Harvard Avenue
P.O. Box 880
Claremont, CA 91711-0880
FAX (909) 399-5492
Website: www.ci.claremont.ca.us
Email: contact@ci.claremont.ca.us

City Council • (909) 399-5444
Corey Calaycay
Jed Leano
Ed Reece
Larry Schroeder
Jennifer Stark

Notice of Preparation of an Environmental Impact Report

DATE: November 19, 2019

TO: All Interested Parties

FROM: City of Claremont

SUBJECT: Notice of Preparation (NOP) of an Environmental Impact Report for The Commons

NOP REVIEW PERIOD: November 20, 2019 – December 20, 2019

The City of Claremont (City) will be the Lead Agency pursuant to the California Environmental Quality Act (CEQA) and will prepare an Environmental Impact Report (EIR) addressing The Commons project with consists of a Specific Plan (in Claremont), development plans, a tentative tract map, and amendments to the General Plan and Zoning Maps. This Notice of Preparation (NOP) has been prepared and distributed by the City to solicit written comments from responsible and trustee agencies, from the state agencies, and interested organizations and individuals. The City is requesting input regarding the scope and content of the environmental information to be addressed in the Draft EIR.

PROJECT LOCATION: The Commons is proposed on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the Cities of Claremont and Upland. The City of Claremont is located in Los Angeles County and the City of Upland is located in San Bernardino County. The City of Claremont portion of the project site is 6.5 acres of the 9.5 acres. The City of Upland portion of the project site is 3.0 of the 9.5 acres.

PROJECT DESCRIPTION: The Commons would establish land use regulations, development standards, and design guidelines for development within the Specific Plan planning area in the City of Claremont only. The intent is to provide specificity with regard to permitted uses and expectations for the design and construction of new buildings and parking facilities, development and use of open spaces, internal roadway and other circulation improvements, lighting, and landscaping. Future development within The Commons would provide a high quality planned development that provides a diverse mix of housing opportunities with a small area of retail.

The Commons would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4 bedroom townhomes, and single-story flats. The household expected size is between 2 and 5 occupants.



Conceptual Site Plan

Probable Environmental Effects

The City has prepared an Initial Study for the proposed project and determined the project may have a potentially significant impact on the environment and that preparation of an EIR is the appropriate level of documentation pursuant to CEQA. The maximum development capacity allowed by the Specific Plan will be analyzed in the EIR to provide a conservative estimate of potential environmental impacts of the project. The EIR will evaluate the potential of the project to impact the following environmental topics: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gas Emissions, Hazards, Hydrology & Water Quality, Land Use & Planning, Noise, Transportation, Tribal Cultural Resources, and Wildfires.

Availability of the NOP and Initial Study: A copy of the NOP and Initial Study are available on the City's website at https://www.ci.claremont.ca.us/government/departments-divisions/planning-division/ceqa-documents.

NOP Review and Comment Period

The NOP review and comment period is from **Tuesday, November 20** through **Thursday, December 20, 2019**. Due to the time limits mandated by State law, please send your written response at the earliest possible date but not later than 30 days after receipt of this NOP. In your response, please include the name of a contact person in your agency. Please direct your written comments to:

Mail: City of Claremont
207 Harvard Avenue
Claremont, CA 91711
Attn: Jennifer Davis, Contract Planner

Email: jdavis@romoplanninggroup.com

The City will consider all written comments regarding the scope of issues to be addressed in the EIR. **Written comments must be submitted by 4:00 PM, Thursday, December 20, 2019.**

From: jdavis@romoplanninggroup.com
To: Carl Winter
Subject: Commons IS Comment
Date: Monday, November 25, 2019 1:23:33 PM

Jennifer Davis
Contract Planner
909-399-5485

> --------- Original Message ---------
> Subject: RE: Yay! Re: Fwd: Please mail in City of Claremont envelope
> From: jdavis@romoplanninggroup.com
> Date: 11/25/19 9:23 am
> To: jpjaffe@aol.com
> Cc: jdavis@romoplanninggroup.com
>
> Everyone who has requested to be notified, community meeting attendees, responsible agencies, surrounding property owners, surrounding residents are all notified.
>
> Jennifer Davis
> Contract Planner
> 909-399-5485
>
> > --------- Original Message ---------
> > Subject: Yay! Re: Fwd: Please mail in City of Claremont envelope
> > From: jpjaffe@aol.com
> > Date: 11/21/19 9:30 pm
> > To: jdavis@romoplanninggroup.com, bjohnson@ci.claremont.ca.us, cveirs@ci.claremont.ca.us
> >
> > Who knew? I emailed you with concern about previous non-City envelopes, then later same day I received the notice in City envelope, well marked.
> >
> > Excellent!
> >
> > If I'd waited a day I could have saved us all the trouble of my previous email.
> >
> > I would like to understand who receives the notice by mail and/or email? Property owners within what radius? Those who have given public comment at meetings and/or in written submissions? Anyone else?

Thank you! ---Jennifer

-----Original Message-----
From: Jennifer Jaffe <jpjaffe@aol.com>
To: jdavis@romoplanninggroup.com <jdavis@romoplanninggroup.com>; bjohnson@ci.claremont.ca.us <bjohnson@ci.claremont.ca.us>; cveirs@ci.claremont.ca.us <cveirs@ci.claremont.ca.us>
Sent: Thu, Nov 21, 2019 12:35 am
Subject: Please mail in City of Claremont envelope

When you or the consultant mail the new Notice of Preparation announcement, please mail it to us in a City of Claremont envelope.

The photo with this email shows the envelopes in which we were mailed your previous two notices at the end of October.

I, and others whom I spoke with on your mailing list, almost didn't open the envelopes. We did not recognize the consultant's logo.

The envelope looked like a solicitation, including that it had a mass mailing label. (I don't take issue with using labels, just that it added to my assumption that the envelope was unsolicited marketing.)

I am glad you are including me in your notifications mailing list.
Thank you for your consideration of my concern.
—Jennifer Jaffe

Sent from my iPad

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

RECEIVED
NOV 25 2019
DEPT OF COMMUNITY DEV.
CITY OF CLAREMONT

November 18, 2019

Jennifer Davis
Claremont, City of
207 Harvard Avenue
Claremont, CA 91711

RE: SCH# 2019110341, The Commons Project, Los Angeles and San Bernardino Counties

Dear Ms. Davis:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
    a. A brief description of the project.
    b. The lead agency contact information.
    c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
    d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
    a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
    a. Alternatives to the project.
    b. Recommended mitigation measures.
    c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
    a. Type of environmental review necessary.
    b. Significance of the tribal cultural resources.
    c. Significance of the project's impacts on tribal cultural resources.
    d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
    a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
    b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

RECEIVED
NOV 25 2019
DEPT OF COMMUNITY DEV.
CITY OF CLAREMONT

Notice of Preparation

November 18, 2019

To: Reviewing Agencies

Re: The Commons
SCH# 2019110341

Attached for your review and comment is the Notice of Preparation (NOP) for the The Commons draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Jennifer Davis
Claremont, City of
207 Harvard Avenue
Claremont, CA 91711

with a copy to the State Clearinghouse in the Office of Planning and Research at state.clearinghouse@opr.ca.gov . Please refer to the SCH number noted above in all correspondence concerning this project on our website: https://ceqanet.opr.ca.gov/2019110341/2 .

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Lead Agency

Notice of Completion & Environmental Document Transmittal

2019110341

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: The Commons

Lead Agency: City of Claremont — Contact Person: Jennifer Davis

Mailing Address: 207 Harvard Avenue — Phone: 909-399-5485

City: Claremont — Zip: 91711 — County: Los Angeles

Project Location: County: Los Angeles/San Bernardino — City/Nearest Community: Claremont / Upland

Cross Streets: Foothill Blvd. and Monte Vista Ave. — Zip Code: 91711

Longitude/Latitude (degrees, minutes and seconds): 34 ° 6 ' 27.483 " N / 117 ° 42 ' 0.357 " W Total Acres: 9.2

Assessor's Parcel No.: 8307-003-066 (Los Angeles County), 1006-312-02, 03, and 04 (San Bernardino County)

Section: 03 Range: 08.0 W Base: Ontario 1981

Within 2 Miles: State Hwy #: I-10 and I-210 Waterways: none Airports: Cable Airport

Railways: none Schools: Claremont Colleges, Cabrillo Elementary, Chaparral Elementary, Sycamore Elementary

Document Type

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec — ☐ Draft EIR ☐ Supplement /Subsequent EIR (Prior SCH No.): Other:

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other:

Governor's Office of Planning & Research

NOV 18 2019

STATE CLEARINGHOUSE

Local Action Type

☐ General Plan Update ☒ General Plan Amendment ☐ General Plan Element ☐ Community Plan

☒ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Development Plan

☒ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)

☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type

☐	Residential:	Units: 110	Acres:		☐	Water Facilities:	Type:	MGD:	
☐	Office:	Sq. ft.	Acres:	Employees:	☐	Transportation:	Type:		
☐	Commercial:	Sq. ft. 5,000	Acres:	Employees:	☐	Mining:	Mineral:		
☐	Industrial:	Sq. ft.	Acres:	Employees:	☐	Power:	Type:	MW:	
☐	Educational:				☐	Waste Treatment:	Type:	MGD	
☒	Recreational:	Passive and Active Park Space			☐	Hazardous Waste:	Type:		
					☐	Other:			

Project Issues Discussed in Document:

☐ Aesthetic/Visual	☐ Fiscal	☐ Recreation/Parks	☐ Vegetation
☐ Agricultural Land	☐ Floodplain/Flooding	☐ Schools/Universities	☐ Water Quality
☒ Air Quality	☐ Forest Land/Fire Hazard	☐ Septic Systems	☐ Water Supply/Groundwater
☒ Archaeological/Historical	☐ Geologic/Seismic	☐ Sewer Capacity	☐ Wetland/Riparian
☒ Biological Resources	☐ Minerals	☐ Soil Erosion/Compaction/Grading	☐ Wildlife
☐ Coastal Zone	☒ Noise	☐ Solid Waste	☐ Growth Inducement
☒ Drainage/Absorption	☐ Population/Housing Balance	☒ Toxic/Hazardous	☐ Land Use
☐ Economic/Jobs	☐ Public Services/Facilities	☒ Traffic/Circulation	☒ Cumulative Effects

☐ Other: Energy, Airport Hazards

Present Land Use/Zoning/General Plan Designation: Armstrong Nursery and Vacant land/ Highway Commercial (Claremont) and Business/Residential (B/R-MU) (Upland) / Commercial (Claremont) and Business/Residential (B/R-MU) (Upland)

Project Description: *(please use a separate page if necessary)* The Commons would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4 bedroom townhomes, and single-story flats. The household expected size is between 2 and 5 occupants.

NOP Distribution List

County: Los Angeles/San Bernadino or SCH# 2019110341

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Allyson Hitt
- [ ] **Colorado River Board**
  Elsa Contreras
- [x] **Dept. of Conservation**
  Crina Chan
- [x] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [x] **Office of Historic Preservation**
  Ron Parsons
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [x] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Wildlife

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [x] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [x] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [ ] **California Department of Education**
  Lesley Taylor
- [ ] **OES (Office of Emergency Services)**
  Monique Wilber
- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Erik Vink
- [ ] **Delta Stewardship Council**
  Anthony Navasero
- [ ] **California Energy Commission**
  Eric Knight
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [x] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Christian Bushong
- [x] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Susan Zanchi
- [ ] **Caltrans, District 4**
  Patricia Maurice
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [x] **Caltrans, District 7**
  Dianna Watson
- [x] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [ ] **Airport & Freight**
  Jack Wursten
- [x] **Transportation Projects**
  Nesamani Kalandiyur
- [ ] **Industrial/Energy Projects**
  Mike Tollstrup
- [ ] **California Department of Resources, Recycling & Recovery**
  Kevin Taylor/Jeff Esquivel
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [x] **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- [ ] **State Water Resources Control Board**
  Div. Drinking Water #_____
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [x] **Dept. of Toxic Substances Control Reg. #_____**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [x] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
- [ ] **RWQCB 5F**
  Central Valley Region (5)
  Fresno Branch Office
- [ ] **RWQCB 5R**
  Central Valley Region (5)
  Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
- [ ] **RWQCB 6V**
  Lahontan Region (6)
  Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7
- [x] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____
  _____
  _____
- [ ] _____
  Conservancy

Last Updated 5/22/18

From: jdavis@romoplanninggroup.com
To: Carl Winter
Subject: FWD: RE: The Commons SP - Claremont and Upland
Date: Monday, November 25, 2019 1:23:48 PM
Attachments: image001.png
image003.png
image005.png

Jennifer Davis
Contract Planner
909-399-5485

--------- Original Message ---------
Subject: RE: The Commons SP - Claremont and Upland
From: 'Curry, Donna' <dcurry@lacsd.org>
Date: 11/21/19 10:45 am
To: 'jdavis@romoplanninggroup.com' <jdavis@romoplanninggroup.com>
Cc: 'mpoland@ci.upland.ca.us' <mpoland@ci.upland.ca.us>

Hi Jennifer,

I will just go ahead with general information at this point for the comment letter. We will base the flow on it all going to us through Claremont/District 21 for now. Since this is just an NOP I'm sure the issue of flow from Upland will be more specifically addressed at the EIR stage. Thanks!

D

From: jdavis@romoplanninggroup.com <jdavis@romoplanninggroup.com>
Sent: Thursday, November 21, 2019 10:17 AM
To: Curry, Donna <dcurry@lacsd.org>
Cc: Raza, Adriana <araza@lacsd.org>
Subject: RE: The Commons SP - Claremont and Upland

Good Morning Donna,

Thank you for your question. This will be addressed in the environmental documents but in the meantime, you may want to reach out to the project planner for this project

in Upland.

His name is Micheal Poland and his email address is: mpoland@ci.upland.ca.us

Jennifer Davis

Contract Planner

909-399-5485

--------- Original Message ---------

Subject: The Commons SP - Claremont and Upland
From: 'Curry, Donna' <dcurry@lacsd.org>
Date: 11/20/19 10:59 am
To: 'jdavis@romoplanninggroup.com' <jdavis@romoplanninggroup.com>
Cc: 'Raza, Adriana' <araza@lacsd.org>

Good morning Jennifer,

We received the NOP for subject project. Since the project not only spans two cities, but also two counties, I need to know about the 48 townhomes in Upland. Will they be connecting to the local sewer in Monte Vista which is owned by Claremont? Will they drain west into Claremont along with the rest of the parcels located in Claremont or will they drain east to Upland's system? Please advise at your earliest convenience. Thank you.

Donna J. Curry
Customer Service Specialist-Annexations | Facilities Planning Department

562-908-4288 ext. 2708 | dcurry@lacsd.org

SANITATION DISTRICTS OF LOS ANGELES COUNTY

Converting Waste Into Resources | www.LACSD.org

From: jdavis@romoplanninggroup.com
To: Carl Winter
Subject: Commons IS comments
Date: Monday, November 25, 2019 1:24:03 PM

Jennifer Davis
Contract Planner
909-399-5485

--------- Original Message ---------
Subject:
From: 'Debbie Bellamy' <debbiebellamy60@gmail.com>
Date: 11/21/19 4:56 am
To: jdavis@romoplanninggroup.com

Hi my name is Debra I am interested in a affordable housing I would like to be on the list living rightnow in san.dimas .when I retire I would like to get on this program.
Than

2019 305804
FILED
Nov 21 2019
Dean C. Logan, Registrar – Recorder/County Clerk
Electronically signed by CORTNEY MAFFITT

CITY OF CLAREMONT

City Hall
2017 Harvard Avenue
P.O. Box 880
Claremont, CA 91711-0880
FAX (909) 399-5492
Website: www.ci.claremont.ca.us
Email: contact@ci.claremont.ca.us

City Council • (909) 399-5444
Corey Calaycay
Jed Leano
Ed Reece
Larry Schroeder
Jennifer Stark

Notice of Preparation of an Environmental Impact Report

DATE: November 18, 2019

TO: All Interested Parties

FROM: City of Claremont

SUBJECT: Notice of Preparation (NOP) of an Environmental Impact Report for The Commons

NOP REVIEW PERIOD: November 19, 2019 – December 19, 2019

The City of Claremont (City) will be the Lead Agency pursuant to the California Environmental Quality Act (CEQA) and will prepare an Environmental Impact Report (EIR) addressing The Commons project with consists of a Specific Plan (in Claremont), development plans, a tentative tract map, and amendments to the General Plan and Zoning Maps. This Notice of Preparation (NOP) has been prepared and distributed by the City to solicit written comments from responsible and trustee agencies, from the state agencies, and interested organizations and individuals. The City is requesting input regarding the scope and content of the environmental information to be addressed in the Draft EIR.

PROJECT LOCATION: The Commons is proposed on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the Cities of Claremont and Upland. The City of Claremont is located in Los Angeles County and the City of Upland is located in San Bernardino County. The City of Claremont portion of the project site is 6.5 acres of the 9.5 acres. The City of Upland portion of the project site is 3.0 of the 9.5 acres.

PROJECT DESCRIPTION: The Commons would establish land use regulations, development standards, and design guidelines for development within the Specific Plan planning area in the City of Claremont only. The intent is to provide specificity with regard to permitted uses and expectations for the design and construction of new buildings and parking facilities, development and use of open spaces, internal roadway and other circulation improvements, lighting, and landscaping. Future development within The Commons would provide a high quality planned development that provides a diverse mix of housing opportunities with a small area of retail.

The Commons would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4 bedroom townhomes, and single-story flats. The household expected size is between 2 and 5 occupants.

RECEIVED
JAN 06 2020
COMMUNITY DEVELOPMENT

THIS NOTICE WAS POSTED
ON November 21 2019
UNTIL December 23 2019
REGISTRAR – RECORDER/COUNTY CLERK



Conceptual Site Plan

Probable Environmental Effects

The City has prepared an Initial Study for the proposed project and determined the project may have a potentially significant impact on the environment and that preparation of an EIR is the appropriate level of documentation pursuant to CEQA. The maximum development capacity allowed by the Specific Plan will be analyzed in the EIR to provide a conservative estimate of potential environmental impacts of the project. The EIR will evaluate the potential of the project to impact the following environmental topics: Air Quality, Biological Resources, Cultural Resources, Energy, Greenhouse Gas Emissions, Hazards, Hydrology & Water Quality, Land Use & Planning, Noise, Transportation, Tribal Cultural Resources, and Wildfires.

Availability of the NOP and Initial Study: A copy of the NOP and Initial Study are available on the City's website at https://www.ci.claremont.ca.us/government/departments-divisions/planning-division/ceqa-documents.

NOP Review and Comment Period

The NOP review and comment period is from **Tuesday, November 19** through **Thursday, December 19, 2019**. Due to the time limits mandated by State law, please send your written response at the earliest possible date but not later than 30 days after receipt of this NOP. In your response, please include the name of a contact person in your agency. Please direct your written comments to:

Mail: City of Claremont
207 Harvard Avenue
Claremont, CA 91711
Attn: Jennifer Davis, Contract Planner

Email: jdavis@romoplanninggroup.com

2019 305804
FILED
Nov 21 2019
Dean C. Logan, Registrar – Recorder/County Clerk
Electronically signed by CORTNEY MAFFITT

The City will consider all written comments regarding the scope of issues to be addressed in the EIR. **Written comments must be submitted by 4:00 PM, Thursday, December 19, 2019.**

REGISTRAR-RECORDER/COUNTY CLERK
BUSINESS FILING & REGISTRATION
P.O. BOX 1208
NORWALK, CALIFORNIA 90651-1208

U.S. POSTAGE PITNEY BOWES
ZIP 90650 $ 000.50⁰
02 1W
0001402544 DEC 24 2019

Jennifer Dalls
City of Claremont
207 Harvard ave.
Claremont, CA 91711

91711$4719 C009

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

December 10, 2019

Jennifer Davis
City of Claremont
207 Harvard Avenue
Claremont, CA 91711
jdavis@romoplanninggroup.com

Subject: Comments on the Notice of Preparation of a Draft Environmental Impact Report for The Commons, SCH # 2019110341, Los Angeles County

Dear Ms. Davis:

The California Department of Fish and Wildlife (CDFW) has reviewed the above-referenced Notice of Preparation (NOP) for The Commons (Project).

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW's Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & Game Code, §§ 711.7, subdivision (a) & 1802; Public Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Public Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & Game Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" (see Fish & Game Code, § 2050) of any species protected under the California Endangered Species Act (CESA; Fish & Game Code, § 2050 et seq.) or the Native Plant Protection Act (NPPA; Fish & Game Code, §1900 et seq.), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

Project Location: The Project site is on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the City of Claremont and the City of Upland. The City of Claremont portion of the Project site is 6.5 acres of the 9.5 acres. The City

of Claremont is bounded by unincorporated land in Los Angeles County to the north, the Cities of Pomona and Montclair to the south, the City of Upland to the east, and the City of La Verne and County of Los Angeles unincorporated land to the west. The Project site occupies Assessor's Parcel Numbers (APNs) 8307-003-066 (Los Angeles County) and APNs 1006-312-02, 03, and 04 (San Bernardino County). The four parcels are primarily undeveloped apart from an Armstrong Garden Center. The nursery will remain and will become the adjacent neighboring property to the west of the planned residential/mixed-use development portion of the Project in Claremont. The nursery occupies 1.44 acres west of the 9.5-acre Project site and is part of proposed Tentative Tract Map 82135 being processed for the Project.

Project Description/Objectives: The Project would result in the development of 27 single-family homes, 20 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on a 6.5-acre site in the City of Claremont (in the County of Los Angeles) and 48 townhomes on 3.0 acres in the City of Upland (in the County of San Bernardino).

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the City of Claremont in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

Specific Comments

1) Regional Setting. CEQA Guidelines section 15125(c) require the Lead Agency to include information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis placed on resources that are rare or unique to the region. The DEIR should include measures to fully avoid and otherwise protect Sensitive Natural Communities from Project-related impacts. Project implementation may result in impacts to rare or endangered plants or plant communities that have been historically recorded within 1.5 miles of the Project vicinity, such as Riversidian alluvial fan sage scrub. CDFW considers these communities as threatened habitats having both regional and local significance. Plant communities, alliances, and associations with a state-wide ranking of S1, S2, S3 and S4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by visiting https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities.

2) Landscaping. Figures 3, 4A, 4B, and 4C indicate landscaping will occur on the Project site. CDFW recommends using native, locally appropriate plant species for landscaping on the Project site. CDFW recommends invasive/exotic plants, including pepper trees (*Schinus* genus) and fountain grasses (*Pennisetum* genus), be restricted from use in landscape plans for this Project. A list of invasive/exotic plants that should be avoided as well as suggestions for better landscape plants can be found at https://www.cal-ipc.org/solutions/prevention/landscaping/.

3) Tree Replacement: Figures 2A and 2B as well as aerial photography indicate the presence of trees on the Project site. To compensate for any loss of trees, CDFW recommends replacing all non-native trees removed as a result of the proposed work activities at least a 1:1 ratio with native trees. CDFW recommends replacing native trees at least a 3:1 ratio with a combination of native trees and/or appropriate understory and lower canopy plantings.

CDFW recommends that any loss of oaks shall be replanted at a minimum 10:1 ratio. Replacement oaks shall come from nursery stock grown from locally sourced acorns, or from acorns gathered locally, preferably from the same watershed in which they were planted.

4) Biological Baseline Assessment. Figures 1, 2A, & 2B indicate that the Project site is located on vacant/undeveloped land. CDFW recommends providing a complete assessment of the flora and fauna within and adjacent to the Project area, with emphasis upon identifying endangered, threatened, sensitive, regionally and locally unique species, and sensitive habitats, the DEIR should include the following information:

   a) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region [CEQA Guidelines, § 15125(c)];

   b) A thorough, recent, floristic-based assessment of special status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline);

   c) Floristic, alliance- and/or association-based mapping and vegetation impact assessments conducted at the Project site and within the neighboring vicinity. *The Manual of California Vegetation*, second edition, should also be used to inform this mapping and assessment (Sawyer, 2008). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions;

   d) A complete, recent, assessment of the biological resources associated with each habitat type on site and within adjacent areas that could also be affected by the Project. CDFW's California Natural Diversity Data Base (CNDDB) in Sacramento should be contacted to obtain current information on any previously reported sensitive species and habitat. CDFW recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp;

   e) A complete, recent, assessment of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect, including California SSC and California Fully Protected Species (Fish & Game Code, §§ 3511, 4700, 5050 and 5515). Species to be addressed should include all those which meet the CEQA definition of endangered, rare or threatened species (CEQA Guidelines, § 15380). Seasonal variations in use of the Project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the USFWS; and,

   f) A recent, wildlife and rare plant survey. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare

plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame, or in phases.

5) LSA: Figures 2A and 2B as well as aerial photography indicate that the Project could impact an area that may convey surface water flow during rain events. As seen in these figures, there is a portion of West Foothill Boulevard on the southeastern boundary that is a bridge that would allow surface water flow underneath West Foothill Boulevard in a southerly direction. As a Responsible Agency under CEQA, CDFW has authority over activities in streams and/or lakes that will divert or obstruct the natural flow; or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream; or use material from a streambed. For any such activities, the project applicant (or "entity") must provide written notification to CDFW pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, CDFW determines whether an LSA Agreement (Agreement) with the applicant is required prior to conducting the proposed activities. CDFW's issuance of an Agreement for a project that is subject to CEQA will require related environmental compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the CEQA document prepared by the local jurisdiction (Lead Agency) for the Project. To minimize additional requirements by CDFW pursuant to section 1600 *et seq.* and/or under CEQA, the DEIR should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA (available at www.wildlife.ca.gov/habcon/1600).

   a) The Project area supports aquatic, riparian, and wetland habitats; therefore, a preliminary jurisdictional delineation of the streams and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service (USFWS) wetland definition adopted by the CDFW (Cowardin et al. 1970). Some wetland and riparian habitats subject to CDFW's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers' section 404 permit and Regional Water Quality Control Board section 401 Certification.

   b) In areas of the Project site which may support ephemeral streams, herbaceous vegetation, woody vegetation, and woodlands also serve to protect the integrity of ephemeral channels and help maintain natural sedimentation processes; therefore, CDFW recommends effective setbacks be established to maintain appropriately-sized vegetated buffer areas adjoining ephemeral drainages.

   c) Project-related changes in upstream and downstream drainage patterns, runoff, and sedimentation should be included and evaluated in the DEIR.

   d) As part of the LSA Notification process, CDFW requests the 100, 50, 25, 10, 5, and 2-year frequency storm event for existing and proposed conditions. CDFW recommends the DEIR evaluate the results and address avoidance, minimization, and/or mitigation measures that may be necessary to reduce potential significant impacts.

General Comments

1) Project Description and Alternatives. To enable CDFW to adequately review and comment on the proposed Project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:

   a) A complete discussion of the purpose and need for, and description of, the proposed Project, including all staging areas and access routes to the construction and staging areas; and,

   b) A range of feasible alternatives to Project component location and design features to ensure that alternatives to the proposed Project are fully considered and evaluated. The alternatives should avoid or otherwise minimize direct and indirect impacts to sensitive biological resources and wildlife movement areas.

2) CESA. CDFW considers adverse impacts to a species protected by CESA to be significant without mitigation under CEQA. As to CESA, take of any endangered, threatened, candidate species, or State-listed rare plant species that results from the Project is prohibited, except as authorized by state law (Fish and Game Code, §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). Consequently, if the Project, Project construction, or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, CDFW recommends that the Project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from CDFW may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances, among other options [Fish & Game Code, §§ 2080.1, 2081, subds. (b) and (c)]. Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that CDFW issue a separate CEQA document for the issuance of an ITP unless the Project CEQA document addresses all Project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

3) Biological Direct, Indirect, and Cumulative Impacts. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR:

   a) A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address Project-related changes on drainage patterns and downstream of the Project site; the volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and, post-Project fate of runoff from the Project site. The discussion should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary and the potential resulting impacts on the habitat (if any) supported by the groundwater. Mitigation measures proposed to alleviate such Project impacts should be included;

b) A discussion regarding indirect Project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a Natural Community Conservation Plan (NCCP, Fish & Game Code, § 2800 et. seq.). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR;

c) An analysis of impacts from land use designations and zoning located nearby or adjacent to natural areas that may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the DEIR; and,

d) A cumulative effects analysis, as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

4) Compensatory Mitigation. The DEIR should include mitigation measures for adverse Project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed. Areas proposed as mitigation lands should be protected in perpetuity with a conservation easement, financial assurance and dedicated to a qualified entity for long-term management and monitoring. Under Government Code section 65967, the lead agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

5) Long-term Management of Mitigation Lands. For proposed preservation and/or restoration, the DEIR should include measures to protect the targeted habitat values from direct and indirect negative impacts in perpetuity. The objective should be to offset the Project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include (but are not limited to) restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion. An appropriate non-wasting endowment should be set aside to provide for long-term management of mitigation lands.

6) Nesting Birds. CDFW recommends that measures be taken to avoid Project impacts to nesting birds. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Title 50, § 10.13, Code of Federal Regulations). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). Proposed Project activities including (but not limited to) staging and disturbances to native and nonnative vegetation, structures, and substrates should occur outside of the avian breeding season which generally runs from February 1 through September 1 (as early as January 1 for some raptors) to avoid take of

birds or their eggs. If avoidance of the avian breeding season is not feasible, CDFW recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300-feet of the disturbance area (within 500-feet for raptors). Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

7) Translocation/Salvage of Plants and Animal Species. Translocation and transplantation is the process of moving an individual from the Project site and permanently moving it to a new location. CDFW generally does not support the use of, translocation or transplantation as the primary mitigation strategy for unavoidable impacts to rare, threatened, or endangered plant or animal species. Studies have shown that these efforts are experimental and the outcome unreliable. CDFW has found that permanent preservation and management of habitat capable of supporting these species is often a more effective long-term strategy for conserving sensitive plants and animals and their habitats.

8) Moving out of Harm's Way. The proposed Project is anticipated to result in clearing of natural habitats that support many species of indigenous wildlife. To avoid direct mortality, we recommend that a qualified biological monitor approved by CDFW be on-site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or Project-related construction activities. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Project impacts associated with habitat loss. If the Project requires species to be removed, disturbed, or otherwise handled, we recommend that the DEIR clearly identify that the designated entity shall obtain all appropriate state and federal permits.

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP to assist the City of Claremont in identifying and mitigating Project impacts on biological resources. If you have any questions or comments regarding this letter, please contact Felicia Silva, Environmental Scientist, at (562) 430-0098 or by email at Felicia.Silva@wildlife.ca.gov.

Sincerely,

Erinn Wilson
Environmental Program Manager I

ec: CDFW
Erinn Wilson – Los Alamitos
Victoria Tang – Los Alamitos
Andrew Valand – Los Alamitos
Felicia Silva – Los Alamitos
Kelly Schmoker – Glendora

Audrey Kelly – Los Alamitos

Scott Morgan (State Clearinghouse)

References

Cowardin, Lewis M., et al. 1970. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Sawyer, J. O., Keeler-Wolf, T., and Evens J.M. 2008. A manual of California Vegetation, 2nd ed. ISBN 978-0-943460-49-9.

From: jdavis@romoplanninggroup.com
To: Carl Winter
Cc: Lynn Hayes; Brad Johnson
Subject: FWD: The Commons - Initial Study
Date: Thursday, December 19, 2019 9:45:53 AM

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from a resident.

> --------- Original Message ---------
> Subject: The Commons - Initial Study
> From: "Pamela Nagler" <pamelacnagler@gmail.com>
> Date: 12/19/19 6:39 am
> To: "jdavis@romoplanninggroup.com" <jdavis@romoplanninggroup.com>
>
> Thank you for your consideration.
>
> Jennifer Davis, Contract Planner
> City of Claremont
> Community Development Department 207 Harvard Avenue
> Claremont, California 91711 (909) 399-5470 jdavis@romoplanninggroup.com
>
> Comments on:
> INITIAL STUDY
> THE COMMONS
> CITY OF CLAREMONT
> LOS ANGELES COUNTY, CALIFORNIA
>
> I. Aesthetics 4. Biological Resources 5. Cultural Resources
>
> The scope of this EIR does not adequately address that this is one of the last remains of the historic San Antonio Riverbed - a river that fed this entire valley. It is replete with yucca, laurel sumac and other endemic species - something that cannot be duplicated by landscaping and manufactured bioswales.
>
> 15. Public Services
>
> d. The proposed parks and recreational facilities are woefully inadequate to address the needs of the proposed residents. Neither the Central Park nor the Linear Park are true parks - they are repurposed landing strips. Central Park is lined by cars on both sides and is about 5 parking space wide, which constitutes it as more of a meridian between roads than a recreational space. Proposed recreational space lacks trees or shade.
>
> This is particularly important because it is all that the residents have to rely on. The proposed project lacks connectivity being located in an area zoned commercial.
>
> 18. Tribal Cultural Resources
>
> Historic San Antonio Riverbed. This project should require a Native American monitor.
>
> Pamela Casey Nagler
> 525 W. 12th St.
> Claremont, CA 91711

DEPARTMENT OF TRANSPORTATION
DISTRICT 7- OFFICE OF REGIONAL PLANNING
100 S. MAIN STREET, SUITE 100
LOS ANGELES, CA 90012
PHONE (213) 897-6536
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

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COMMUNITY DEVELOPMENT

December 17, 2019

Jennifer Davis
Contract Planner
City of Claremont
207 Harvard Avenue
Claremont, CA 91711

RE: The Commons
Notice of Preparation (NOP)
GTS# 07-LA-2019-02930
Vic. LA-10/ PM R51.563
Vic. LA-210/ PM 48.256
Vic. SBD-210/ PM 0.6

Dear Ms. Davis:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The proposed project would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4-bedroom townhomes, and single-story flats. The household expected size is between 2 and 5 occupants.

The mission of Caltrans is to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. Senate Bill 743 (2013) mandates that Vehicle Miles Traveled (VMT) be used as the primary metric in identifying transportation impacts of all future development projects under CEQA, starting July 1, 2020. For information on determining transportation impacts in terms of VMT on the State Highway System, see the Technical Advisory on Evaluating Transportation Impacts in CEQA by the California Governor's Office of Planning and Research, dated December 2018: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

The nearest State facilities to the proposed project are Interstate 10 (I-10), approximately one mile away, and State Route 210 (SR-210), approximately 1.75 miles away. After reviewing the Notice of Preparation (NOP), Caltrans has the following comments:

Please include I-10 east/westbound on- and off-ramp intersections at Monte Vista Avenue and SR-210 east/west-bound on- and off-ramp intersections at Base Line Road in your Project's Traffic Impact Studies (TIS). The need and preparation of the TIS should be based on the latest Caltrans' Traffic Impact Study Guide and the Technical Advisory on Evaluating Transportation Impacts in CEQA by the Governor's Office of Planning and Research, dated December 2018: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

If the project creates a significant impact to a State facility, mitigation measures must be included in the TIS. This determines if the project's impacts can be eliminated or reduced. If the mitigation measure involves the expansion and/or modification (e.g. installation of a signal/STOP/Roundabout, adding a lane, etc.) of an intersection, an Intersection Control Evaluation (ICE) shall be done. The cost of implementing the mitigation measures shall be shared equitably between the responsible agencies.

Caltrans is aware of challenges that the region faces in identifying viable solutions to alleviating congestion on State and Local facilities. With limited room to expand vehicular capacity, future developments should incorporate multi-modal and complete streets transportation elements that will actively promote alternatives to car use and better manage existing parking assets. Prioritizing and allocating space to efficient modes of travel such as bicycling and public transit can allow streets to transport more people in a fixed amount of right-of-way.

With regards to parking, Caltrans supports reducing the amount of parking whenever possible. Research on parking suggests that abundant car parking enables and encourages driving. Research looking at the relationship between land-use, parking, and transportation indicates that the amount of car parking supplied can undermine a project's ability to encourage public transit and active modes of transportation. For any project to better promote public transit and reduce vehicle miles traveled, we recommend the implementation of Transportation Demand Management (TDM) strategies as an alternative to building excessive parking.

Caltrans encourages the Lead Agency to consider any reduction in vehicle speeds in order to benefit pedestrian and bicyclist safety, as there is a direct link between impact speeds and the likelihood of fatality. The most effective methods to reduce pedestrian and bicyclist exposure to vehicles is through physical design and geometrics. Such methods include the construction of physically separated facilities such as Class IV bike lanes, sidewalks, pedestrian refuge islands, landscaping, street furniture, and reductions in crossing distances through roadway narrowing. Visual indicators such as, but not limited to, pedestrian and bicyclist warning signage, flashing beacons, crosswalks, and striping should be used to indicate to motorists that they can expect to see and yield to pedestrians and people on bikes.

For additional TDM options, please refer to the Federal Highway Administration's Integrating Demand Management into the Transportation Planning Process: A Desk Reference (Chapter 8). A discussion of mitigation measures appropriate to alleviate anticipated traffic impacts. Any mitigation involving transit or TDM is encouraged and should be justified to reduce VMT and greenhouse gas emissions. Such measures are critical to facilitating efficient site access.

As a reminder, any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles of State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods.

If you have any questions, please contact project coordinator Mr. Carlo Ramirez, at carlo.ramirez@dot.ca.gov and refer to GTS# 07-LA-2019-02930.

Sincerely,

MIYA EDMONSON
IGR/CEQA Branch Chief
Cc: Scott Morgan, State Clearinghouse

Department of Transportation
District 7
100 South Main St, MS 16
Los Angeles, CA 90012

U.S. POSTAGE PITNEY BOWES
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COMMUNITY DEVELOPMENT

Jennifer Davis
Contract Planner
City of Claremont
207 Harvard Avenue
Claremont, CA 91711

9171 8471 9 C003

COUNTY OF LOS ANGELES
AIRPORT LAND USE COMMISSION

December 17, 2019

Jennifer Davis, Contract Planner
City of Claremont
207 Harvard Avenue
Claremont, CA 91711

SUBJECT: NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE COMMONS PROJECT

Thank you for the opportunity to comment on the Notice of Preparation of an EIR for The Commons development project to be located in the City of Claremont. Staff of the Los Angeles County Airport Land Use Commission (ALUC) has reviewed the Notice of Preparation document and associated Initial Study and has the following comments.

In accordance with the California Public Utilities Code (PUC), Section 21676(b), prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the Airport Land Use Commission pursuant to Section 21675, the local agency shall first refer the proposed action to the ALUC for a consistency determination. The referral should occur prior to final action taken by the local agency.

The types of potential airport impacts which the ALUC considers are: 1) Exposure to aircraft noise; 2) Land use safety – the risks, both to people on the ground and the occupants of aircraft, associated with aircraft accidents near airports; 3) Protection of airport airspace from hazards to flight; and 4) General concerns, especially annoyance, related to aircraft overflights. The relevant sections of the Draft EIR which the ALUC will review for this project are the Land Use & Planning, Noise and Hazards/Hazardous Materials. The Initial Study has identified that the project's proximity to an airport may have potentially significant impacts in terms of safety hazards and noise for people residing or working in the project area, which are areas of concern to ALUC.

In the absence of an airport land use compatibility plan for the Los Angeles County portion of the Airport Influence Area for Cable Airport in the City of Upland, the ALUC will use the California Airport Land Use Planning Handbook (2011), as published by the California Department of Transportation. If the analysis in the Environmental Impact Report does not consider the Handbook, or refer to pertinent sections of Upland's Cable Airport Land Use Compatibility Plan (2015) regarding noise contours and compatibility zones on the Los Angeles County portion, the ALUC may not be able to find the project consistent with the California Aeronautics Act.

If you have any questions, please call Alyson Stewart of my staff at (213) 458-5513 Monday through Thursday between 7:30 a.m. and 5:30 p.m, or email her at aluc@planning.lacounty.gov.

Sincerely,



Bruce Durbin, Supervising Regional Planner
Ordinance Studies/ALUC Staff

BD:as

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA USPS AND E-MAIL: December 17, 2019

jdavis@romoplanninggroup.com
Jennifer Davis, Contract Planner
City of Claremont, Planning Department
207 Harvard Avenue
Claremont, CA 91711

Notice of Preparation of an Environmental Impact Report for the Proposed The Commons[1]

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. South Coast AQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Environmental Impact Report (EIR). Please send South Coast AQMD a copy of the EIR upon its completion. Note that copies of the EIR that are submitted to the State Clearinghouse are not forwarded to South Coast AQMD. Please forward a copy of the EIR directly to South Coast AQMD at the address shown in the letterhead. **In addition, please send with the EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files[2]. These include emission calculation spreadsheets and modeling input and output files (not PDF files). Without all files and supporting documentation, South Coast AQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

South Coast AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. South Coast AQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from South Coast AQMD's Subscription Services Department by calling (909) 396-3720. More guidance developed since this Handbook is also available on South Coast AQMD's website at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). South Coast AQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

South Coast AQMD has also developed both regional and localized significance thresholds. South Coast AQMD staff requests that the Lead Agency quantify criteria pollutant emissions and compare the results to South Coast AQMD's CEQA regional pollutant emissions significance thresholds to determine air

[1] The Proposed Project consists of construction of 110 residential units and 5,000 square feet of retail uses on 9.5 acres.
[2] Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

quality impacts. South Coast AQMD's CEQA regional pollutant emissions significance thresholds can be found here at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, South Coast AQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by South Coast AQMD staff or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the Proposed Project and all air pollutant sources related to the Proposed Project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis.

In the event that the Proposed Project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Guidance[3] on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

Mitigation Measures

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project, including:

[3] In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's Air Quality and Land Use Handbook: A Community Health Perspective. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: https://www.arb.ca.gov/ch/landuse.htm.

- Chapter 11 "Mitigating the Impact of a Project" of South Coast AQMD'S *CEQA Air Quality Handbook* South Coast AQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies
- South Coast AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- South Coast AQMD's Mitigation Monitoring and Reporting Plan (MMRP) for the 2016 Air Quality Management Plan (2016 AQMP) available here (starting on page 86): http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf
- CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

Alternatives

In the event that the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a "no project" alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

If implementation of the Proposed Project requires a permit from South Coast AQMD, South Coast AQMD should be identified as a Responsible Agency for the Proposed Project in the EIR. For more information on permits, please visit South Coast AQMD's webpage at: http://www.aqmd.gov/home/permits. Questions on permits can be directed to South Coast AQMD's Engineering and Permitting staff at (909) 396-3385.

Data Sources

South Coast AQMD rules and relevant air quality reports and data are available by calling South Coast AQMD's Public Information Center at (909) 396-2001. Much of the information available through the Public Information Center is also available at South Coast AQMD's webpage at: http://www.aqmd.gov.

South Coast AQMD staff is available to work with the Lead Agency to ensure that project's air quality and health risk impacts are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
LAC191121-03
Control Number

From: jdavis@romoplanninggroup.com
To: Carl Winter
Subject: FWD: SCOPE OF EIR - THE COMMONS-Comments
Date: Wednesday, December 18, 2019 11:57:08 AM

Comments on IS/NOP from a Claremont resident.

Jennifer Davis
Contract Planner
909-399-5485

--------- Original Message ---------
Subject: SCOPE OF EIR - THE COMMONS
From: "Bob" <gerecke@surfside.net>
Date: 12/18/19 11:44 am
To: "Jennifer Davis" <jdavis@romoplanninggroup.com>

Dear Ms. Davis,

My initial comments are below; if I think of something else, I'll send a supplement.

Section 2.5 of the Initial Study states that agencies which will use the EIR in their decision-making will be listed. Other regulatory agencies include the Los Angeles County Regional Planning Commission acting as the Los Angeles County Airport Land Use Commission, which is not listed in the Initial Study. It should be listed in the EIR.

In evaluating the environmental factor of hydrology, the EIR should address the following facts: climate scientists predict an increase in the concentration of rainfall into shorter periods with greater intensity; this site was the natural course of water flow before Monte Vista Avenue was constructed and still has a water course which continues under Foothill Blvd.; Monte Vista Avenue is a now potential bearer of water running off from land at higher elevations north of The Commons during heavy rainstorms; and the development includes driveways open to Monte Vista Avenue, which may allow rushing water to invade, damage homes, possibly injure/kill unsuspecting individuals and continue on its natural path under Foothill Blvd. during the expected heavy rainstorms.

In evaluating the factor of proximity to an airport, the EIR should review diagrams of noise levels which reveal that many aircraft begin to turn south after taking off, thereby leaving the avigation easement, passing over proposed residences instead, and creating a risk of crash into those residences. In addition, air traffic volume and timing should be evaluated: more than half of air traffic occurs outside of the weekday working hours and therefore occurs when people are likely to be at home. Furthermore, the EIR should take into account the character of

the airplanes housed at the airport and flown by private owners on weekends: many planes are collector's items from the past and are much noisier and more polluting than later models.

The EIR should address the developer's design which places automobile parking along the south side of the avigation easement, thereby increasing the risk that a plane crash would cause many vehicles to explode in flames and cause rapid spread of fire to the buildings.

It should also address the risk that the intended presence of trees along the avigation easement will increase the presence of birds, causing a risk to the aircraft still rising at a low altitude.

Bob Gerecke

DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS – M.S. #40
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Making Conservation a California Way of Life.

December 16, 2019

Jennifer Davis
City of Claremont
207 Harvard Avenue
Claremont, CA 91711

Dear Ms. Davis:

Re: Notice of Preparation for The Commons, SCH# 2019110341

The California Department of Transportation (Caltrans), Division of Aeronautics (Division), reviewed the above-referenced document with respect to airport-related noise and safety impacts and regional aviation land use planning issues pursuant to the California Environmental Quality Act (CEQA). The Division has technical expertise in the areas of airport operations safety, noise, and airport land use compatibility. We are a funding agency for airport projects and we have permit authority for public-use and special-use airports and heliports. The following comments are offered for your consideration.

The proposal is for a project known as The Commons. The project would include a total of 62 dwelling units of various types and retail space in the City of Claremont, and 48 dwelling units in the neighboring City of Upland. The initial study inaccurately states that Cable Airport (CCB) is 1.5 miles east of the project site. It also doesn't state where the project site is situated relative to CCB and its aircraft operations. In fact, the approximate center of the project site is only 0.40 miles or 2,100 feet southwest of the end of Runway 6/24 at CCB, and it's aligned with the runway's extended centerline. This means aircraft fly at an altitude of around 1,000 feet over the project site as they either approach or depart CCB. The draft environmental impact report for The Commons project must fully consider CCB in the environmental factors analysis. The Commons will be subjected to low-altitude aircraft overflight and subsequent airport-related noise and safety impacts.

Cable Airport is an active, public-use airport with approximately 220 based aircraft and 90,000 annual aircraft operations. It is listed in the current Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems as a Regional/Reliever airport which means it has received and is eligible for future federal grant investments for airport safety and capital improvement projects. The City of Upland adopted an airport land use compatibility plan (ALUCP) for CCB in 2015.

In accordance with CEQA, Public Resources Code Section 21096, the California Airport Land Use Planning Handbook (Handbook) must be utilized as a resource in the preparation of environmental documents for projects within airport land use compatibility plan boundaries or if such a plan has not been adopted, within two miles of an airport. The Handbook is a resource that should be applied to all public use airports and is available on-line at http://dot.ca.gov/hq/planning/aeronaut/documents/alucp/AirportLandUsePlanningHandbook.pdf

The project site is within safety zones 2 and 4 for CCB as defined in the Handbook. The Runway Protection Zone (RPZ) is the most critical of the airport safety zones, considered to be at "very high risk" due to its proximity to the end of the runway. The Handbook generally recommends prohibiting all new structures within the RPZ. Part of The Commons project site is in safety zone 2, which is just beyond the outer edge of the RPZ. Safety zone 2 which is also known as the Inner Approach/Departure Zone is considered to be at "substantial risk." The RPZ together with the inner safety zones encompass 30 to 50 percent of the near-airport aircraft accident sites. The Handbook generally recommends avoiding all residential, multi-story and high density and intensity land uses within safety zone 2 and limiting residential uses to low density in safety zone 4. Cable Airport's extended runway centerline runs directly through the project site. Airport land use compatibility must be thoroughly addressed through the environmental process.

Protecting people and property on the ground from the potential consequences of near-airport aircraft accidents is a fundamental land use compatibility-planning objective. While the chance of an aircraft injuring someone on the ground is historically quite low, an aircraft accident is a high consequence event. To protect people and property on the ground from the risks of near-airport aircraft accidents, some form of restrictions on land use is essential. The two principal methods for reducing the risk of injury and property damage on the ground are to limit the number of persons in an area and to limit the area covered by occupied structures. The potential severity of an off-airport aircraft accident is highly dependent upon the nature of the land use at the accident site.

According to the Cable Airport ALUCP aircraft noise map, The Commons project will place new residential units within the 60-65 decibel (dB) Community Noise Equivalent Level (CNEL) contour. Aircraft noise impacts do not start or end at the boundaries of a city or county. Allowing new residential development within the 65 dB CNEL contour would be inconsistent with Public Utilities Code (PUC) 21670 (a)(1) and the airport Noise Standards (California Code of Regulations, Title 21, Chapter 6, Section 5000 *et seq*.). PUC 21670 (a)(1) states that it is in the public interest "to promote the overall goals and objectives of the California airport noise standards…and to prevent the creation of new noise and safety problems." The Noise Standards, in part, state that the "standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is

hereby established to be a community noise equivalent level of 65 dB [decibels]" for the purposes of those regulations. However, for most airports in California, 65 dB CNEL is considered too high a noise level to be appropriate as a standard for land use compatibility planning. This is particularly the case for evaluating new development in the vicinity of the airport. The 60 dB CNEL, or even 55 dB CNEL, may be more suitable for new development around most airports.

A thorough airport-related noise analysis including cumulative noise impacts associated with roadway and railway lines must be included in the draft environmental impact report. If allowed within the airport's 65 dB CNEL contour, all residential units should be constructed to ensure an interior CNEL due to aircraft noise of 45 dB or less in all habitable rooms. Additionally, each residential unit should grant to the airport proprietor an avigation easement for aircraft noise as shown in Appendix H of the Handbook. The construction methods and the easement, however, will not change exterior aircraft noise levels. It is likely that some future homeowners and tenants will be annoyed by aircraft noise in this area. Noise mitigation measures are not a substitute for good land use compatibility planning for new development. Aircraft noise levels represent a significant adverse impact on the project.

California PUC Section 21659 prohibits structural hazards near airports. In accordance with Federal Aviation Regulation, Part 77 "Objects Affecting Navigable Airspace" a Notice of Proposed Construction or Alteration (Form 7460-1) may be required by the FAA. Form 7460-1 is available on-line at https://oeaaa.faa.gov/oeaaa/external/portal.jsp and should be submitted electronically to the FAA.

Business and Professions Code Section 11010 and Civil Code Sections 1102.6, 1103.4, and 1353 address buyer notification requirements for lands around airports and are available on-line at http://www.leginfo.ca.gov/calaw.html. Any person who intends to offer subdivided lands, common interest developments and residential properties for sale or lease within an airport influence area is required to disclose that fact to the person buying the property.

In accordance with PUC Section 21676 *et seq*., prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission (ALUC), the local agency shall first refer the proposed action to the ALUC.

If the ALUC determines that the proposed action is inconsistent with the airport land use compatibility plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the ALUC by a two-thirds vote of its governing body after it makes specific findings. At least 45 days prior to the decision to overrule the ALUC, the local agency's governing body shall provide to the ALUC and the Division a copy of the proposed decision and

findings. The Division reviews and comments on the specific findings a local government intends to use when proposing to overrule an ALUC. The Division specifically looks at the proposed findings to gauge their relationship to the overrule. Also, pursuant to PUC 21670 *et seq*., findings should show evidence that the local agency is minimizing "…the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

In addition to submitting the proposal to the ALUC, it should also be coordinated with Cable Airport and City of Upland staff to ensure that the proposal will be compatible with future as well as existing airport operations. The Cable Airport ALUCP adopted by the City of Upland is an essential land use planning resource for this project. It was created from guidance in the Handbook that took into consideration Cable Airport operations and the area surrounding the airport.

The protection of airports from incompatible land use encroachment is vital to California's economic future. Cable Airport is an economic asset that should be protected through effective airport land use compatibility planning and awareness. Although the need for compatible and safe land uses near airports is both a local and State issue, airport staff, airport land use commissions and airport land use compatibility plans are key to protecting an airport and the people residing and working in the vicinity of an airport. Consideration given to the issue of compatible land uses in the vicinity of an airport should help to relieve future conflicts between airports and their neighbors.

These comments reflect the areas of concern to the Division with respect to airport-related noise, safety, and regional land use planning issues. Thank you for the opportunity to review and comment on this proposal. If you have any questions, please contact me at (916) 654-6223, or by email at philip.crimmins@dot.ca.gov.

Sincerely,

Original Signed by

PHILIP CRIMMINS
Aviation Environmental Specialist

c: State Clearinghouse, Los Angeles County ALUC, City of Upland, Cable Airport

DEVELOPMENT SERVICES DEPARTMENT
PLANNING DIVISION
Telephone (909) 931-4130
Facsimile (909) 931-4321

December 18, 2019

City of Claremont
Attn: Jennifer Davis, Contract Planner
207 Harvard Avenue
Claremont, CA 91711

Re: Response to Notice of Preparation of an Environmental Impact Report ("NOP") Re: The Commons Project

Dear Ms. Davis:

The City of Upland Planning Division thanks you for the opportunity to provide comments for the NOP of the EIR for The Commons Project. The Commons Project is proposed on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the Cities of Upland and Claremont. The City of Upland is located in San Bernardino County and the City of Claremont is located in Los Angeles County. The City of Upland portion of the project site is 3.0 of the 9.5 acres and the City of Claremont portion of the project site is 6.5 acres of the 9.5 acres.

The Commons Project would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in the City of Claremont and 48 townhomes in the City of Upland portion of the project.

The proposed Commons Project ("Project") property is under the review authority of the City of Upland and two adopted plans: 1) the City of Upland General Plan adopted in September 2015 by the Upland City Council, and 2) the Cable Airport Land Use Compatibility Plan adopted by the Upland City Council in September 2015. The

proposed development was reviewed for plan consistency with the adopted Plans by Upland staff and it was determined to be inconsistent with these Plans.

Cable Airport Land Use Compatibility Plan

The proposed Project is inconsistent with the Cable Airport Land Use Compatibility Plan in multiple respects in that all types of residential uses at the proposed site location within the City of Upland, violates the Cable Airport Land Use Compatibility Plan. All residential uses are not permitted at the proposed location as referenced in Chapter 3 of the Compatibility Plan. The project site is located within Compatibility Zone B1. All types of residential uses are not permitted in this Compatibility Zone. Refer to page 3-27 of the Cable Airport Land Use Compatibility Plan.

The California Environmental Quality Act (CEQA) requires environmental documents for projects situated within an airport influence area to evaluate whether the project would expose people residing or working in the project area to excessive levels of airport-related noise or to airport-related safety hazards. In the preparation of such environmental documents, the law specifically requires that the Airport Land Use Planning Handbook published by the California Division of Aeronautic be utilized as a technical resource.

If a project within the Cable Airport influence area is determined to be inconsistent with the compatibility criteria contained in this Compatibility Plan, it shall be presumed that significant impacts related to airport hazards or noise compatibility will occur.

It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to California Code, Public Utilities Code and to prevent the creation of new noise and safety problems. It is the purpose of §21669 to protect public health, safety, and welfare by ensuring the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

Incompatible land uses around general aviation (GA) airports jeopardize the safety and efficiency of flying activities, and the quality of life of the community's residents. Incompatible airport land uses include residential development, schools, community centers and libraries. New housing demands generated by increased population are one of the contributing factors to incompatible land uses around general aviation airports. Residential development, particularly high-density development, is not compatible with airport operations due to aircraft noise impacts and for safety reasons.

It is the applicant's responsibility to demonstrate how/why the incompatible and conditionally compatible use will qualify for the special conditions exception per Section 3.1.6 Cable Airport Land Use Compatibility Plan. However, there may be specific situations where a normally incompatible use can be considered compatible because of terrain, specific location, or other extraordinary factors or circumstances related to the site.

a) The burden for demonstrating that special conditions apply to a particular development proposal rests with the project proponent.

b) After due consideration of all the factors involved in such situations and consultation with Cable Airport management, the local agency may find a normally incompatible use to be acceptable.

c) In considering any such exceptions, the decision-making body for the project shall also take into account the potential for the use of a building to change over time. A building could have planned low-intensity use initially, but later be converted to a higher-intensity use. Local agency permit language or other mechanisms to ensure continued compliance with the usage intensity criteria must be put in place.

d) In reaching such a decision, the decision-making body for the project shall make specific findings as to why the exception is being made and that the land use will neither create a safety hazard to people on the ground or aircraft in flight nor result in excessive noise exposure for the proposed use. Findings also shall be made as to the nature of the extraordinary circumstances that warrant the policy exception.

e) Approval of a special conditions exception for a proposed project shall require a two thirds vote of the local agency's decision-making body voting on the matter.

f) The granting of a special conditions exception shall be considered site specific and shall not be generalized to include other sites.

Section 15125(d) of the State CEQA Guidelines requires that an EIR "shall discuss any inconsistencies between the proposed Project and applicable general plans and regional plans." In this case, the adopted plans most relevant to the proposed Project include the City's General Plan and the Cable Airport Land Use Compatibility Plan. The Project also needs to discuss the determination of the Project's consistency or inconsistency with all polices from the General Plan and standards from the Cable Airport Land Use Compatibility Plan. Thus, a detailed analysis of the inconsistency of the Project needs to be provided as a separate Appendix.

The following are our specific comments in response to the NOP and the items that must be addressed in the Environmental Impact Report ("EIR").

Justification of the Project and Project Description

The Project materially conflicts with the surrounding character of established professional/office enterprises and ownerships. The EIR must therefore discuss and evaluate any potential indirect/socio/economic impacts that could affect the physical environment. (See CEQA Guidelines, §15131). More specifically, the EIR must evaluate the Project's potential to economically harm nearby existing business enterprises and commercial uses. Likewise, the EIR must evaluate whether the Project could potentially drive down surrounding property values.

The EIR must include a comprehensive, accurate and consistent Project description including the City of Upland. In this regard, the Project description must include all foreseeable phases or components of the Project. Will the Project be phased over time, with parking being relocated repeatedly during the course of construction. These impacts must be satisfactorily addressed.

Alternatives

The EIR must also identify and discuss feasible alternatives that could potentially avoid or substantially lessen the Project's significant adverse environmental impacts. (See Pub. Res. Code, §§ 21002, 21100 and 21150). The EIR must identify alternatives that could feasibly archive the basic objectives of the Project, while reducing or avoiding some or all of the adverse significant impacts. (CEQA Guidelines, §15126.6(a). The EIR must explain how Project alternatives were selected for analysis and, if any alternatives were rejected as infeasible, the EIR must explain why they were rejected. Similarly, the EIR must discuss a "no project" alternative to compare the environmental impacts of approving the Project with the impacts of not approving it. (CEQA Guidelines, §15126.6(e) (1).

As described below, this Project will undoubtedly result in a number of significant adverse environmental impacts. The EIR must therefore evaluate a reasonable range of feasible alternatives, including the "no project" alternative that would avoid or reduce those impacts.

Baseline

The baseline for the environmental analysis must be based on the existing conditions. Pursuant to Guidelines §15125(a), an EIR must include a description of the physical environmental conditions in the vicinity of the Project as they exist at the time the NOP is published (environmental analysis is commenced), from both a local and regional perspective.

Related Projects

CEQA Guidelines § 15130 requires EIRs to discuss cumulative impacts when the project's incremental effects are cumulatively considerable. Section 15130 also states that a cumulative impact consists of "an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." This Section also requires that the evaluation of cumulative impacts reflect the severity of the impact and the likelihood of occurrence, but not in as great a level of detail as is provided for the effects attributable to the project alone. CEQA Guidelines § 15355 defines cumulative impacts to be "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

CEQA Guidelines § 15130(b) (1) requires that information from one of the following two sources be included when analyzing significant cumulative impacts:

a. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or

b. A summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

Aesthetics

The EIR must evaluate the proposed Project's change to the existing character of the site and its surroundings. The proposed Project will alter the visual character of the area by adding a number of new residential buildings. The impacts of this proposed development must be carefully evaluated.

The proposed project's scale, its high degree of visibility and its location warrant a thorough discussion of visual impacts. The visual impacts analysis should include a digital photo simulation of the completed project, including any walls, as seen in context of neighboring development, from key public viewpoint. Grading and visual impacts should be discussed relative to policies of the Upland General Plan.

The proposed project must evaluate light and glare impacts due to the construction of new residential buildings. The significant light and glare impacts, *e.g.*,

security lighting, building illumination, construction lighting, *etc.* must be evaluated in the EIR.

Air Quality

The potential for localized and regional air quality impacts during construction must be evaluated in the EIR. Construction activities will generate exhaust from construction equipment, worker vehicle trips, and ground-disturbing activities, all of which must be thoroughly analyzed in the EIR. The SCAQMD's regional and localized significance thresholds for construction must be used as part of this analysis.

Moreover, pursuant to the Office of Environmental Health Hazard Assessment's guidance for the preparation of health risk assessment ("HRA"), a HRA must be provided, fully evaluating the potential health risks associated with the construction (diesel exhaust) of the proposed Project as construction activities will last longer than two months.

The potential for localized and regional air quality impacts during operation of the fully developed Project must also be evaluated in the EIR. The Project has the potential to generate substantial emissions associated with increased vehicle and truck trips. The SCAQMD's regional and localized significance thresholds for operation of the Project must be used.

Hazards

This section of the Environmental Impact Report (EIR) needs to describe the existing conditions related to hazards and hazardous materials in the vicinity of the Project site and analyze the potential for hazards and hazardous materials impacts to occur as a result of implementation of the Project, as well as airport related hazards. Any land use conflicts with Cable Airport Land Use Compatibility Plan Safety Areas or the Airport Overlay Zones (AOZs) of the City of Upland also need to be discussed in the Land Use and Planning Section. Hazards may include exposure to both natural and man-made hazards. These could also include hazards associated with aircraft operations at the nearby Cable Airport.

Hydrology and Water Quality

The proposed Project could have significant impacts to hydrology and water quality associated with construction activities and stormwater runoff. In addition, hydrology and drainage studies must be completed to determine the potential surface water runoff and storm drainage impacts and related mitigation measures. These potential impacts must be evaluated in the EIR.

The increase in water demand associated with construction and long term operation of the proposed Project must be evaluated in the EIR, especially in light of the City of Upland's Water Efficient Design Standards.

Land Use and Planning

As explained above, the proposed Project will establish residential units that conflict with the Cable Airport Land Use Compatibility Plan. The EIR must evaluate this land use conflict. Similarly, the EIR must evaluate the potential for the proposed Project to conflict with the City of Upland's zoning and General Plan designations for the proposed Project and properties within and adjacent to the proposed Project site. In addition, the EIR must evaluate the potential Project impacts on other local plans including the Foothill Boulevard Vision Plan.

Also, In accordance with California state law, the City of Upland has adopted a General Plan to guide development within the City. The General Plan expresses the City's development goals, state public policy in regards to future land uses, provides the basis for local government decision making, and informs citizens and decision-makers of policies pertaining to development. The purpose of the General Plan is to identify the appropriate location of land uses, as well as basic design and function of circulation, open space, and infrastructure policies, as well as public service needs.

This section needs to summarize the relevant adopted goals and policies of the general Plan, and evaluate the proposed Project's consistency with the guidelines and requirements established therein. A discussion of General Plan policies and preliminary determinations regarding the Project's consistency with these policies is required. Section 15125(d) of the State CEQA Guidelines requires that an EIR "shall discuss any inconsistencies between the proposed Project and applicable general plans and regional plans. Where inconsistencies are identified, the EIR needs to identify mitigation measures to improve Project consistency with these policies.

Noise

The EIR must evaluate the potential for noise and groundborne vibration during both construction and long-term operation of the Project. The significant noise impacts on existing office buildings during construction activities must be thoroughly considered and evaluated in the EIR. In addition, the increase in noise due to increased traffic and residential activity must be evaluated.

In order to provide a more detailed characterization of Project site noise levels, a Sound Level Assessment should be prepared for the Project focusing on noise generated by traffic on roads bordering the Project site, and on the source and level of aircraft noise on the Project site. Noise monitoring stations should be placed throughout the Project site and existing sound levels need to be measured continuously at 10-second intervals over a 24-hour period. Also, an acoustical model

with sound level contours needs to be generated for the site based on topography, noise sources, and measured sound level values.

Population and Housing

The proposed Project will induce population growth in the Cable Airport area. These potential impacts associated with this population growth must be carefully analyzed in the EIR.

Public Services/Recreation

The proposed Project will increase demand for fire, police, schools, and other public facilities, including recreational facilities due to the increased residential population into the area.

Provide specific details on the provisions of services such as waste disposal, wastewater and water. Is there going to be an interagency agreement for these services? Explain how the two waste hauling companies will distinguish their boundaries. In that the project spans two jurisdictions an emergency response plan is required? These impacts must be evaluated in the EIR.

Transportation/Traffic

The proposed Project would substantially increase traffic impacts in the vicinity of Cable Airport and will undoubtedly generate additional traffic impacts. These impacts and conflicts must be evaluated in the EIR. Further, the increased traffic could conflict with the existing congestion management plan and other applicable plans and traffic ordinances. These potential traffic impacts must be evaluated in the EIR. Pursuant to Guidelines Section §15064.3(a) vehicle miles traveled is the most appropriate measure of a project's potential transportation impacts and must be used as the metric to determine significant traffic impacts. Level of Services at local intersections must also be provided in the EIR to determine the potential for additional traffic delays, beyond existing levels.

Cumulative Impacts

There are numerous projects in the area that are currently underway or proposed adjacent to or near the proposed Project and a number of projects either proposed or under construction within the City of Upland on Foothill Boulevard and Monte Vista Avenue. The potential impacts of all of these past, present and reasonably foreseeable future projects must be evaluated along with the proposed Project, including impacts on: aesthetics; air quality and related health impacts; GHG emissions; hazards; land use; noise; traffic; and any other applicable resource category.

RECEIVED
COMMUNITY DEVELOPMENT

In summary, the proposed Project is entirely inconsistent with the established and developed surrounding land use and applicable Cable Airport Land Use Compatibility Plan and other related City of Upland ordinance and regulations.

Sincerely,

Mike Poland
Contract Planning Manager | Planning Division
City of Upland | Development Services Department
460 N. Euclid Avenue, Upland, CA 91786
Phone: (909) 931-4135
mpoland@ci.upland.ca.us

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City of Claremont
Attn: Jennifer Davis, Contract Planner
207 Harvard Avenue
Claremont, CA 91711

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FIFTH DISTRICT

December 18, 2019

RECEIVED
JAN 06 2020
COMMUNITY DEVELOPMENT

Jennifer Davis, Contract Planner
City of Claremont
Planning Department
207 Harvard Avenue
Claremont, CA 91711

Dear Ms. Davis:

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT, "THE COMMONS," WOULD INCLUDE A TOTAL OF 62 DWELLING UNITS AND 5,000 SQUARE FEET OF RETAIL AND ASSOCIATED PARKING IN CLAREMONT AND 48 TOWNHOMES IN THE UPLAND PORTION OF THE PROJECT, LOCATED AT THE NORTHWEST CORNER OF FOOTHILL BOULEVARD AND MONTE VISTA AVENUE, CLAREMONT, FFER 2019007135

The Notice of Preparation of an Environmental Impact Report has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department.

The following are their comments:

PLANNING DIVISION:

Under Section 15, Public Services, Fire Protection (a) of the Initial Study, paragraph one, sentence two should be revised to state that "**the City of Claremont receives Fire Protection and emergency medical services from the Consolidated Fire Protection District of Los Angeles County, also known as the LACoFD**."

As stated in paragraph 4, sentence 5, "the project would be required to pay Development Impact Fees (DIFs)," the LACoFD does not have a **Development Impact Fee** in effect in the project area and should not be addressed in the City's Environmental Impact Report.

For any questions regarding this response, please contact Loretta Bagwell, Planning Analyst, at (323) 881-2404 or Loretta.Bagwell@fire.lacounty.gov.

LAND DEVELOPMENT UNIT:

The Land Development Unit is reviewing the proposed "MIXED USE" Project for access and water system requirements. The Land Development Unit comments are only preliminary requirements. Specific fire and life safety requirements will be addressed during the review for building and fire plan check phases. There may be additional requirements during this time.

The development of this project must comply with all applicable code and ordinance requirements for construction, access, water mains, fire flows, and fire hydrants.

ACCESS REQUIREMENTS:

The proposed development will require multiple ingress/egress access for the circulation of traffic and emergency response issues.

1. All on-site Fire Department vehicular access roads shall be labeled as "Private Driveway and Fire Lane" on the site plan along with the widths clearly depicted on the plan. Labeling is necessary to assure the access availability for Fire Department use. The designation allows for appropriate signage prohibiting parking.

    a. The Fire Apparatus Access Road shall be cross-hatch on the site plan with the width clearly noted on the plan.

2. Every building constructed shall be accessible to Fire Department apparatus by way of access roadways with an all-weather surface of not less than the prescribed width. The roadway shall be extended to within 150 feet of all portions of the exterior walls when measured by an unobstructed route around the exterior of the building.

3. Fire Apparatus Access Roads must be installed and maintained in a serviceable manner prior to and during the time of construction.

4. The edge of the Fire Apparatus Access Road shall be located a minimum of 5 feet from the building or any projections there from.

5. The Fire Apparatus Access Roads and designated fire lanes shall be measured from flow line to flow line.

6. The dimensions of the approved Fire Apparatus Access Roads shall be maintained as originally approved by the fire code official.

7. The proposed single- family detached homes shall provide a minimum unobstructed width of 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6 and an unobstructed vertical clearance "clear to sky" Fire Department vehicular access to within 150 feet of all portions of the exterior walls of the first story of the building, as measured by an approved route around the exterior of the building.

8. The proposed townhomes shall provide a minimum unobstructed width of 28 feet, exclusive of shoulders and an unobstructed vertical clearance "clear to sky" Fire Department vehicular access to within 150 feet of all portions of the exterior walls of the first story of the building, as measured by an approved route around the exterior of the building when the height of the building above the lowest level of the Fire Department vehicular access road is more than 30 feet high, or the building is more than three stories. The access roadway shall be located a minimum of 15 feet and a maximum of 30 feet from the building and shall be positioned parallel to one entire side of the building. The side of the building on which the aerial Fire Apparatus Access Road is positioned shall be approved by the fire code official.

9. If the Fire Apparatus Access Road is separated by island, provide a minimum unobstructed width of 20 feet, exclusive of shoulders and an unobstructed vertical clearance "clear to sky" Fire Department vehicular access to within 150 feet of all portions of the exterior walls of the first story of the building, as measured by an approved route around the exterior of the building.

10. Dead-end Fire Apparatus Access Roads in excess of 150 feet in-length shall be provided with an approved Fire Department turnaround. Include the dimensions of the turnaround, with the orientation of the turnaround shall be properly placed in the direction of travel of the access roadway.

11. Fire Department Access Roads shall be provided with a 32-foot centerline turning radius. Indicate the centerline, inside, and outside turning radii for each change in direction on the site plan.

12. Fire Apparatus Access Roads shall be designed and maintained to support the imposed load of fire apparatus weighing 75,000 lbs. and shall be surfaced so as to provide all-weather driving capabilities. Fire Apparatus Access Roads having a grade of 10 percent or greater shall have a paved or concrete surface.

13. Provide approved signs or other approved notices or markings that include the words "NO PARKING - FIRE LANE." Signs shall have a minimum dimension of 12 inches wide by 18 inches high and have red letters on a white reflective background. Signs shall be provided for Fire Apparatus Access Roads, to clearly indicate the entrance to such road, or prohibit the obstruction thereof and at intervals, as required by the Fire Inspector.

14. A minimum 5-foot wide approved firefighter access walkway leading from the Fire Department Access Road to all required openings in the building's exterior walls shall be provided for firefighting and rescue purposes. Clearly identify firefighter walkway access routes on the site plan. Indicate the slope and walking surface material. Clearly show the required width on the site plan.

15. Fire Apparatus Access Roads shall not be obstructed in any manner, including by the parking of vehicles, or the use of traffic calming devices, including but not limited to, speed bumps or speed humps. The minimum widths and clearances established in Fire Code Section 503.2.1 shall be maintained at all times.

16. Traffic Calming Devices, including but not limited to, speed bumps and speed humps, shall be prohibited unless approved by the fire code official.

17. Security barriers, visual screen barriers, or other obstructions shall not be installed on the roof of any building in such a manner as to obstruct firefighter access or egress in the event of fire or other emergency. Parapets shall not exceed 48 inches from the top of the parapet to the roof surface on more than two sides. Clearly indicate the height of all parapets in a section view.

18. Approved building address numbers, building numbers, or approved building identification shall be provided and maintained so as to be plainly visible and legible from the street fronting the property. The numbers shall contrast with their background, be Arabic numerals or alphabet letters, and be a minimum of 4 inches high with a minimum stroke width of 0.5 inch.

19. Multiple residential and commercial buildings having entrances to individual units not visible from the street or road shall have unit numbers displayed in groups for all units within each structure. Such numbers may be grouped on the wall of the structure or mounted on a post independent of the structure and shall be positioned to be plainly visible from the street or road as required by Fire Code 505.3 and in accordance with Fire Code 505.

WATER SYSTEM REQUIREMENTS:

1. All fire hydrants shall measure 6"x 4"x 2-1/2" brass or bronze conforming to current AWWA standard C503 or approved equal and shall be installed in accordance with the County of Los Angeles Fire Code.

2. The development may require fire flows up to 4,000 gallons per minute at 20 pounds per square inch residual pressure for up to a four-hour duration. Final fire flows will be based on the size of buildings, the installation of an automatic fire sprinkler system, and type(s) of construction used.

3. All required public fire hydrants shall be installed and tested prior to beginning of construction.

4. The fire hydrant spacing shall be every 300 feet for both the public and the on-site hydrants. The fire hydrants shall meet the following requirements:

    a. No portion of lot frontage shall be more than 200 feet via vehicular access from a public fire hydrant.

    b. No portion of a building shall exceed 400 feet via vehicular access from a properly spaced public fire hydrant.

    c. Additional hydrants will be required if hydrant spacing exceeds specified distances.

5. All private on-site fire hydrants shall be installed, tested, and approved prior to building occupancy.

    a. Plans showing underground piping for private on-site fire hydrants shall be submitted to the Sprinkler Plan Check Unit for review and approval prior to installation.

6. An approved automatic fire sprinkler system is required for the proposed buildings within this development. Submit design plans to the Fire Department Sprinkler Plan Check Unit for review and approval prior to installation.

Additional Department requirements will be determined by Fire Prevention Engineering during the Building Plan Check.

For any questions regarding the report, please contact Inspector Claudia Soiza at (323) 890-4243 or Claudia.soiza@fire.lacounty.gov.

FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:

The statutory responsibilities of the County of Los Angeles Fire Department's Forestry Division include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones, archeological and cultural resources, and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed.

Under the Los Angeles County Oak tree Ordinance, a permit is required to cut, destroy, remove, relocate, inflict damage or encroach into the protected zone of any tree of the Oak genus which is 25 inches or more in circumference (eight inches in diameter), as measured 4 1/2 feet above mean natural grade.

If Oak trees are known to exist in the proposed project area further field studies should be conducted to determine the presence of this species on the project site.
The County of Los Angeles Fire Department's Forestry Division has no further comments regarding this project.

For any questions regarding this response, please contact Forestry Assistant, Joseph Brunet at (818) 890-5719.

HEALTH HAZARDOUS MATERIALS DIVISION:

The Health Hazardous Materials Division of the Los Angeles County Fire Department has no comments or requirements for the project at this time.

Please contact HHMD senior typist-clerk, Perla Garcia at (323) 890-4035 or Perla.garcia@fire.lacounty.gov if you have any questions.

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,

Michael Y. Takeshita

MICHAEL Y. TAKESHITA, ACTING CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

MYT:ac

County of Los Angeles
Fire Department – Forestry Division
5823 Rickenbacker Road, Room 123
Commerce, CA 90040



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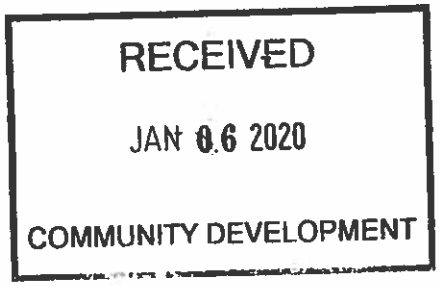

Jennifer Davis, Contract Planner
City of Claremont
Planning Department
207 Harvard Avenue
Claremont, CA 91711

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Initial Study The Commons
Comments
Jennifer Jaffe

My interest in The Commons is as a concerned Claremont resident property owner. I live near the project area, one block north of the intersection of Foothill Boulevard and Mills Avenue. As I write, indoors with the windows closed, I am frequently disturbed by the noise of Cable Airport airplanes (as is consistently the case, day and night). And here, the planes are farther away and higher than is true at the proposed site.

I recognize that the CEQA process is intended to address the potential impacts that would be created by the proposed project, rather than to address the environmental conditions that will affect whatever is developed on the proposed project site.

So, I intentionally refrain here from addressing the land use issues as they relate to all of Claremont's General Plan goals and policies that do relate to the project but not directly in relation to environmental impacts.

Yet, my two primary concerns remain as these:

1.The fundamental inappropriateness of the site for a residential development because of its location: at the intersection of Foothill Boulevard and Mont Vista Avenue two major arterials, both non-residential corridors, surrounded on all sides by non-residential uses.

2. The proximity to Cable Airport creates issues of safety, noise, and air pollution from low-flying planes. Consider that this is a parcel that is so close to the airport that it contains an aviation easement to provide for emergency landings.

The avigation easement is misleadingly described only as a park. Unmentioned, too, are the restrictions on the easement (and voluntary agreement between developer and Cable Airport ownership that has been described at public meetings) that preclude planting trees or other enhancements that would encumber the capacity for the easement to serve as a crash landing site.

Currently This project will require a change to the General Plan and zoning.
The City of Claremont's portion of the site is currently designated as Highway Commercial according to the General Plan.

As described in 2.3.2, Site and Surrounding General Plan Land Use Designations, and 3.0, Initial Study/ Environmental Checklist, page 23 and 24, item # 8: and elsewhere:

The impression is that there is an existing compatible residential land use adjacent to the proposed Claremont section of The Commons. In fact, no contiguous residential use. The residential zoning is the Upland redesignated residential for the express purpose of compatibility with The Commons.

The description of property here and elsewhere in the Initial Study does not make clear that the emergency landing strip landing strip/avigation easement open space is considered as part of the designated park space.

The required avigation easement landing strip should be denoted and addressed as a separate variable of qualified open space, clearly distinguished from other park space or open space in the project.
"….The project will provide open and park space, retail options within the neighborhood, and residential attached and detached housing. The development will have a large open space area running through the middle of the site to provide an emergency landing area for aircraft utilizing Cable Airport.

and:
15. Public Services, d. Parks, page 55:
"d) Parks?The project site contains recreational facilities including the Central Park and Linear Park (1,200 square feet), which are located on site and open to the residents of the proposed project."

2. There is no other residential development along Foothill Boulevard (except for below grade back of homes in development near southeast Monte Vista and Foothill).

3. As a major east/west arterial, Foothill Boulevard has rightfully been zoned for non-residential development.

4. Monte Vista is a major north/south arterial that leads to full freeway access points to the 210 freeway north and the 10 freeway to the south.

2.5 Required Actions, Permits and Approvals, from other regulatory agencies, pg. 8:

Missing here are the approvals beyond the City's that are required because of Cable Airport, particularly in the absence in Claremont of an airport compatibility plan, such as exists on the Upland side of the project.

1.Los Angeles County approval is required, Los Angeles County Regional Planning Commission acting as the Los Angeles County Airport Land Use Commission.

2. Determine whether there other agencies at county, regional, state level, or agencies such as FAA as well, whose requirements and/or approval are required because of proximity to Cable Airport: safety concerns, noise and air pollution.

Site description misleading, inadequate

3.3 Evaluation of Environmental Impacts
1. Aesthetics, finds a less than significant impact on scenic vistas.
Reconsider finding, since mountain view will be almost entirely blocked from exterior of project and portions within.

Consider both Noise and Safety of situating a residential area in such close proximity to Cable Airport:

13. Noise, c., page 50, cites Potentially Significant Impact.

“A noise and vibration impact study is being prepared for the proposed project. Potential project impacts from exposure of residence or employees to excessive noise levels from aircraft associated with the Cable Airport will be fully analyzed in the EIR and mitigation measures will be identified, where required.”

Consider in your noise study of Cable Airport (which states that it is the largest private airport in the world) the following:

the extent to which noise impact cannot be mitigated:

the cumulative effects of approximately 250 flights per day. If averaged, 20/ hour, but in fact fewer very late night and more per hour morning, daytime and evening and earlier night.

Mitigation is not possible outdoors or indoors with windows open. Noise mitigation only available indoors, through enhanced insulation. Even where I live at foothill and Mills, plane traffic grossly affects outdoors and when open, and also indoors.

Air traffic is from very early AM to very late at night.

Air traffic includes heliport and police helicopters, noisy and all times of day/night.

Air traffic includes flight school and flights that stay in the area, practicing.

Air traffic includes many kinds of planes, including very old and jets.

Cable Airport website and its “Cable Grams” include reminders to pilots who have violated established flight patterns.

There is no tower to direct flights.

Changes have been made to runway. Expansion of airport facilities has occurred, planned, as evidenced on Cable Airport website, http://cableairport.com/

Several crashes, including very recent fatal crash.

Flights, times, and types of airplane for each flight can be tracked at: https://flightaware.com/live/airport/KCCB

Compliance with requirements of the California Airport and Use Planning Handbook.

Compliance with the Cable Airport Compatibility Plan. While it has no jurisdiction over Claremont, in the absence of a Claremont plan the information is relevant and informative.

At the time of the Architectural Commission's preliminary hearing, analysis of the flights from June 11-23 found: 273 weekday flights:
(https://flightaware.com/live/airport/KCCB):
Total flights= 410, of which 172 are Monday-Friday between 9AM- 5 PM.

The majority of flights (238 of the 410 total) occur outside of traditional weekday work hours or on the weekend:

Weekdays Before 9am: 19 Weekdays 9am-5pm: 172 Weekdays After 5pm: 82 Total weekday flights= 273
Weekends Before 9am: 2 Weekends 9am-5pm: 112 Weekends After 5pm: 23 Total weekend flights: 137

Airplane noise impact increases because ***all planes will be low-flying***, for take-off and landing. Airshow weekends, exponentially more.

Cable crashes in less than the just over last year:
6/15/19 Saturday 9:45 AM: Crashed 1500 block of Benson
5/1/19 Wed. 10:30 AM: East of airport
9/17/2018 Monday Afternoon: Landed short of runway
11/8/2019: fatal

SANITATION DISTRICTS OF LOS ANGELES COUNTY

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Chief Engineer and General Manager
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December 19, 2019

Ref. DOC 5427784

Jennifer Davis, Contract Planner
City of Claremont
207 Harvard Avenue
Claremont, CA 91711

Dear Ms. Davis:

NOP Response for The Commons Specific Plan

The Sanitation Districts of Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report (NOP) for the subject project on November 11, 2019. The proposed project is located within the jurisdictional boundaries of District No. 21. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to either or both the Districts' San Antonio Trunk Sewer, located in Towne Avenue just north of Foothill Boulevard, or the Claremont Outfall Trunk Sewer, located in Arrow Highway at Mountain Avenue. The Districts' 12-inch diameter San Antonio Trunk Sewer has a capacity of 3.1 million gallons per day (mgd) and conveyed a peak flow of 1.8 mgd when last measured in 2014. The Districts' 12-inch diameter Claremont Outfall Trunk Sewer has a capacity of 3.7 mgd and conveyed a peak flow of 1 mgd when last measured in 2014.

2. The wastewater generated by the proposed project will be treated at the Joint Water Pollution Control Plant located in the City of Carson, which has a capacity of 400 mgd and currently processes an average flow of 261.1 mgd, or the Pomona Water Reclamation Plant, which has a capacity of 15 mgd and currently processes an average flow of 8.6 mgd.

3. The expected increase in average wastewater flow from the project site, described in the notice as a mixed-use development, including 27 single-family homes, 68 residential townhomes, 15 flats, and 5,000 square feet of retail shops, is 23,785 gallons per day, after the structure on the project site is demolished. For a copy of the Districts' average wastewater generation factors, go to www.lacsd.org, under Services, then Wastewater Program and Permits, select Will Serve Program, and scroll down to click on the Table 1, Loadings for Each Class of Land Use link.

4. The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System for increasing the strength or quantity of wastewater discharged from connected facilities. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will

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be required before this project is permitted to discharge to the Districts' Sewerage System. For more information and a copy of the Connection Fee Information Sheet, go to www.lacsd.org, under Services, then Wastewater (Sewage) and select Rates & Fees. In determining the impact to the Sewerage System and applicable connection fees, the Districts will determine the user category (e.g. Condominium, Single Family home, etc.) that best represents the actual or anticipated use of the parcel(s) or facilities on the parcel(s) in the development. For more specific information regarding the connection fee application procedure and fees, the developer should contact the Districts' Wastewater Fee Public Counter at (562) 908-4288, extension 2727.

5. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CCA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise the developer that the Districts intend to provide this service up to the levels that are legally permitted and to inform the developer of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:dc

cc: A. Schmidt
A. Howard

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
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Los Angeles, CA 90017
T: (213) 236-1800
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Transportation
Cheryl Viegas-Walker, El Centro

December 19, 2019

Ms. Jennifer Davis, Contract Planner
City of Claremont
207 Harvard Avenue
Claremont, California 91711
Phone: (909) 399-5470
E-mail: jdavis@romoplanninggroup.com

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Commons Specific Plan [SCAG NO. IGR9734]

Dear Ms. Davis,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the Commons Specific Plan ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS) pursuant to Senate Bill (SB) 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] SCAG's feedback is intended to assist local jurisdictions and project proponents to implement projects that have the potential to contribute to attainment of Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS) goals and align with RTP/SCS policies.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for The Commons Specific Plan in Los Angeles County. The proposed project includes the development of 110 residential units and 5,000 square feet (sf) of retail and associated parking on 9.5 acres. 27 single-family detached homes, 20 townhomes and 5,000 sf of retail space with 15 flats above the retail spaces on 6.5 acres are located in the City of Claremont and 48 townhomes on 3 acres are located in the City of Upland.

When available, please send environmental documentation to *SCAG's Los Angeles office in Los Angeles (900 Wilshire Boulevard, Ste. 1700, Los Angeles, California 90017) or by email to au@scag.ca.gov* providing, at a minimum, the full public comment period for review.

If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Anita Au, Associate Regional Planner, at (213) 236-1874 or au@scag.ca.gov. Thank you.

Sincerely,

Ping Chang

Ping Chang
Manager, Compliance and Performance Monitoring

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2016 RTP/SCS for the purpose of determining consistency for CEQA. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a determination of consistency with the 2016 RTP/SCS for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE COMMONS SPECIFIC PLAN [SCAG NO. IGR9734]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the RTP/SCS.

2016 RTP/SCS GOALS

The SCAG Regional Council adopted the 2016 RTP/SCS in April 2016. The 2016 RTP/SCS seeks to improve mobility, promote sustainability, facilitate economic development and preserve the quality of life for the residents in the region. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health (see http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx). The goals included in the 2016 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2016 RTP/SCS are the following:

SCAG 2016 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and active transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies**
	**SCAG does not yet have an agreed-upon security performance measure.*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG 2016 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

2016 RTP/SCS STRATEGIES

To achieve the goals of the 2016 RTP/SCS, a wide range of land use and transportation strategies are included in the 2016 RTP/SCS. Technical appendances of the 2016 RTP/SCS provide additional supporting information in detail. To view the 2016 RTP/SCS, please visit: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. The 2016 RTP/SCS builds upon the progress from the 2012 RTP/SCS and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that the SCAG region strives toward a more sustainable region, while the region meets and exceeds in meeting all of applicable statutory requirements pertinent to the 2016 RTP/SCS. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

DEMOGRAPHICS AND GROWTH FORECASTS

Local input plays an important role in developing a reasonable growth forecast for the 2016 RTP/SCS. SCAG used a bottom-up local review and input process and engaged local jurisdictions in establishing the base geographic and socioeconomic projections including population, household and employment. At the time of this letter, the most recently adopted SCAG jurisdictional-level growth forecasts that were developed in accordance with the bottom-up local review and input process consist of the 2020, 2035, and 2040 population, households and employment forecasts. To view them, please visit http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts			Adopted City of Claremont Forecasts			Adopted City of Upland Forecasts		
	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040
Population	19,663,000	22,091,000	22,138,800	36,300	38,200	39,400	76,200	81,600	81,700
Households	6,458,000	7,325,000	7,412,300	12,200	12,800	13,200	27,200	28,800	28,900
Employment	8,414,000	9,441,000	9,871,500	18,500	19,300	19,700	35,900	42,300	43,500

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for the 2016 RTP/SCS for guidance, as appropriate. SCAG's Regional Council certified the Final PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on April 7, 2016 (please see: http://scagrtpscs.net/Pages/FINAL2016PEIR.aspx). The Final PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

Comments on the Initial Study for The Commons December 20, 2019

Rev. Dr. Christine Blair
1402 N Mills Avenue
Claremont CA 91711

To Whom It May Concern:

My concern about residential development at the northwest corner of Foothill Blvd and Monte Vista Avenue is the impact on the residents of The Commons of the proximity of Cable Airport, cited as the largest private airport in the country. Many planes take off every hour every day of the week, with the largest number being on weekends and after-work hours.

1. Danger due to the number of flights: (in reference to the Initial Study, The Commons, 11-18-19; Section 3:3 and 13, Air Quality and Noise, pp. 31-32, 50):
   Cable Airport is cited as having 92,000 flight operations a year, i.e. 250+ per day (https://en.wikipedia.org/wiki/Cable_Airport). These planes are often quite old and noisy, and potentially dangerous. In 2019 there have been four crashes (5/1, 6/15, 9/17, and 11/8) with the last one resulting in a fatality and houses destroyed in Upland.
   There is an agreement with the City of Claremont that planes are to turn south after take-off, flying down Monte Vista; this highlights the potential danger to The Commons. The Cable Airport Compatibility Use Plan, Chapter 3, cites this area of the Commons as incompatible for residences (https://ci.upland.ca.us/cable-airport-land-use-comp-plan) .

2. Environmental health dangers (in reference to Initial Study, The Commons, 11-18-19; Section 3:3, c, Air Quality; pp. 31-32): Small airports pollute the air and earth due to the lead in their gasoline. Sulfur in jet fuel is also a pollutant (See "Plane Exhaust Kills More People than Plane Crashes," *National Geographic*, October 10, 2010. See also: https://environmentalpollutioncenters.org , Air, "Living Near Small Airports Increases Lead Pollution Risks."). This airport is used mostly by old airplanes which are even more polluting. Sitting and playing outside will be especially harmful to children and people in bad health. The planned park would be unhealthy for sensitive receptors as identified by SCQMAD, such as residences and playgrounds.

3. Quality of life: (Initial Study, The Commons, Section 3:13, p. 50; Noise)
   I live several blocks west of this site. The noise from the airplanes even from this distance is very disturbing. On many Fridays, Saturdays and Sundays, I am unable to enjoy sitting in my backyard due to the continuous noise from the many small planes taking off and/or circling around. Often several airplanes are in the air at the same time. I am frequently not even able to sit in my glass-enclosed sunroom. Even in my living room, with insulated new doors to the sunroom and the outdoors, the noise penetrates. Occasionally I hear an old motor sounding like it may not make it to the airport and I worry about my neighbors and me being the next crash victims.

   I am seriously considering moving due to the noise caused by the Cable Airport planes. For residents of the Commons, the noise would be much worse, lower, closer.

Although I do not begrudge emergency vehicles, they do shake my house when they fly over. They are very low. What would they do to the residences at the Commons?

I hope to see much more thorough investigations into these issues before a decision is made about building on this site.

Respectfully,

Rev. Dr. Christine (Tina) Blair

From: jdavis@romoplanninggroup.com
To: Carl Winter
Cc: Lynn Hayes; Brad Johnson
Subject: FWD: Comments on the Commons NOP-Drew Ready
Date: Saturday, December 21, 2019 10:54:14 AM

Hello from England,

Several emails came in yesterday and will be forwarding them you.

Jennifer Davis
Contract Planner
909-399-5485

--------- Original Message ---------
Subject: Comments on the Commons Notice of Preparation of an Environmental Impact Report
From: "Drew Ready" <drewready@gmail.com>
Date: 12/20/19 10:43 pm
To: "jdavis@romoplanninggroup.com" <jdavis@romoplanninggroup.com>

In regards to the LSA authored Initial Study for the Commons, along with concerns about the Commons being in flight path of an airport, I was surprised to find that there was no reference in the initial study to the San Antonio Dam condition and the potential risk for serious flooding at the Common's site in the case of dam failure.

While potential flooding impacts were formerly required to be studied, it seems the 2019 CEQA checklist no longer requires the study of developments that could "i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam." While this may no longer be required in an initial study, due diligence and concern for public safety should require a thorough study given the Commons project vicinity to the San Antonio Channel, the poor condition of San Antonio Dam, and projected significant storm events under climate change.

A Dam Safety Action **Classification II** rating was given to San Antonio Dam in 2008. A "DSAC II rating is given to dams where failure could begin during normal operations or be initiated as the consequence of an event. The likelihood of failure from one of these occurrences, prior to remediation, is too high to assure public safety; or the combination of life or economic consequences with probability of failure is very high." A dam breach would be catastrophic and any new development in a potential inundation zone should take the dam condition and climate change into account. While no one expects the dam to fail anytime soon, climate scientists are predicting an increase in extreme precipitation. (see pg 12, *California Climate Change Assessment, LA Region*). Some recent climate predictions by UCLA scientists suggest that 100 year storm events could become 30 year events.

Like much of the Claremont at that elevation, the Commons site is in a 8' inundation zone (see pg 99 *Claremont Hazard Mitigation Plan*). The Commons is also in close proximity to the San Antonio flood control channel just on the other side of Monte Vista - which if it over tops in a dam breach could pose an additional risk. While I could not find where Claremont's Hazard Mitigation Plan discusses the current poor safety rating of the dam, I did find that Montclair is well aware of this and has done extensive flood mitigation planning as a result of San Antonio dam's downgraded safety rating (pg63, *Montclair Hazard Mitigation Plan*), and so has Ontario. The Commons site is in a former floodplain and many large boulders on the site are likely remnants of the 1938 flood. At a minimum, stormwater management at the Commons that goes above and beyond the requirements in the City's low impact development ordinance will likely be needed to ensure the development doesn't flood in storms.

Should we really build new residential developments in the inundation zone before the dam is stabilized and flood risk is minimized? At a minimum, the planned EIR should take this all into account and include in their study, consultation
with Army Corps about the Dam's safety and potential for flooding impact to this community.

Drew Ready
310 West Radcliffe Drive, Claremont

From: jdavis@romoplanninggroup.com
To: Carl Winter
Cc: Lynn Hayes; Brad Johnson
Subject: FWD: Comments regarding the Commons NOP - Erik Griswold
Date: Saturday, December 21, 2019 10:54:57 AM

--------- Original Message ---------
Subject: Comments regarding the Commons Development on the Claremont/Upland border
From: "Erik Griswold" <erik.griswold@gmail.com>
Date: 12/20/19 4:25 pm
To: "jdavis@romoplanninggroup.com" <jdavis@romoplanninggroup.com>

Dear Ms. Davis:

The region needs more housing. Then it needs to build more housing. After that it needs to build more housing. Lastly the region needs to build more housing.

The plan offered is acceptable except for the decision to build Single Family Houses on the northern part of the Claremont side of the development. These need to be multi-story flats. Note that the rest of the block is industrial use. Single Family Houses will be a hard sell, in my opinion and not what the area needs more of.

Take advantage of the fact that there is a major transit facility that will have one type of service or another offering 20 minute headways to and from Los Angeles. Be aware of the ability to use this to argue for lowered parking requirements.

Finally remember that this is commercial land at present. Can we not see some way to build the “flat” housing that the real estate cabal in Claremont want to get built, but above commercial/light industrial use below? Living above many uses isn’t as undesirable as our early 20th Century Euclid Zoning advocates might have us believe. Can we take advantage of this area’s proximity to Harvey Mudd College, one of the top technical educational institutions in the USA, and offer spaces for start ups or other related offshoots of the colleges?

Add the eyes on the street and you can create a lively community. Let me know if you need my help selling this flats-above-commercial to the fuddy-duds on the Planning Commission.

-Erik

Erik Griswold
449 Stanford Drive
In the actual City of Claremont, 91711

--
Erik Griswold

+1-323-203-5629

From: jdavis@romoplanninggroup.com
To: Carl Winter
Cc: Lynn Hayes
Subject: FWD: The Commons Project - Realtor Comments and Recommendations for EIR Report-Realtors
Date: Saturday, December 21, 2019 10:58:34 AM
Attachments: TheCommons_EIR_Notice.pdf

Jennifer Davis
Contract Planner
909-399-5485

--------- Original Message ---------
Subject: The Commons Project - Realtor Comments and Recommendations for EIR Report
From: "ghamill456@aol.com" <ghamill456@aol.com>
Date: 12/20/19 2:35 pm
To: "jdavis@romoplanninggroup.com" <jdavis@romoplanninggroup.com>,
"bjohnson@ci.claremont.ca.us" <bjohnson@ci.claremont.ca.us>,
"cveirs@ci.claremont.ca.us" <cveirs@ci.claremont.ca.us>,
"ccalaycay@ci.claremont.ca.us" <ccalaycay@ci.claremont.ca.us>,
"lschroeder@ci.claremont.ca.us" <lschroeder@ci.claremont.ca.us>,
"jstark@ci.claremont.ca.us" <jstark@ci.claremont.ca.us>,
"ereece@ci.claremont.ca.us" <ereece@ci.claremont.ca.us>,
"contact@ci.claremont.ca.us" <contact@ci.claremont.ca.us>

December 19, 2019

RE: The Commons Development in Claremont - EIR recommendations

To Whom It May Concern,

Per the attached city memo letter, after conferring with about a dozen long time and short time Claremont/Upland area Realtors over the last several months, we have the following to state regarding the Commons project at Foothill & Monte Vista:

As some might know...this proposed project as it currently stands includes 68 vertically stair stacked 2 & 3-story condos...very similar to the hundreds of same/similar overly saturated units along Baseline Road and other in-fill areas around Claremont and our neighboring communities. Over time, this very particular type of housing will become toxic within the community itself, as well as the neighborhood surroundings…for so many, many reasons.

The 15 planned 1-story “flats” are a great concept, but these flats need more than a 1-car designated garage; they need 2 designated parking spaces per unit; period. Also more importantly, Claremont needs more than just 15 of such 1-level flat units! In particular, we need such flats to vary in size from about 600 - 2,000 sqft.

The plans relating to the 27 single family detached homes at the north western end seems acceptable for the audience that it will likely attract, as long as all 100% of them have a master suite on the ground floor, no exceptions.

With regard to the HOA “community amenities”, the long and linear but narrow park like emergency landing strip areas and micro courtyard pockets within the community are not enough and are basically useless. In fact, the current plan is insulting to even label them as "community amenities". For the total project of around 110 units, there should be a requirement of a safely fenced & protected resort-style setting including nothing less than: a spacious pool, spa, multiple BBQs, exercise areas, playground, cabanas, and restrooms (similar to the Claremont Village Walk community in the downtown Claremont Village). Residents paying around $300-$400 monthly for HOA dues deserve much better than the current plan for community amenities.

Regarding any 2 or 3 story vertically stair stacked housing, many of us long-time Realtors continue to show up to city meetings around town to protest this most unwelcoming...non-affordable, non-family/children friendly, non-1st time buyer friendly, non-Senior friendly, non-handicapped/ADA friendly, non-empty nester friendly, non-FHA/VA (Veteran) friendly, non-sustainable friendly, non-parking friendly, non-traffic friendly, etc. type of housing. An over saturation of these unit types invites trouble and crime at many levels, for both for the residents/guests/families within the community, as well as adjacent neighborhood surroundings.

We respectfully ask you to help us and the customers that we serve by building a product that will be more attractive to potential buyers, as well as provide the necessary profits for the owner/builder/developer of The Commons community.

We appreciate your time, care, and consideration. Please kindly confirm receipt of this email. Thank you.

Geoff Hamill and Claremont/Upland Area Realtors

The Commons

Summary

SCH Number	2019110341
Lead Agency	Claremont, City of *(City of Claremont)*
Document Title	The Commons
Document Type	NOP - Notice of Preparation
Received	11/18/2019
Project Applicant	Clare Properties, LLC
Present Land Use	Armstrong Nursery and Vacant Land/Highway Commercial (Claremont) and Business/Residential (B/R-MU) (Upland) / Commercial (Claremont) and Business/Residential (B/R-MU) (Upland)

Document Description	The Commons would include a total of 62 dwelling units (27 single-family detached homes, 20 townhomes with 15 flats above the retail spaces) and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4 bedroom townhomes, and single-

story flats. The household expected size is between 2 and 5 occupants.

Contact Information

Jennifer Davis
City of Claremont
207 Harvard Avenue
Claremont, CA 91711
Phone : (909) 399-5485
jdavis@romoplanninggroup.com

Location

Coordinates	34°6'27.483"N 117°42'0.357"W
Cities	**Claremont**
Counties	**Los Angeles**
Regions	**Southern California**
Cross Streets	Foothill Blvd. and Monte Vista Ave.
Zip	91711
Total Acres	9.2
Parcel #	8307-003-066 (Los Angeles County), 1006-312-02, 03, and 04 (San Bernardino County)
State Highways	I-10, I-210
Railways	None
Airports	Cable Airport
Schools	Claremont Colleges, Cabrillo Elementary, Chaparral Elementary, S
Waterways	None
Range	8W
Section	3
Base	Ontario

Notice of Completion

Review Period Start 11/18/2019

Review Period End 12/17/2019

Development Type
Residential (110 Units) Commercial (5,000 Sq. Ft.)
Recreational (Passive and Active Park Space)

Local Action
General Plan Amendment Specific Plan Rezone

Project Issues
Air Quality Archaeologic-Historic Biological Resources
Drainage/Absorption Noise Toxic/Hazardous
Traffic/Circulation Cumulative Effects

Reviewing Agencies
California Air Resources Board
California Department of Conservation
California Department of Fish and Wildlife, Inland Deserts Region 6
California Department of Forestry and Fire Protection
California Department of Parks and Recreation
California Department of Transportation, District 7
California Department of Transportation, District 8
California Department of Water Resources
California Highway Patrol California Natural Resources Agency
California Regional Water Quality Control Board, Los Angeles Region 4
California Regional Water Quality Control Board, Santa Ana Region 8
Department of Toxic Substances Control
Office of Historic Preservation
State Water Resources Control Board, Division of Drinking Water
California Native American Heritage Commission
California Department of Fish and Wildlife, South Coast Region 5
California Department of Transportation, Division of Aeronautics

Attachments

Environmental Document

NOP Acknowledgement Letter_ PDF 74 K
NOP The Commons Plan 11 19 2019 DOCX 15485 K

Summary Form for Document Submittal SCH The Commons PDF 194 K

The Commons Initial Study 11 18 2019 PDF 7983 K

NOC

NOC PDF 939 K

State Comments

2019110341_CDFW Comments on Notice of Preparation of a DEIR for The Commons PDF 2740 K

2019110341_DOT_The Commons NOP comment ltr cc PDF 201 K

2019110341_NAHC_The Commons Project 11-18-2019 PDF 168 K

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APPENDIX A-3:

Scoping Meeting Materials

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City of Claremont
Claremont Commons Specific Plan Project
Environmental Impact Report

Public Scoping Meeting
September 24, 2018

Purpose of Meeting

- Present Project Information
- Explain Environmental Review Process
- Discuss Scope and Content of Environmental Impact Report (EIR)
- Public Input Process
- No Decision on Project Tonight

Introductions

- Lead Agency: City of Claremont
  - Brad Johnson, Community Development Director
  - Jennifer Davis, Planner
- Responsible Agency: City of Upland
  - Steven Dukett, Managing Development Services Director
  - Michael Poland, Planner
- Applicant
  - Clare Properties, LLC
- Environmental Consultant: LSA
  - Ray Hussey, CEQA Project Manager

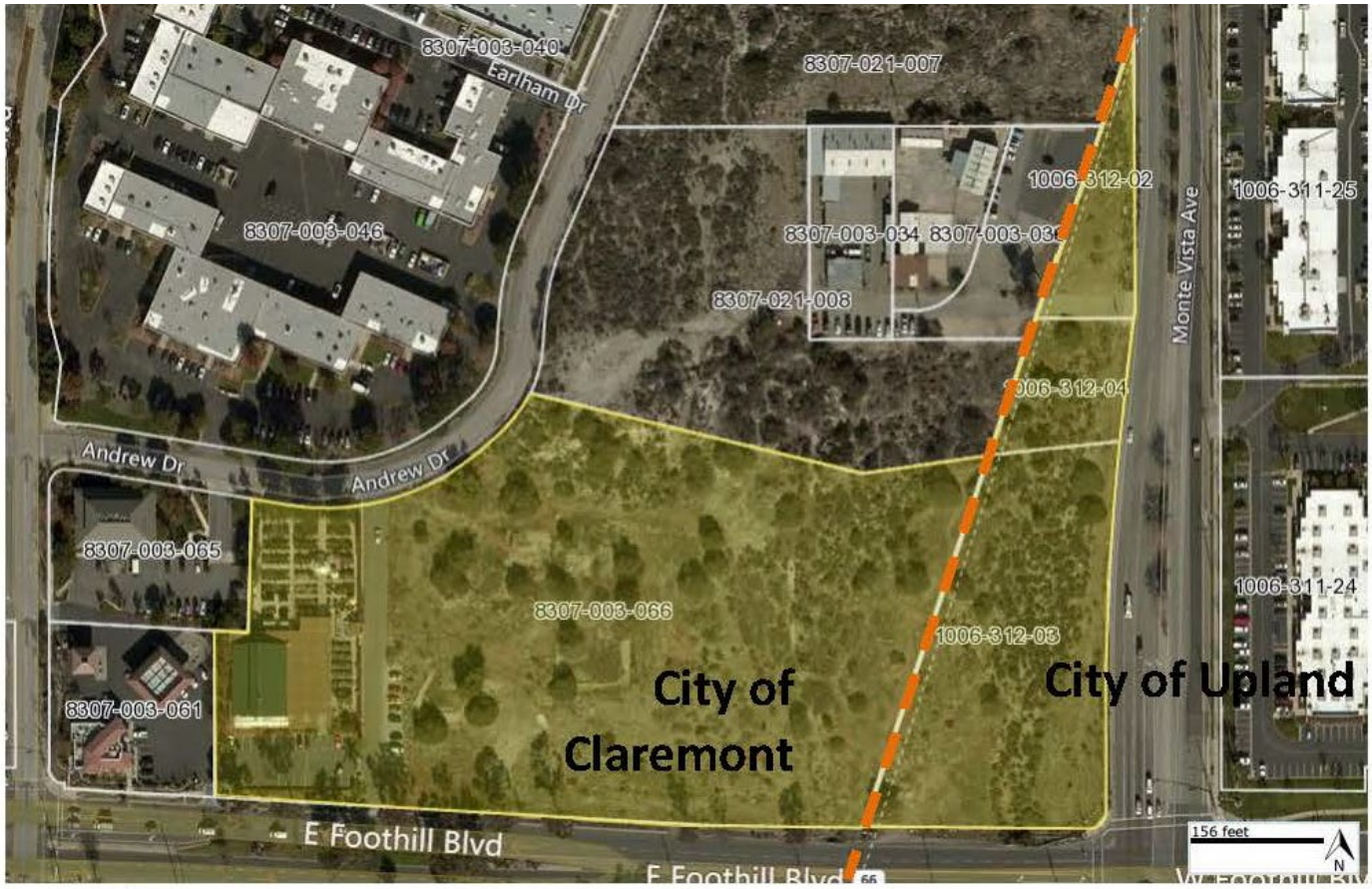
Scoping Meeting Comments

- All speakers are asked to sign in so that the City can keep a record of who spoke.
- Speakers are encouraged to also submit their comments in writing on a scoping comment form.
- Comments will be considered and incorporated into the environmental review of the Project as appropriate.
- The purpose of the scoping meeting is to discuss the scope and content of the EIR; Project merits will be considered at later meetings.

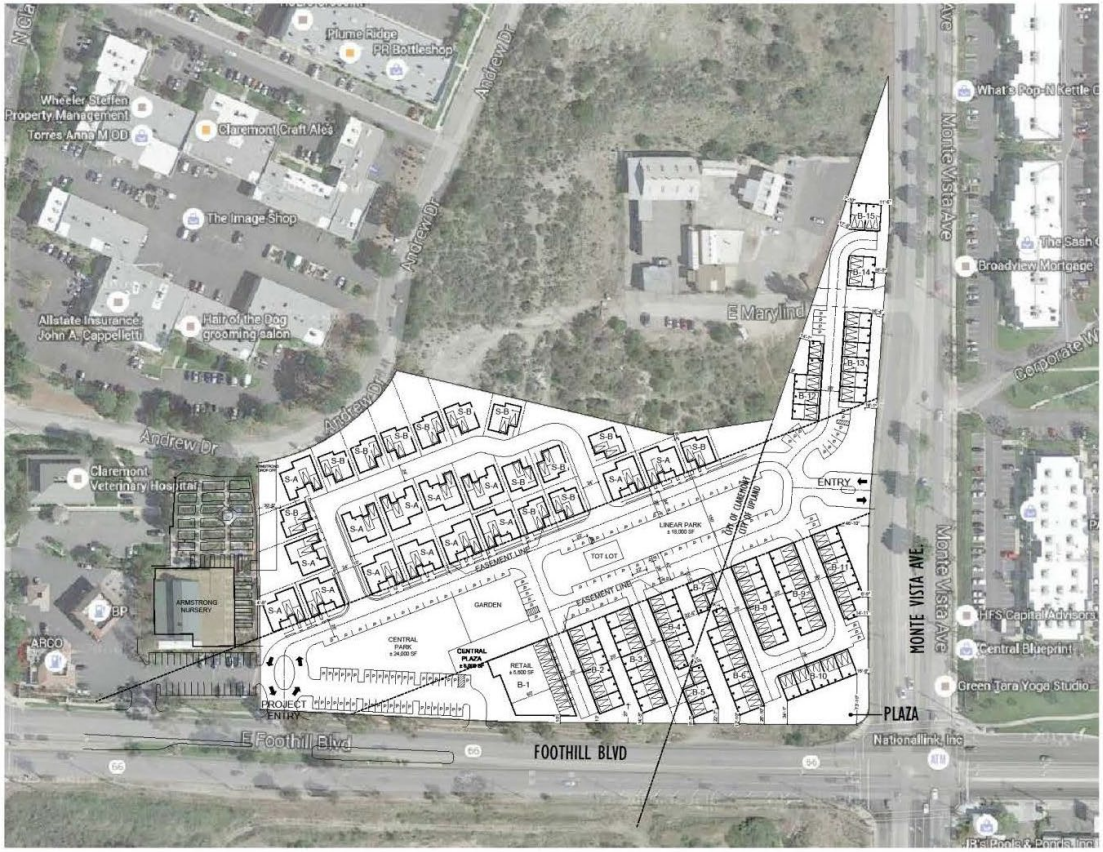
Existing Conditions

- 9.7-acre site is located at the northwest corner of Monte Vista Avenue and Foothill Boulevard in the Cities of Claremont and Upland.
- 6.7 acres in Claremont; 3.0 acres are in Upland.
- Current zoning for Claremont Commons:
  - Commercial Highway (CH) in Claremont
  - Business Residential Mixed Use (BR/MU) in Upland
- Cable Airport approximately 1,500 feet to east in Upland.

Parcels and Jurisdictional Boundaries



Conceptual Site Plan



SITE SUMMARY
Developable Acres: ±6.4 ac.

Unit Mix:
Single Family Detached
S-A Plan (2,800 sf): ±14 units (52%)
S-B Plan (2,200 sf): ±13 units (48%)
±27 units

Townhomes
±21'x38' Towns: ±61 units
Carriage Towns: ±7 units
±68 units

Mixed Use
Flats: ±10 units
TOTAL UNITS: ±105 units

Density: ±16.4 du/ac

Parking:
Garages: ±200 spaces (2/unit)
Driveways: ±27 spaces (10'x18')
On street: ±84 spaces (8'x22' Parallel)
(9'x18' Perpendicular)
Total: ±311 spaces (3.0 sp/unit)

Retail Parking: ±43 spaces

Setbacks:
Front
Residential: 7'
Retails: 5'
Sides 5'
Rear 5'

Building Separation:
SFD 10'
Townhomes
Front to Front 20'
Side to Side 6' Min.
Rear 28'

Street Width:
Main: 26'
Main w/ Parallel parking one side (8x22): 34'
Main w/ Parallel parking both sides: 42'
Private Drive: 26' (SFD: 24')

ktgy
Architecture + Planning
17911 Von Karman Ave, Suite 200
Irvine, CA 92614
949.851.2133
ktgy.com

WALBERN DEVELOPMENTS
Walbern Development
29222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walberndevelopment.com

Foothill East
Claremont, CA
#2013-0307

Plot Date: 02-22-2018

CONCEPTUAL SITE PLAN -"SFD B"

0 30 60 120

A1.

Claremont Commons Specific Plan Project

- Master Planned residential community with a varied mix of housing (Single-family homes, townhomes, second-floor condos).
- 5,000 square feet of retail commercial.
- 105 residential units
  - Single-family homes ranging from 1,800 – 2,800 SF,
  - Townhomes could ranging from 1,600 – 1,800 SF
  - Condos ranging from 1,000 – 1,200 SF

Requested Approvals

- General Plan Amendments (GPA) both Claremont and Upland.
- Zone Changes (ZC) both Claremont and Upland.
- Specific Plan approval both Claremont and Upland.
- Tentative Tract Map
- Design Review

California Environmental Quality Act (CEQA)

- Provide objective information to the public and decision-makers on the potential environmental effects of the Project
- City of Claremont is CEQA Lead Agency; City of Upland is CEQA Responsible Agency.
- Identify impacts, appropriate mitigation, and feasible alternatives to reduce potentially significant impacts
- Provide transparency during the decision-making process

Initial Study/Notice of Preparation

- Preliminary environmental review of the following issues to be evaluated in the Initial Study:
  - Aesthetics
  - Agricultural Resources
  - Air Quality
  - Biological Resources
  - Cultural Resources
  - Geology and Soils
  - Greenhouse Gas Emissions
  - Hazards
  - Hydrology & Water Quality
  - Land Use and Planning
  - Mineral Resources
  - Noise
  - Population and Housing
  - Public Services
  - Recreation
  - Transportation/Traffic
  - Services and Utilities
  - Tribal Cultural Resources
- The Initial Study identifies environmental topics requiring further analysis in the EIR.
- 30 day public review period of the NOP and Initial Study.

Draft Environmental Impact Report

- Issues to be evaluated in the Draft EIR will include those identified in the Initial Study.
- The Draft EIR will incorporate relevant comments received during this Public Scoping Meeting.
- The Draft EIR will incorporate relevant comments during public review of the NOP.

CEQA EIR Process

- **Public Scoping Meeting**
- Prepare Initial Study (IS)
- Distribute IS with Notice of Preparation (NOP) for 30-day review period
- Prepare Draft EIR and Technical Studies
- 45-day Draft EIR Public Review
- Prepare Final EIR (Responses to Comments, Mitigation Monitoring and Reporting program, facts and findings, etc.)
- Public Hearings/Action on Project

City of Claremont
Claremont Commons Specific Plan Project
Environmental Impact Report

Public Scoping Meeting
September 24, 2018

Thank you for attending!

Technical Studies To Be Prepared

- Air Quality/Greenhouse Gas Emissions
- Biological Resources Assessment
- Cultural Resources Assessment
- Geotechnical Investigation
- Hazardous Materials Assessment
- Drainage Study
- Noise and Vibration Analysis
- Traffic Impact Assessment
- Water Quality Management Plan

Next Steps

- Prepare IS
- Distribute IS with NOP for 30 day review period
- Prepare a Draft EIR
- Distribute Draft EIR for Public Review and Comment (45 days)
- The Draft EIR will evaluate environmental issues that may result in significant impacts

Next Steps (cont'd)

- Technical studies and modeling data will support the analysis in the Draft EIR
- After close of review period, City will respond to all concerns raised in comments
- Responses to all comments received in the Draft EIR will be made available at least 10 days prior to the first public hearing
- The Final EIR will then be submitted to the Planning Commission and City Council for consideration and certification

Public Comments

Claremont Commons Specific Plan Project EIR

- City Contact: Jennifer Davis
  - 909-399-5485
  - jdavis@romoplanninggroup.com

CITY OF CLAREMENT
CLAREMONT COMMONS SPECIFIC PLAN
PROJECT EIR
PUBLIC SCOPING MEETING

September 24, 2018 6:30 PM – 8:00 PM
Claremont City Hall, 225 West Second Street, Council Chamber

SIGN-IN SHEET

Name	Address	Contact* (optional)
MARY STODDARD	605 W 11th	
STUART "	"	
Bob Cable	1749 W 13th	909-573-5558
Mike Poland	City of Upland	
Parker G. Emerson	1084 Lake Forest Dr. Claremont	909-238-2655
Dawn Bridges	898 Connors Ct Claremont	
Michael Ceraso	317 Cucamonga Ave 91711	(626) 257 8991
Douglas Lyon		
Nicholas Neece	500 W Foothill Blvd Cl 91711	Agentneece@gmail.com
Geoff Hamill	500 W. Foothill, Claremont	909-621-0500 GeoffreGeoffHamill.com
Betty Crocker	2260 N. Villa Maria Claremont	310.678.2288 TheRealBetty@
Erik Griswold	449 Stanford Drive Claremont	9096211301 AOL.com erik.griswold@gmail.com
Joe Porreca	856 W. Bonita Ave	(909) 784-8889
MICHELLE PORRECA	" " " (Apt. 5)	(909) 282-8639

* Telephone number and/or email address

CITY OF CLAREMENT
CLAREMONT COMMONS SPECIFIC PLAN
PROJECT EIR
PUBLIC SCOPING MEETING

September 24, 2018 6:30 PM – 8:00 PM
Claremont City Hall, 225 West Second Street, Council Chamber

SIGN-IN SHEET

Name	Address	Contact* (optional)
Steven Holley	101 S. Mills Ave, Claremont	
Laura Troeste	428 Middlebury Ct, Claremont (Pitzer)	
PATRICE LANGEVIN	PITZER COLLEGE	909-418-4365
Ken Eppinger	742 Amherst CMC	909-607-4366
Alexandra dePillis	7681 San Andres Way	909-952-1193
Hilton Saenz	(Golden State Water Co.)	
ED SALKELD	693 WINDHAM DR	909-626-8034
JEAN SALKELD	693 WINDHAM	909-626-8034
Jennifer Jaffe	1421 Guadalajara Pl.	909-626-7146
Lori Sassoon	1815 N. Mountain Ave	
Parker G. Emerson	1084 Lake Forest Dr. Claremont	
ART OCHOA	791 Maryland Ave Claremont CA 91711	951-314-1594
DREW READY	CLAREMONT, CA	drewready@gmail.com
TED GARNER		
BRIAN WORLEY	1132 MORNINGSIDE	

* Telephone number and/or email address

CITY OF CLAREMENT
CLAREMONT COMMONS SPECIFIC PLAN
PROJECT EIR
PUBLIC SCOPING MEETING

September 24, 2018 6:30 PM – 8:00 PM
Claremont City Hall, 225 West Second Street, Council Chamber

SIGN-IN SHEET

Name	Address	Contact* (optional)
MARY STODDARD	605 W 10TH	maryalicestoddard@gmail.com
Enriqueta Cervantes	2277 Tulsa Ave.	Quetacervelos1406@gmail.com

* Telephone number and/or email address

APPENDIX B:

Air Quality and Greenhouse Gas Analysis, The Commons Project, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California, LSA Associates, Inc., October 2019

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AIR QUALITY AND GREENHOUSE GAS ANALYSIS

THE COMMONS PROJECT

CITY OF CLAREMONT AND CITY OF UPLAND

LOS ANGELES COUNTY AND SAN BERNARDINO COUNTY, CALIFORNIA

LSA

January 2020

AIR QUALITY AND GREENHOUSE GAS ANALYSIS

THE COMMONS PROJECT

CITY OF CLAREMONT AND CITY OF UPLAND

LOS ANGELES COUNTY AND SAN BERNARDINO COUNTY, CALIFORNIA

Submitted to:

City of Claremont
207 Harvard Avenue
Claremont, California 91711

And

City of Upland
460 North Euclid Avenue
Upland, California, 91786

Prepared by:

LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. CCT1801

LSA

January 2020

EXECUTIVE SUMMARY

This Air Quality and Greenhouse Gas Analysis has been prepared to assess the potential air quality and greenhouse gas (GHG) emission impacts associated with the proposed The Commons project to be located on an undeveloped parcel (APN No. 8307-003-066), in the city of Claremont, and three parcels (APN Nos. 1006-312-02, 1006-312-02-03, and 1006-312-0204), in the city of Upland. The proposed project includes 27 single-family detached homes, 68 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats and 2,000 square feet of outdoor dining on approximately 9.5 acres. The development will have a wide easement, which will be used as active and passive open space for the project (called Central Park and Linear Park). The proposed development in The Commons will be sustainably designed to conform to the State of California's goals for greenhouse gas reduction, conserving water and energy, and providing sustainable buildings.

The air quality study provides a discussion of the proposed project, the physical setting of the project area, and the regulatory framework for air quality. This report also provides data on existing air quality and evaluates potential air quality impacts associated with the proposed project.

Emissions with regional effects during project construction, calculated with the California Emissions Estimator Model (CalEEMod; Version 2016.3.2), would not exceed criteria pollutant thresholds established by the South Coast Air Quality Management District (SCAQMD). Compliance with SCAQMD Rules and Regulations during construction will reduce construction-related air quality impacts from fugitive dust emissions and construction equipment emissions. Standard dust suppression measures recommended by SCAQMD have been identified for short-term construction to meet SCAQMD emissions thresholds. Construction emissions for the proposed project would not exceed the SCAQMD significance thresholds for any criteria pollutants. Construction-related carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter in 10-micron and 2.5-micron pollutant concentrations (PM_{10} and $PM_{2.5}$, respectively) would not exceed the localized significance thresholds (LSTs) at the existing residential homes in the eastern areas of the project site. Therefore, construction impacts would be less than significant.

Historical air quality data show that existing CO levels for the project area and the general vicinity do not exceed either State or federal ambient air quality standards. Because the ambient CO concentrations in the project area are much lower than the federal and State CO standards, the proposed project would not result in significant increases in CO concentrations at intersections in the project vicinity that would result in the exceedance of federal or State CO concentration standards. Pollutant emissions from project operation, also calculated with CalEEMod, would not exceed the SCAQMD threshold for any criteria pollutants. LSTs would not be exceeded by long-term emissions from the operations of the project.

The proposed project is in eastern Los Angeles County and western San Bernardino County, which has been identified not to have serpentine and ultramafic rock in its soil. According to the California Geological Survey, no such rock has been identified in the project vicinity. Therefore, the potential risk for naturally occurring asbestos during project construction is less than significant.

Although odor impacts are unlikely, the proposed project would be required to comply with SCAQMD Rule 402, in the event a nuisance complaint occurs. Impacts associated with objectionable odors would be less than significant.

The potential for the project to affect global climate change is addressed in this study. The Cities of Claremont and Upland does not have an adopted threshold of significance for GHG emissions. For CEQA purposes, the Cities have discretion to select an appropriate significance criterion, based on substantial evidence. In December 2008, SCAQMD drafted interim GHG thresholds of significance based on a tiered system. The applicable thresholds for this residential project are Tier 3 with 3,000 metric tons of carbon dioxide equivalent (CO_2e) per year. This threshold of 3,000 metric tons per year for residential land uses is selected as the significance criterion that has been supported by substantial evidence during SCAQMD evaluations of its interim GHG standard. Short-term construction and long-term operational emissions of the principal GHGs, including carbon dioxide and methane, were quantified and compared to this threshold. Project-related GHG emissions would be below this threshold and the GHG impacts are less than significant. Therefore, no mitigation measures are required.

The proposed land uses would be consistent with the City of Claremont General Plan (2009) with a proposed General Plan Amendment and City of Upland General Plan (2015) at the project site. Both General Plans are consistent with the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) and the SCAQMD 2016 Air Quality Management Plan (AQMP). Therefore, the proposed project is consistent with the General Plans and the regional AQMP.

Cumulative construction and operational emissions were found to be less than significant. The proposed project's building energy efficiency measures result in project consistency with the California Climate Change Scoping Plan, SCAG RTP/SCS, City of Claremont General Plan and City of Upland General Plan. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. Given this consistency, it is concluded that the proposed project's impact related to greenhouse gas emissions would not be cumulatively considerable.

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LIST OF ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
µg/m^3	Micrograms per Cubic Meter
AAQS	Ambient Air Quality Standards
AB	Assembly Bill
APN	Assessor Parcel Numbers
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
Basin	South Coast Air Basin
BAU	Business As Usual
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CAT	Climate Action Team
CCAA	California Clean Air Act
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CH_4	Methane
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
DPM	Diesel Particulate Matter
EMFAC	Emission FACtor model
EO	Executive Order
EPA	United States Environmental Protection Agency
GCC	Global Climate Change
GHG	Greenhouse Gas
GWP	Global Warming Potential
H_2S	Hydrogen Sulfide
HFCs	Hydrofluorocarbons
HRA	Health Risk Assessment
IPCC	Intergovernmental Panel on Climate Change
lbs/day	pounds per day

LOS	Level of Service
LST	Localized Significance Threshold
MATES	Multiple Air Toxics Exposure Study
mg/m^3	Milligrams Per Cubic Meter
MMT	Million Metric Tons
MMT CO_2e	Million Metric Tons of Carbon Dioxide Equivalent
mph	Miles per Hour
MPO	Metropolitan Planning Organization
MT	Metric Ton(s)
MT CO_2e	Metric Tons of Carbon Dioxide Equivalent
MT CO_2e/yr	Metric Tons of Carbon Dioxide Equivalent per Year
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
National CORE	National Community Renaissance
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
O_3	Ozone (or smog)
OPR	Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particulate Matter
PM_{10}	Particulate Matter Less than 10 Microns in Size
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns in Size
ppm	Parts per Million
PRC	Public Resources Code
ROCs	Reactive Organic Compounds
ROGs	Reactive Organic Gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SF_6	Sulfur Hexafluoride
SIP	State Implementation Plan
SLCP	Short-Lived Climate Pollutant
SO_2	Sulfur Dioxide

TAC	Toxic Air Contaminant
T-BACT	Best Available Control Technology for Toxics
Under 2 MOU	Global Climate Leadership Memorandum of Understanding
UNFCCC	United Nations Framework Convention on Climate Change
VOCs	Volatile Organic Compounds
Working Group	CEQA Significance Threshold Working Group
ZEV	Zero Emissions Vehicle
ZNE	Zero Net Energy

INTRODUCTION

This air quality and greenhouse gas (GHG) analysis has been prepared to evaluate the potential air quality and climate change impacts associated with the proposed Commons Project (project) on approximately 9.5 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the City of Claremont and the City of Upland.

This report provides a project-specific air quality and climate change impact analysis by examining the impacts of the proposed uses on adjacent sensitive land uses and evaluating the emission reduction measures required as part of the project design. Guidelines identified by the South Coast Air Quality Management District (SCAQMD) in its *CEQA Air Quality Handbook* (SCAQMD 1993), and *Air Quality Analysis Guidance Handbook* and its subsequent updates on its website (SCAQMD 2017) are followed in this air quality impact analysis.

PROJECT LOCATION AND DESCRIPTION

The proposed Commons Project would include a total of 62 dwelling units and 5,000 square feet of retail and associated parking in Claremont and 48 townhomes in the Upland portion of the project. The City of Claremont is located in Los Angeles County and the City of Upland is located in San Bernardino County. The City of Claremont portion of the project site is 6.5 acres of the 9.5 acres. The City of Upland portion of the project site is 3.0 of the 9.5 acres. Figure 1 illustrates the regional and project location map.

The development will have a wide easement, which will be used as active and passive open space for the project. There are three types of plans that will be built on site: single-family detached units, 2, 3, and 4 bedroom townhomes, and single-story flats. The household expected size is between two and five occupants. The Commons Specific Plan requires “Green” building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials (City of Claremont 2019). Figure 2 presents the proposed site plan.

The project site occupies Assessor’s Parcel Numbers (APNs) 8307-003-066 (Los Angeles County) and APNs 1006-312-02, 03, and 04 (San Bernardino County). The four parcels are currently undeveloped with the exception of an Armstrong Garden Center. The project does not propose any change in use or operation of the Armstrong Garden Center; therefore, no further discussion of this use is provided in the Air Quality and Greenhouse Gas Technical Report. The topography of the site is generally uneven, and gently sloping at about three percent from 1,350 feet above mean sea level (amsl) at the north portion of the site to 1,330 amsl at the southwesterly portion of the site.

The proposed project would result in the development of 27 single-family homes, 68 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on a 9.5-acre site. The 27 single-family homes, 15 residential flats above the retail spaces, and 20 of the townhomes are located in the City of Claremont. The remaining 48 townhomes are located in the City of Upland. Table A provides a summary of the Project’s overall development plan.

Table A: Project Summary

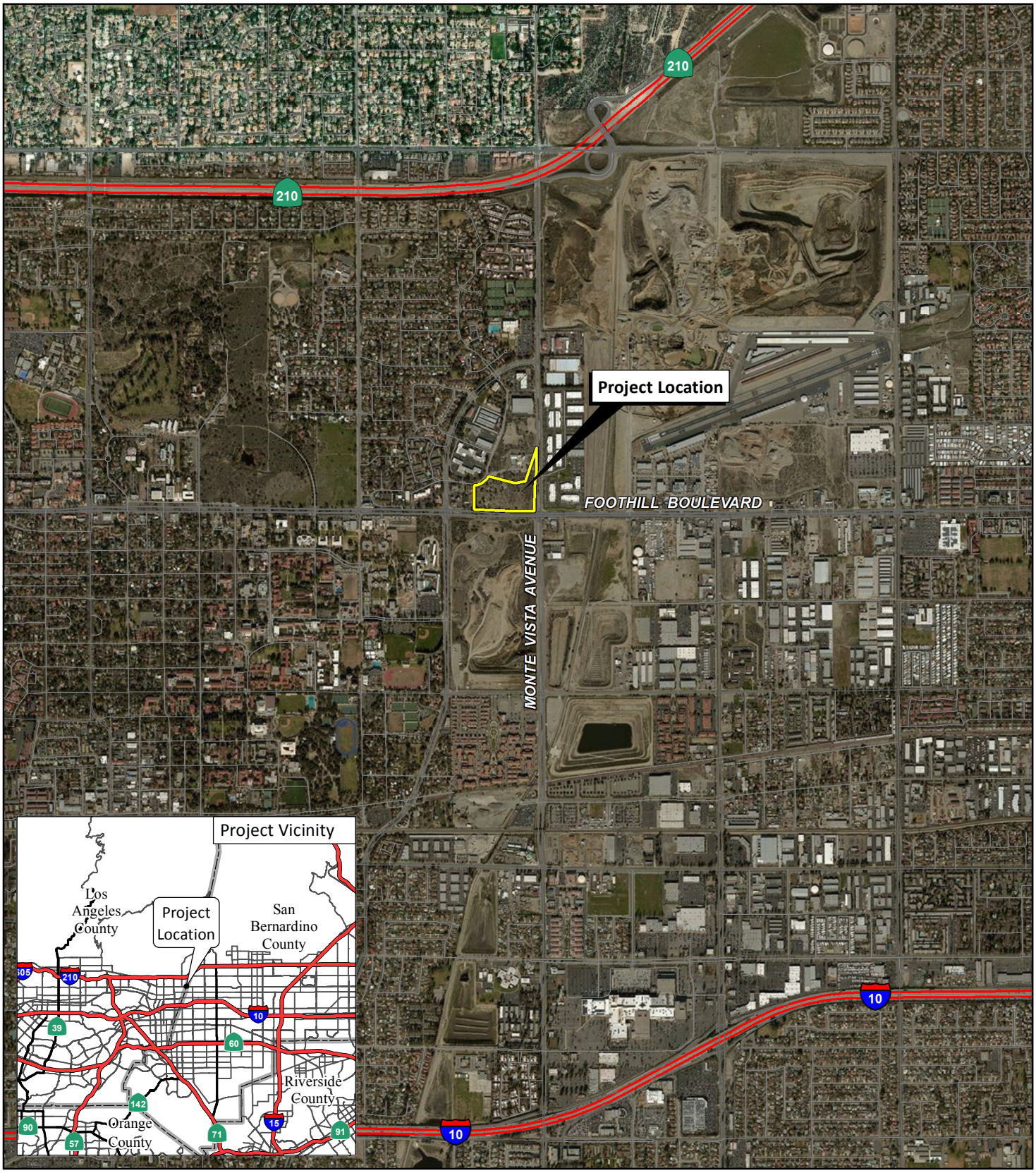
Use	Claremont		Upland	
	Acres	Units	Acres	Units
Single-family residential	3.29	27	--	--
Townhomes	0.91	20	3.0	48
Flats	0.90	15	--	--
Retail		5,000 square feet		--
Park	1.38 acres		--	

Source: The Commons Specific Plan 2019.

Anticipated construction schedule would begin in late 2020 and would occur for a duration of 14 months. The project would be fully operational in 2021.

Existing Sensitive Land Uses in the Project Area

In the City of Claremont, adjacent land uses to the west include Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. The Claremont Business Park, which hosts multiple office, commercial, and professional uses is located to the northwest. The multi-family residential uses are located approximately 475 feet northwest of the site. The site of a recently approved 70-acre sport park is located south of the Project site, across Foothill Boulevard. The Claremont Colleges dormitories and the College Park apartment residential development and are located approximately 0.33 and 0.50 mile southwest and south from the site, respectively. In the City of Upland, adjacent land across Monte Vista Avenue consists of the College Business Park and low-density multi-family (Harvest Avenue at Upland). Cable Airport is located approximately 0.33 mile east of the site. The closest residences are located approximately 500 feet southeast of the Project.



LSA

FIGURE 1

N

0 1000 2000
FEET

The Commons Project

Regional and Project Location

SOURCE: ESRI Streetmap, 2013, Bing Aerial, 2015.

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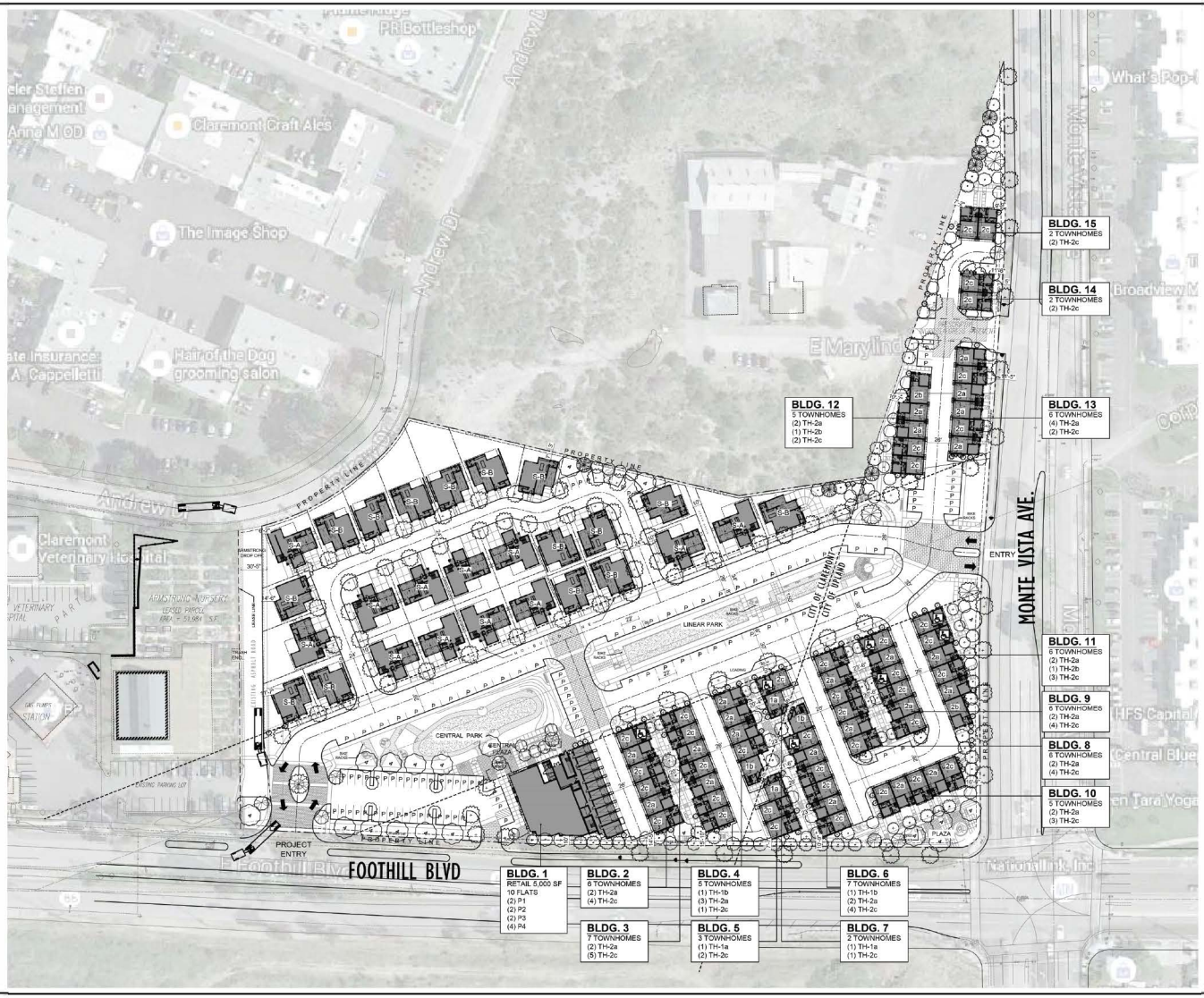

LSA

FIGURE 2

N

0 100 200

FEET

The Commons Project

Conceptual Site Plan

SOURCE: ktgy, April 2019

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PROJECT SETTING

REGIONAL AIR QUALITY

The project site is located in the City of Claremont within Los Angeles County and the City of Upland within San Bernardino County, California, both which are part of the South Coast Air Basin (Basin) and are under the jurisdiction of SCAQMD. The air quality assessment for the proposed project includes estimating emissions associated with short-term construction and long-term operation of the proposed project under one Basin.

A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts (e.g., SCAQMD) have created guidelines and requirements to conduct air quality analyses. SCAQMD's current guidelines, included in its *CEQA Air Quality Handbook* (1993) and associated updates, were followed in the assessment of air quality impacts for the proposed project.

Both the State of California and the federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants. As detailed in Table B, these pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM_{10}), particulate matter less than 2.5 microns in size ($PM_{2.5}$), and lead. In addition, the State has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In addition to setting out primary and secondary AAQS, the State has established a set of episode criteria for O_3, CO, NO_2, SO_2, and PM_{10}. These criteria refer to episode levels representing periods of short-term exposure to air pollutants that actually threaten public health. Episodes are defined as unacceptable air quality levels where everyone in the Basin may experience more serious health effects. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three. An alert level is that concentration of pollutants at which initial stage control actions are to begin. An alert will be declared when any one of the pollutant alert levels is reached at any monitoring site and when meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for 12 or more hours or to increase; or, in the case of oxidants, the situation is likely to recur within the next 24 hours unless control actions are taken.

Pollutant alert levels:

- **O_3:** 392 micrograms per cubic meter ($\mu g/m^3$) (0.20 parts per million [ppm]), 1-hour average.
- **CO:** 17 milligrams per cubic meter (mg/m^3) (15 ppm), 8-hour average.
- **NO_2:** 1,130 $\mu g/m^3$ (0.6 ppm), 1-hour average; 282 $\mu g/m^3$ (0.15 ppm), 24-hour average.
- **SO_2:** 800 $\mu g/m^3$ (0.3 ppm), 24-hour average.
- **Particulates measured as PM_{10}:** 350 $\mu g/m^3$, 24-hour average.

Table B: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM_{10})[9]	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter ($PM_{2.5}$)[9]	24-Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1-Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (for certain areas)[11]	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	3-Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	—	
Lead[12,13]	30-Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[13]	Same as Primary Standard	
	Rolling 3-Month Average[11]	—		0.15 µg/m^3		
Visibility-Reducing Particles[14]	8-Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Source: Ambient Air Quality Standards (ARB 2016). Website: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf (accessed July 2019).

Footnotes are provided on the following page.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles) are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current national policies.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[8] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[9] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[10] To attain the 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[11] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[12] The ARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[13] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standards are approved.

[14] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
µg/m^3 = micrograms per cubic meter
mg/m^3 = milligrams per cubic meter
ppm = parts per million
ppb = parts per billion

Table C summarizes the primary health effects and sources of common air pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (United States Environmental Protection Agency [EPA]), these health effects will not occur unless the standards are exceeded by a large margin or for a prolonged period of time. State AAQS are more stringent than federal AAQS. Among the pollutants, O_3 and particulate matter ($PM_{2.5}$ and PM_{10}) are considered pollutants with regional effects, while the others have more localized effects.

Table C: Summary of Health Effects of the Major Criteria Air Pollutants

Pollutant	Health Effects	Examples of Sources
Particulate Matter ($PM_{2.5}$ and PM_{10}: less than or equal to 2.5 or 10 microns, respectively)	• Hospitalizations for worsened heart diseases • Emergency room visits for asthma • Premature death	• Cars and trucks (especially diesels) • Fireplaces, wood stoves • Windblown dust from roadways, agriculture, and construction
Ozone (O_3)	• Cough, chest tightness • Difficulty taking a deep breath • Worsened asthma symptoms • Lung inflammation	• Precursor sources[1]: motor vehicles, industrial emissions, and consumer products
Carbon Monoxide (CO)	• Chest pain in heart patients[2] • Headaches, nausea[2] • Reduced mental alertness[2] • Death at very high levels[2]	• Any source that burns fuel, such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Nitrogen Dioxide (NO_2)	• Increased response to allergens	• See carbon monoxide sources
Toxic Air Contaminants	• Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders	• Cars and trucks (especially diesels) • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: ARB Fact Sheet: Air Pollution and Health. Website: http://www.arb.ca.gov/research/health/fs/fs1/fs1.htm (accessed July 2019).
[1] Ozone is not generated directly by these sources. Rather, chemicals emitted by these precursor sources react with sunlight to form ozone in the atmosphere.
[2] Health effects from CO exposures occur at levels considerably higher than ambient.
ARB = California Air Resources Board

The California Clean Air Act (CCAA) provides SCAQMD and other air districts with the authority to manage transportation activities at indirect sources. Indirect sources of pollution include any facility, building, structure, or installation, or combination thereof, that attracts or generates mobile source activity that results in emissions of any pollutant. In addition, area source emissions that are generated when minor sources collectively emit a substantial amount of pollution are also managed by the local air districts. Examples of this would be the motor vehicles at an intersection, a mall, and on highways. SCAQMD also regulates stationary sources of pollution throughout its jurisdictional area. Direct emissions from motor vehicles are regulated by the California Air Resources Board (ARB).

Climate/Meteorology

Air quality in the planning area is not only affected by various emission sources (e.g., mobile and industry), but also by atmospheric conditions (e.g., wind speed, wind direction, temperature, and rainfall). The combination of topography, low mixing height, abundant sunshine, and emissions from the second-largest urban area in the United States gives the Basin the worst air pollution problem in the nation.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the site is the Claremont Pomona College.[1] The monthly average maximum temperature recorded ranged from 63.7 °F in January to 90.3 °F in August, with an annual average maximum of 76.1 °F. The monthly average minimum temperature recorded at this station ranged from 38.6 °F in January to 57.7 °F in August, with an annual average minimum of 47.7 °F. January is typically the coldest month, and July and August are typically the warmest months in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. Claremont Pomona College climatological station's monitored precipitation shows that average monthly rainfall varied from 3.40 inches in February to 0.11 inch or less from June to August, with an annual total of 16.95 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in midafternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds at Cable Airport (which is located approximately 0.33 miles [mi] east of the project site) blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the project area average at 4.2 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into the Basin. In the winter, the greatest pollution problems are CO and nitrogen oxides (NOx) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NOx to form photochemical smog.

[1] Western Regional Climate Center. Website: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1779 (accessed October 2019).

Description of Global Climate Change and its Sources

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (e.g., precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric[1] temperature of 0.36 °F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming may occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the State could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in the State might include a decline in the Sierra Nevada snowpack, erosion of the State's coastline, and seawater intrusion in the San Joaquin Delta.

Global surface temperatures have risen by 1.33 °F ±0.32 °F over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years (Intergovernmental Panel on Climate Change [IPCC] 2013). The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3–10.5 °F by the end of the century (State of California 2013). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities" (IPCC 2013). Increased amounts of carbon dioxide (CO_2) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as the greenhouse effect.[2]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GHG are:[3]

- Carbon dioxide (CO_2);

[1] The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

[2] The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse lets heat from sunlight in and reduces the amount of heat that escapes, GHGs like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

[3] The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this section.

- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF_6).

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which some scientist believe can cause global warming. While GHGs produced by human activities include naturally occurring GHGs (e.g., CO_2, CH_4, and N_2O), some gases (e.g., HFCs, PFCs, and SF_6) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere as compared to these GHGs that remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this air quality study, the term "GHGs" will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of metric tons[1] of "CO_2 equivalents" (MT CO_2e). For example, N_2O is 298 times more potent at contributing to global warming than CO_2. Table D identifies the GWP for each type of GHG analyzed in this report. United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines for national inventories require the use of GWP values from the *IPCC Fourth* 9 *Assessment Report* (AR4) (IPCC 2007).

Table D: Global Warming Potential of Greenhouse Gases

Gas	Atmospheric Lifetime (Years)	Global Warming Potential (100-year Time Horizon)
Carbon Dioxide (CO_2)	~100	1
Methane (CH_4)	12	25
Nitrous Oxide (N_2O)	114	298

Source: *Table ES-1, GWP values from the IPCC Fourth 9 Assessment Report (AR4).*
Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017. Website: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2017, (accessed July 2019).

The following discussion summarizes the characteristics of the six primary GHGs.

[1] A metric ton is equivalent to approximately 1.1 tons.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO_2 are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO_2 to the atmosphere. Natural removal processes (e.g., photosynthesis by land- and ocean-dwelling plant species) cannot keep pace with this extra input of human-made CO_2, and consequently the gas is building up in the atmosphere. The concentration of CO_2 in the atmosphere has risen from about 280 ppm prior to the Industrial Revolution to more than 400 ppm currently (National Oceanic and Atmospheric Administration 2016).

The transportation sector remains the largest source of GHG emissions in 2015, representing 39 percent of the State's GHG emission inventory (ARB 2019). The largest emissions category within the transportation sector is on-road, which consists of passenger vehicles (cars, motorcycles, and light-duty trucks) and heavy-duty trucks and buses. Emissions from on-road sources constitute over 92 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane

CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH_4 include fires, geologic processes, and bacteria that produce CH_4 in a variety of settings (most notably, wetlands) (EPA 2010). Anthropogenic sources include rice cultivation, livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO_2, the major removal process of atmospheric CH_4—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH_4 concentrations in the atmosphere are increasing.

Nitrous Oxide

N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N_2O. The quantity of N_2O emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in the State.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O_3-depleting substances regulated under the Montreal Protocol.[1] PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However, there are no known project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on global, national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (previously referenced Table D), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

Global Emissions

Worldwide emissions of GHGs in 2017 totaled 25.6 billion MT CO_2e (UNFCCC 2019). Global estimates are based on country inventories developed as part of the programs of the UNFCCC.

United States Emissions

In 2017, the United States emitted approximately 6.456 billion MT CO_2e, down from 7.4 billion MT CO_2e in 2007. United States emissions decreased by 0.5 percent from 2016 to 2017. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of multiple factors including a continued shift from coal to natural gas and increased use of renewables in the electric power sector, and milder weather that contributed to less overall electricity use. In 2017, the total United States GHG emissions were approximately 13 percent less than 2005 levels (EPA 2019).

State of California Emissions

According to ARB emission inventory estimates, the State emitted approximately 424 million metric tons of CO_2e (MMT CO_2e) emissions in 2017. This is a decrease of 5 MMT CO_2e from 2016 and 7 MMT CO_2e below the 2020 target of 431 MMT CO_2e (ARB 2019).

The ARB estimates that transportation was the source of approximately 40 percent of the State's GHG emissions in 2017, followed by electricity generation (both in-state and out-of-state) at 15 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were residential and commercial activities at 9 percent, agriculture at 8 percent, high-GWP gases at 5 percent, and recycling and waste at 2 percent (ARB 2019).

[1] The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the ozone layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O_3 depletion and which are also potent GHGs.

Toxic Air Contaminants

The public's exposure to toxic air contaminants (TACs) is a significant environmental health issue in the State of California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the Federal Act (42 United States Code Section 7412[b]) is a TAC. Under State law, the California Environmental Protection Agency (CalEPA), acting through the ARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). AB 1807 sets forth a formal procedure for the ARB to designate substances as TACs. Once a TAC is identified, the ARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

Air toxics from stationary sources are also regulated in California under AB 2588. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a Health Risk Assessment (HRA) and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

To date, the ARB has designated nearly 200 compounds as TACs. Additionally, the ARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter (PM) from diesel-fueled engines (diesel particulate matter [DPM]).

Exposure to DPM may be a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. DPM levels and resultant potential health effects may be higher in close proximity to heavily traveled roadways with substantial truck traffic or near industrial facilities. According to the ARB, DPM exposure may lead to the following adverse health effects: (1) aggravated asthma; (2) chronic bronchitis; (3) increased respiratory and cardiovascular hospitalizations; (4) decreased lung function in children; (5) lung cancer; (6) premature deaths for people with heart or lung disease.[1,2]

[1] ARB, Diesel and Health Research, www.arb.ca.gov/research/diesel/diesel-health.htm, accessed October 2017.
[2] ARB, Fact Sheet: Diesel Particulate Matter Health Risk Assessment Study for the West Oakland Community: Preliminary Summary of Results, March 2008.

The ARB is working to reduce DPM through regulations, financial incentives, and enforcement programs. In 2004, the ARB adopted two airborne toxic control measures to reduce DPM emissions associated with distribution centers. The first limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than 5 minutes at any one location. The elimination of unnecessary idling reduces the localized impacts caused by DPM and other air toxics in diesel vehicle exhaust.

Air Quality and Land Use Handbook

ARB published the *Air Quality and Land Use Handbook* on April 28, 2005, to serve as a general guide for considering health effects associated with siting sensitive receptors proximate to sources of TAC emissions. The recommendations provided therein are voluntary and do not constitute a requirement of mandate for either land use agencies or local air districts. The goal of the guidance document is to protect sensitive receptors, such as children, the elderly, and acutely ill and chronically ill persons, from exposure to TAC emissions. Some examples of ARB's siting recommendations include the following: (1) avoid siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; (2) avoid siting sensitive receptors with 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration units operations exceed 300 hours per week); and (3) avoid siting sensitive receptors within 300 feet of any dry cleaning operation using perchloroethylene and within 500 feet of operation with two or more machines.

Ambient Toxic Air Contaminants Inventory for Basin

The SCAQMD has conducted an in-depth analysis of the TACs and their resulting health risks for all of Southern California. This study, the *Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES IV,* shows that cancer risk has decreased more than 50 percent between MATES III (SCAQMD 2005b) and MATES IV (SCAQMD 2015b).

MATES IV is the most comprehensive dataset documenting the ambient air toxic levels and health risks associated with Basin emissions. Therefore, the MATES IV study represents the baseline health risk for a cumulative analysis. These model estimates were based on monitoring data collected at 10 fixed sites in the Basin. None of the fixed monitoring sites is in the local area of the project site. However, MATES IV has extrapolated the excess cancer risk levels throughout the Basin by modeling the specific grids. MATES IV modeling predicted an excess cancer risk of 1,013 in 1 million for the region in the proposed project area. DPM is included in this cancer risk along with all other TAC sources. DPM accounts for 68 percent of the total risk shown in MATES IV.

Air Pollution Constituents and Attainment Status

The ARB coordinates and oversees both State and federal air pollution control programs in California. The ARB oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout California in conjunction with the EPA and local air districts. The ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by the ARB and EPA to classify air basins as

attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the AAQS.

Attainment areas may be:

- Attainment/Unclassified ("Unclassifiable" in some lists), which have never violated the air quality standard of interest or do not have enough monitoring data to establish attainment or nonattainment status;
- Attainment-Maintenance (national Ambient Air Quality Standards [NAAQS] only), which violated a NAAQS that is currently in use (was Nonattainment) in or after 1990, but now attains the standard and is officially redesignated as Attainment by the EPA with a Maintenance State Implementation Plan (SIP); or
- Attainment (usually only for California Ambient Air Quality Standards [CAAQS], but sometimes for NAAQS), which have adequate monitoring data to show attainment, have never been nonattainment, or, for NAAQS, have completed the official Maintenance period.

Nonattainment areas are imposed with additional restrictions as required by the EPA. The air quality data are also used to monitor progress in attaining air quality standards. Table E lists the attainment status for the criteria pollutants in the Basin.

Table E: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O_3 1-hour	Nonattainment	N/A
O_3 8-hour	Nonattainment	Extreme Nonattainment
PM_{10}	Nonattainment	Attainment/Maintenance
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment
Lead	Nonattainment[1]	Nonattainment[1]
All others	Attainment/Unclassified	Attainment/Unclassified

Source: Air Quality Standards and Area Designations (ARB 2016b). Website: http://www.arb.ca.gov/desig/desig.htm (accessed July 2019).

[1] Only in Los Angeles County. All other counties in California are in attainment.

CO = carbon monoxide
N/A = not applicable
NO_2 = nitrogen dioxide
O_3 = ozone
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SO_2 = sulfur dioxide

Ozone

O_3 (smog) is formed by photochemical reactions between oxides of nitrogen and reactive organic gases (ROGs) rather than being directly emitted. O_3 is a pungent, colorless gas typical of Southern California smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors (e.g., the sick, the elderly, and young children). O_3 levels peak during summer and early fall. The entire Basin is

designated as a nonattainment area for the State 1-hour and 8-hour O_3 standards. The EPA has officially designated the status for most of the Basin regarding the 8-hour O_3 standard as "Extreme Nonattainment," which means the Basin has until 2024 to attain the Federal 8-hour O_3 standard.

Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. CO is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. The entire Basin is in attainment for the State standards for CO. The Basin is designated as an "Unclassified/Attainment" area under the Federal CO standards.

Nitrogen Oxides

NO_2, a reddish brown gas, and nitric oxide (NO), a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as nitrogen oxides, or NOx. NOx is a primary component of the photochemical smog reaction. It also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition (i.e., acid rain). NO_2 decreases lung function and may reduce resistance to infection. The entire Basin is designated as attainment for the State NO_2 standard and as an "Unclassified/Attainment" area under the Federal NO_2 standard.

Sulfur Dioxide

SO_2 is a colorless irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight. The entire Basin is in attainment with both federal and State SO_2 standards.

Lead

Lead is found in old paints and coatings, plumbing, and a variety of other materials. Once in the bloodstream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead. Los Angeles County is in nonattainment with both federal and State standards (all other counties in California are in attainment).

Particulate Matter

Particulate matter (PM) is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (PM_{10}) derive from a variety of sources, including windblown dust and grinding operations. Fuel combustion and resultant exhaust from power plants and diesel buses and trucks are primarily responsible for fine particle ($PM_{2.5}$) levels. Fine particles can also be formed in the atmosphere through chemical reactions. PM_{10} can accumulate in the respiratory system and aggravate health problems (e.g., asthma). The EPA's scientific review concluded that $PM_{2.5}$, which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies at concentrations that extend well below those allowed by the current PM_{10} standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory

symptoms and disease (children and individuals with cardiopulmonary disease [e.g., asthma]); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms. The Basin is designated nonattainment for the federal and State $PM_{2.5}$ standards and State PM_{10} standard, and attainment/ maintenance for the federal PM_{10} standard.

Volatile Organic Compounds

Volatile organic compounds (VOCs; also known as ROGs and reactive organic compounds [ROCs]) are formed from the combustion of fuels and the evaporation of organic solvents. VOCs are not defined as criteria pollutants; however, because VOCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower, they are a prime component of the photochemical smog reaction. There are no attainment designations for VOCs.

Sulfates

Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently is converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of the State due to regional meteorological features. The entire Basin is in attainment for the State standard for sulfates.

Hydrogen Sulfide

H_2S is a colorless gas with the odor of rotten eggs. H_2S is formed during bacterial decomposition of sulfur-containing organic substances. In addition, H_2S can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance. The entire Basin is unclassified for the State standard for H_2S.

Visibility-Reducing Particles

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials (e.g., metals, soot, soil, dust, and salt). The statewide standard is intended to limit the frequency and severity of visibility impairment due to regional haze. The entire Basin is unclassified for the State standard for visibility-reducing particles.

LOCAL AIR QUALITY

The SCAQMD, together with the ARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring station closest to the site is the Pomona Station, 924 N. Garey Ave., Pomona, which monitors criteria air pollutant data. Upland Station 1350 San Bernardino Road which monitors criteria air pollutant data. The air quality trends from this station are used to represent the ambient air quality in the project area. The pollutants monitored are CO, O_3, PM_{10}, $PM_{2.5}$, NO_2, and

SO_2.[1,2] The ambient air quality data in Table F show that NO_2, SO_2, and CO levels are within the applicable State and federal standards. As detailed in Table F, the State 1-hour O_3 standard was exceeded 22 to 47 times per year in the past three years.

Table F: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Ozone (O_3) – taken from Pomona Station				
Maximum 1-hour concentration (ppm)		0.127	0.147	0.112
Number of days exceeded:	State: > 0.09 ppm	20	18	7
Maximum 8-hour concentration (ppm)		0.092	0.114	0.092
Number of days exceeded:	State: > 0.070 ppm	29	38	11
	Federal: > 0.070 ppm	26	35	10
Coarse Particulates (PM_{10}) – taken from Upland Station				
Maximum 24-hour concentration (µg/m^3)		184.0	106.5	156.6
Number of days exceeded:	State: > 50 µg/m^3	6	9	7
	Federal: > 150 µg/m^3	1	0	1
Annual arithmetic average concentration (µg/m^3)		26.3	32.8	33.4
Exceeded for the year:	State: > 20 µg/m^3	Yes	Yes	Yes
Fine Particulates ($PM_{2.5}$) – taken from Upland Station				
Maximum 24-hour concentration (µg/m^3)		44.9	53.2	47.9
Number of days exceeded:	Federal: > 35 µg/m^3	5	7	3
Annual arithmetic average concentration (µg/m^3)		17.6	14.5	12.6
Exceeded for the year:	State: > 12 µg/m^3	Yes	Yes	Yes
	Federal: > 15 µg/m^3	Yes	No	No
Nitrogen Dioxide (NO_2) – taken from Upland Station				
Maximum 1-hour concentration (ppm)		0.071	0.064	0.059
Number of days exceeded:	State: > 0.18 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.016	0.015	0.014
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Carbon Monoxide (CO) – taken from Upland Station				
Maximum 1-hour concentration (ppm)		1.7	1.9	1.7
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.3	1.4	1.2
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9 ppm	0	0	0
Sulfur Dioxide (SO_2) – taken from Riverside-Rubidoux Station				
Maximum 24-hour concentration (ppm)		0.001	0.001	0.001
Number of days exceeded:	State: > 0.04 ppm	0	0	0

1 United States Environmental Protection Agency. Air Quality Data. Website: https://www.epa.gov/outdoor-air-quality-data (accessed October 2019).

2 California Air Resources Board (ARB). iADAM: Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed October 2019).

Table F: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.0002	0.0002	0.0002
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No

Note: All monitored data were recorded at the Pomona, Upland and Riverside-Rubidoux Monitoring Stations.
Source 1: U.S. Environmental Protection Agency. Air Quality Data. Website: https://www.epa.gov/outdoor-air-quality-data (accessed October 2019).
Source 2: California Air Resources Board. iADAM Air Quality Data Statistics. Website: http://www.arb.ca.gov/adam (accessed October 2019).

$\mu g/m^3$ = micrograms per cubic meter
O_3 = ozone
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ND = no data available
PM_{10} = particulate matter less than 10 microns in size
ppm = parts per million

The Federal 8-hour O_3 standard was exceeded 10 to 35 days per year in the past three years, and the State 8-hour O_3 standard was exceeded 11 to 38 times per year in the past three years. The Federal 24-hour PM_{10} standard was not exceeded in the past three years, but the State 24-hour PM_{10} standard was exceeded 6 to 9 days per year in the past three years. The State's annual PM_{10} standard was exceeded in each of the years from 2016 to 2018. The Federal 24-hour $PM_{2.5}$ standard was exceeded 5 to 9 days per year in the past three years and the State's annual $PM_{2.5}$ standard was exceeded in 2016 and 2018.

REGULATORY SETTINGS

Federal Regulations/Standards

Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "nonattainment," depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with the requirements of the CAA for the Basin.

In April 2003, the EPA was cleared by the White House Office of Management and Budget to implement the 8-hour ground-level O_3 standard. The EPA issued the proposed rule implementing the 8-hour O_3 standard in April 2003. The EPA completed final 8-hour nonattainment status on April 15, 2004. The EPA revoked the 1-hour O_3 standard on June 15, 2005, and lowered the 8-hour O_3 standard from 0.08 ppm to 0.075 ppm on April 1, 2008.

The EPA issued the final $PM_{2.5}$ implementation rule in fall 2004. The EPA lowered the 24-hour $PM_{2.5}$ standard from 65 to 35 $\mu g/m^3$ and revoked the annual PM_{10} standard on December 17, 2006. The EPA issued final designations for the 2006 24-hour $PM_{2.5}$ standard on December 12, 2008.

The United States has historically had a voluntary approach to reducing GHG emissions. However, on April 2, 2007, the United States Supreme Court ruled that the EPA has the authority to regulate CO_2 emissions under the CAA. While there currently are no adopted Federal regulations for the control or reduction of GHG emissions, the EPA commenced several actions in 2009 that are required to implement a regulatory approach to GHG.

On September 30, 2009, the EPA announced a proposal that focuses on large facilities emitting over 25,000 tons of GHG emissions per year. These facilities would be required to obtain permits that would demonstrate they are using the best practices and technologies to minimize GHG emissions.

On December 7, 2009, the EPA Administrator signed a final action under the CAA, finding that six GHGs (i.e., CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare, and that the combined emissions from motor vehicles cause and contribute to GHG. This EPA action does not impose any requirements on industry or other entities. However, the findings are a prerequisite to finalizing the GHG emission standards for light-duty vehicles discussed below.

On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a final joint rule to establish a national program consisting of new standards for model year 2012 through 2016 light-duty vehicles that will reduce GHG emissions and improve fuel economy. The EPA has finalized the first-ever national GHG emissions standards under the CAA, and NHTSA has finalized Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act on August 16, 2016. The EPA GHG standards require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 miles per gallon.

On September 15, 2011, the EPA and the National Highway Traffic Safety Administration issued a final rule of *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles* (76 Fed. Reg. 7106). This final rule is tailored to each of three regulatory categories of heavy-duty vehicles—combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. The EPA and the National Highway Traffic Safety Administration estimated that the new standards in this rule will reduce CO_2 emissions by approximately 270 million metric tons (MMT) and save 530 million barrels of oil over the life of vehicles sold during the 2014 through 2018 model years.

In January 2012, the ARB approved a vehicle emission control program for model years 2017 through 2025. This is called the Advanced Clean Cars Program. On August 28, 2012, the EPA and NHTSA issued a joint final rulemaking to establish 2017 through 2025 GHG emissions and CAFE standards. To further California's support of the national program to regulate emissions, the ARB submitted a proposal that would allow automobile manufacturer compliance with the EPA's requirements to show compliance with California's requirements for the same model years. The Final Rulemaking Package was filed on December 6, 2012, and the final rulemaking became effective on December 31, 2012.

On August 24, 2018, the EPA and NHTSA proposed the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021– 2026 Passenger Cars and Light Trucks. The SAFE Vehicles Rule, if finalized, would amend certain existing CAFE and tailpipe CO_2 emissions standards for passenger

cars and light trucks and establish new standards, all covering model years 2021 through 2026. More specifically, NHTSA is proposing new CAFE standards for model years 2022 through 2026 and amending its 2021 model year CAFE standards, and the EPA is proposing to amend its CO_2 emissions standards for model years 2021 through 2025 in addition to establishing new standards for model year 2026. The agencies proposed to retain the model year 2020 standards for both programs through model year 2026, but also requested comment on a range of other alternatives.

State Regulations/Standards

In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus, the Bureau of Air Sanitation, and the Motor Vehicle Pollution Control Board, to establish the ARB. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to the State's air pollution problems.

California adopted the CCAA in 1988. The ARB administers the CAAQS for the 10 air pollutants designated in the CCAA. The 10 State air pollutants are the six criteria pollutants designated by the CAA as well as four others: visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The CAAQS are generally more stringent than the NAAQS. Originally, there were no attainment deadlines for CAAQS; however, the CCAA of 1988 provided a time frame and a planning structure to promote their attainment. The CCAA required nonattainment areas in the State to prepare attainment plans and proposed to classify each such area on the basis of the submitted plan. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of nonattainment pollutants unless all feasible measures have been implemented.

California Climate Action Milestones

AB 1493, authored by Assembly Member Fran Pavley in 2002, directed the ARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. The so-called "Pavley" regulations, or Clean Car regulations, were approved by the ARB in 2004. The ARB submitted a request to the EPA to implement the regulations in December 2005. After several years of requests to the federal government, and accompanying litigation, this waiver request was granted on June 30, 2009. The ARB has since combined the control of smog-causing pollutants and GHG emissions to develop a single coordinated package of standards known as Low Emission Vehicles III. These regulations were expected to reduce GHG emissions from State-passenger vehicles by approximately 22 percent in 2012 and approximately 30 percent in 2016, all while improving fuel efficiency and reducing motorists' costs. AB 1493 also directed the State's Climate Action Registry to adopt protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

SB 812 added forest management practices to the State's Climate Action Registry members' reportable emissions actions. SB 812 also directed the Climate Action Registry to adopt forestry procedures and protocols to monitor, estimate, calculate, report, and certify CO stores and CO_2 emissions that resulted from the conservation and conservation-based management of forests in California.

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission (CPUC) to meet 20 percent of their retail sales with renewable power by 2017, was established by SB 1078 in 2002. The renewable portfolio standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by the ARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The renewable electricity standard is projected to reduce GHG emissions from the electricity sector by at least 12 MMT CO_2e in 2020.

EO S-3-05 (June 2005) established GHG targets for the State including returning to year 2000 emission levels by 2010; 1990 levels by 2020; and 80 percent below 1990 levels by 2050. EO S-3-05 directed the Secretary of CalEPA to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team (CAT).

AB 32 and ARB's Climate Change Scoping Plan

In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. Under AB 32, ARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. ARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 relatedly authorized ARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, ARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

AB 32 required the ARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. In 2007, ARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e). ARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, ARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *Scoping Plan* establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all ARB and CAT early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (ARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33 percent;

3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the *Scoping Plan*, ARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business As Usual" [BAU]). For purposes of calculating this percentage reduction, ARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would affect vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *Scoping Plan's* Functional Equivalent Document, ARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, ARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection also was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewable Portfolio Standard (12 to 20 percent), the ARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

More recently, in 2014, ARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* is to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050."

As part of the *First Update*, ARB recalculated the State's 1990 emissions level using more recent global warming potentials identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO_2e) and the revised 2020 emissions level projection identified in the 2011 Final Supplement, the ARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15 percent (instead of 28.5 percent or 16 percent) from the BAU conditions.

On December 14, 2017, the ARB adopted The *2017 Climate Change Scoping Plan Update* (Second Update) (ARB 2017). This update proposes the ARB's strategy for achieving the State's 2030 GHG target as established in SB 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20 percent. The *Second Update* incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by the ARB in March 2017) and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. The 2017 Climate Change Scoping Plan (November 2017, adopted December 14, 2017) builds on and integrates efforts already underway to reduce the State's GHG, criteria pollutant, and toxic air contaminant emissions. The 2017 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 sets an interim target goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to ARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also calls for State agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets; make changes to the ARB's membership, and increase legislative oversight of the ARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability.

More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring the ARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the State's climate policies. AB 197 also added two members of the Legislature to the ARB as nonvoting members; requires the ARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires the ARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

SB 605 and SB 1383

SB 605 (2014) requires the ARB to complete a comprehensive strategy to reduce emissions of SLCPs in the State; and SB 1383 (2016) requires the ARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40 percent below 2013 levels by 2030 for methane and HFCs, and 50 percent below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as noted above, the ARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Reduction Strategy*) in March 2017. The *SLCP Reduction Strategy* establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. The CEC is required by law to adopt standards every three years that are cost effective for homeowners over the 30-year lifespan of a building (CEC 2015). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The project would be required to comply with 2019 Title 24 standards because its building construction phase would commence after January 1, 2020. This analysis does not quantify the increased energy efficiency and corresponding GHG emissions savings associated with the more stringent 2019 Title 24 standards, which results in a conservative assessment of GHG emission savings because the 2019 Title 24 standards have been documented to reduce energy usage (e.g., for lighting, heating, cooling, ventilation, and water heating) and associated GHG emissions. It should be noted that the 2016 Title 24 energy data are used in the California Emission Estimator Model (CalEEMod) version 2016.3.2.

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and State-owned buildings and schools and hospitals. The CALGreen 2019 standards would become effective on January 1, 2020. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings;

- Mandatory reduction in outdoor water use through compliance with a local water-efficient landscaping ordinance or the California Department of Water Resources' Model;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency;
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations; and
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 65 percent diversion of construction and demolition waste, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The CPUC, CEC, and ARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030.[1] As defined by the CEC in its 2019 *Integrated Energy Policy Report*, a zero net energy code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric (CEC 2019).

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet State and Federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. Title 20 contains three types of standards for appliances: federal and State standards for federally regulated appliances, State standards for federally regulated appliances, and State standards for non-federally regulated appliances.

SB 1. SB 1 (2006) established a $3 billion rebate program to support the goal of the State to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the State to establish a self-sufficient solar industry in which solar energy systems are a

[1] See, e.g., CPUC, California's Zero Net Energy Policies and Initiatives, Sept. 18, 2013, accessed at http://www.cpuc.ca.gov/NR/rdonlyres/C27FC108-A1FD-4D67-AA59-7EA82011B257/0/3.pdf. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

viable mainstream option for both homes and businesses within 10 years of adoption, and to place solar energy systems on 50 percent of new homes within 13 years of adoption. SB 1, also termed "GoSolarCalifornia," was previously titled "Million Solar Roofs."

AB 1470. This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50 percent for indoor residential lighting and 25 percent for indoor commercial lighting.

Mobile Sources

AB 1493. In a response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required the ARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the State Board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that the ARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. The ARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. The ARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required the ARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035.

Regional MPOs are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plans (RTPs). The goal of the SCS is to establish a forecast development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG

reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), an SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the State-mandated housing element process.

In 2010, the ARB adopted the SB 375 targets for the regional MPOs. The targets for SCAG are an 8 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035. SCAG completed and adopted its *2016 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) in April 2016.

Renewable Energy and Energy Procurement

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SB 350. SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

Water

EO B-29-15. In response to the then-ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 341. In 2011,

AB 341 amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to

develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the State in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2015). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

Other State Regulations and Goals

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs State agencies to take specified actions to assess and plan for such impacts. The final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009), and an update, *Safeguarding California: Reducing Climate Risk*, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water.

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33 percent to 50 percent, a reduction in vehicle petroleum use for cars and trucks by up to 50 percent, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than two degrees Celsius by 2050. The Under 2 MOU agreement pursues emission reductions of 80 percent to 95 percent below 1990 levels by 2050 and/or reaches a per capita annual emissions goal of less than two metric tons by 2050. A total of 135 jurisdictions representing 32 countries and six continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established SCAQMD and other air districts throughout the State. The Federal CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in its nonattainment areas.

The ARB is responsible for incorporating AQMPs for local air basins into an SIP for EPA approval. Significant authority for air quality control within them has been given to local air districts that regulate stationary-source emissions and develop local nonattainment plans.

Regional Air Quality Management Plan

The SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. Every three years, the SCAQMD prepares a new AQMP, updating the previous plan and 20-year horizon. The SCAQMD adopted the 2016 AQMP in March 3, 2017 (SCAQMD 2017). The ARB approved the plan on March 10, 2017, and forwarded the AQMP to the EPA.

The Final 2016 AQMP incorporates the latest scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories. The Final 2016 AQMP included the new and changing federal requirements, implementation of new technology measures, and continued development of economically sound, flexible compliance approaches. The AQMP also provides policies and measures to guide responsible agencies in achieving federal standards for healthful air quality in the Basin. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources.

The SCAQMD adopts rules and regulations to implement portion of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measure during active construction periods capable of generating fugitive dust emissions from on-site earthmoving activities, construction/ demolition activities, and construction equipment travel on paved and unpaved roads.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate the air quality issues associated with new development projects within the Basin, such as the proposed project. Instead the SCAQMD published the *CEQA Air Quality Handbook* (SCAQMD 1993) to assist lead agencies, as well as consultants, project proponents, and other interested parties, in evaluating potential air quality impacts of projects proposed in the Basin. The *CEQA Air Quality Handbook* provides standards, methodologies, and procedures for conducting air quality analyses in EIRs and was used extensively in the preparation of this analysis. The SCAQMD is currently in the process of replacing the *CEQA Air Quality Handbook* with the *Air Quality Analysis Guidance Handbook*.[1]

In order to assist the California Environmental Quality Act (CEQA) practitioner in conducting an air quality analysis in the interim while the replacement *Air Quality Analysis Guidance Handbook* is being prepared, supplemental guidance/information is provided on the SCAQMD website and includes (1) Emission FACtors (EMFAC) on-road vehicle emission factors; (2) background CO concentrations; (3) localized significance thresholds; (4) mitigation measures and control efficiencies; (5) mobile source toxics analysis; (6) off-road mobile source emission factors; (7) $PM_{2.5}$ significance thresholds and calculation methodology; and (8) updated SCAQMD Air Quality

[1] SCAQMD, Air Quality Analysis Handbook, www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook, accessed October 2017.

Significance Thresholds. The SCAQMD also recommends using approved models to calculate emissions from land use projects, such as the California Emissions Estimator Model (CalEEMod). These recommendations were followed in the preparation of this analysis.

The following SCAQMD rules and regulations would be applicable to the proposed project.

- SCAQMD Rule 402 requires projects to prevent nuisance effects on neighborhood.
- SCAQMD Rule 403 requires projects to incorporate fugitive dust control measures.
- SCAQMD Rule 1113 limits the VOC content of architectural coatings.

Regional Transportation Plan

Southern California Association of Governments is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and State air quality requirements, including the *Transportation Conformity Rule* and other applicable federal, State, and air district laws and regulations. As the federally designated MPO for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and State air quality plans to attain NAAQS. In addition, SCAG is a co-producer with SCAQMD of the transportation strategy and transportation control measure sections of the AQMP for the Basin. With regard to future growth, SCAG adopted the 2016 RTP/SCS in April 2016, which provides population, housing, and employment projections for cities under its jurisdiction. The growth projections in the 2016 RTP/SCS are based in part on projections originating under County and City General Plans. These growth projections were utilized in the preparation of the air quality forecasts and consistency analysis included in the 2016 AQMP.

City of Claremont General Plan 2025

The Open Space, Parkland, Conservation and Air Quality Element of the *City of Claremont General Plan 2009* (City of Claremont 2009) include air quality policies intended to limit sources of air pollution and sensitive receptor exposure. The following policies are applicable to the project:

- **Goal 5-18:** Reduce the amount of air pollution emissions from mobile and stationary sources and enhance the airshed..
- **Policy 5-18.1:** Enhance pedestrian and bike facilities within the City and encourage alternative modes of transportation.
- **Policy 5-18.2:** Encourage the use of clean fuel vehicles.
- **Policy 5-18.3:** Promote the use of fuel-efficient heating and cooling equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.
- **Policy 5-18.4:** Promote the use of clean air technologies such as fuel cell technologies, renewable energy sources. UV coatings, and alternative, non-fossil fuels.

- **Policy 5-18.5:** Continue to require the planting of street trees along City streets and inclusion of trees and landscaping for all development projects to help improve airshed and minimize urban heat island effects.
- **Policy 5-18.6:** Encourage small businesses to utilize clean, innovative technologies to reduce air pollution.
- **Policy 5-18.7:** Implement principles of green building.
- **Policy 5-18.8:** Support jobs/housing balance within the community so more people can both live and work within the community. To reduce vehicle trips. encourage people to telecommute or work out of home or in local satellite offices.
- **Goal 5-19:** Reduce the amount of fugitive dust released into the atmosphere.
- **Policy 5-19.1:** Support programs and policies of the South Coast Air Quality Management District regarding restrictions on grading operations at construction projects.
- **Policy 5-19.2:** Cooperate with local, regional, state, and federal jurisdictions to control fugitive dust from stationary, mobile. and area sources.
- **Policy 5-19.3:** Enforce regulations that do not allow vehicles to transport aggregate or similar material upon a roadway unless the material is stabilized or covered, in accordance with state law and South Coast Air Quality Management District regulations.

The Open Space and Conservation Element of the City of General Plan (City of Upland 2015) include policies intended to reduce GHGs. Many of the policies described in Section 4.1, Air Quality, and Section 4.12, Energy Conservation, would also apply to GHGs. Additional policies that may be applicable to the project include the following:

- **Policy OSC-4.1** Land Use Patterns. Promote land use patterns that reduce the number and length of motor vehicle trips.
- **Policy OSC-4.2** Compact Development. Where development opportunities near shopping areas and transit corridors exist, prioritize higher-density residential development.
- **Policy OSC-4.3** Mixed Retail Development. Encourage employment areas to include a mix of retail support services, and allow new small-scale retail and service uses within established residential neighborhoods to reduce vehicle trips.
- **Policy OSC-4.4** Separation of Sensitive Land Uses. To the extent practicable, separate sensitive land uses (schools, senior centers, medical facilities, and residences) from significant sources of air pollutants, toxic air contaminants, or odor emissions.
- **Policy OSC-4.5** Design of Sensitive Uses. Require new development with sensitive uses located adjacent to mobile and stationary toxic air contaminants to be designed with consideration of site and building orientation, location of trees, and incorporation of appropriate technology for improved air quality (i.e., ventilation and filtration) to lessen any potential health risks.

- **Policy OSC-4.6** Protect all Residents Equally. Ensure that all land use decisions are made in an equitable manner in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.
- **Policy OSC-4.7** Proximity to Freeways. Require developers of projects that include sensitive land uses (schools, senior centers, medical facilities, and residences) within 500 feet of State Route 210 and Interstate 10 to prepare a health impact assessment (HIA) to determine the significance of the impact, and to incorporate project-specific mitigation measures to avoid this risk.
- **Policy OSC-4.8** Reduction in Commuting. Promote expansion of employment opportunities within Upland to reduce commuting to areas outside of the City.
- **Policy OSC-4.9** Rideshare Incentives. Encourage employers to offer employees incentives for ridesharing.
- **Policy OSC-4.10** Vehicle Idling. Continue to enforce the vehicle idling restrictions established by the State.
- **Policy OSC-4.11** New Development. Review proposed development projects as required by CEQA to ensure projects incorporate feasible measures that reduce construction and operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM10 and PM2.5) through project design.
- **Policy OSC-4.12** Health Risk Assessment. New sources of toxic air pollutants shall prepare a Health Risk Assessment as required by Section 44300 of the California Health and Safety Code. The Assessment shall be used to establish appropriate land use buffer zones around those areas posing substantial health risks based upon the California Air Resources Board's guidance provided in the Air Quality Land Use Handbook.
- **Policy OSC-4.13** Best Management Practices. Require best management practices to reduce air pollution associated with construction of development projects.
- **Policy OSC-4.14** Construction Mitigation. Review construction plans associated with development projects to determine if all feasible mitigation measures are included.
- **Policy OSC-4.15** Green Building Practices. Promote green building practices that support healthy indoor living and working environments that are well-ventilated and contaminant-free.
- **Policy OSC-4.16** Lead Abatement. Support lead-abatement programs.
- **Policy OSC-4.17** Mold Growth. Disseminate information about methods for reducing mold growth.
- **Policy OSC-4.18** Coordinated Planning. Coordinate air quality planning efforts with other local, regional and State agencies, and encourage community participation in air quality planning.

- **Policy OSC-4.19** Community Involvement. Design and conduct efforts to involve the public and affected/interested parties in the implementation of air quality improvement plans and programs. This may include public forums and workshops, community and education programs, informational brochures and web postings, and a variety of other media forms to maximize citizen involvement.

Greenhouse Gas Reduction Measures

By using energy more efficiently, harnessing renewable energy to power buildings and vehicles, improving access to sustainable transportation modes, recycling more waste, conserving water, and building local food systems, the Cities can support the local economy, create new green jobs, and improve public health and community quality of life. The GHG reduction measures are organized into four primary sectors, as defined by the following policy goals:

- **Energy:** Measures will increase communitywide building and equipment efficiency and renewable energy use, and promote energy efficiency and renewable energy generation for use supporting municipal operations that support the community.
- **Transportation and Land Use:** Measures will reduce single-occupancy vehicle travel, increase non-motorized travel, improve public transit access, increase motor vehicle efficiency, encourage alternative fuel vehicles, and promote sustainable growth patterns.
- **Water:** Measures will conserve potable water and reduce water demand by the community and municipal operations.
- **Solid Waste:** Measures will reduce solid waste sent to landfills that is generated by the community and municipal operations.

AB 32 directs California to reduce statewide GHG emissions to 1990 levels by 2020. To achieve these reductions, the ARB recommends that local governments target their 2020 emissions at 15 percent below “current” levels, consistent with the statewide commitment, to account for emissions growth that has occurred since 1990. A 15 percent reduction target is deemed to be consistent with the statewide AB 32 goal of reducing emissions to 1990 levels and is in line with current best practice for CAPs developed for numerous California cities.

THRESHOLDS OF SIGNIFICANCE

SCAQMD's *CEQA Air Quality Handbook* (SCAQMD 1993), with associated updates, and the City's *Environmental Quality Act Guidelines* were followed in the assessment of air quality impacts for the proposed project.

This air quality and GHG impact analysis includes estimated emissions associated with short-term construction and long-term operation of the proposed project. Criteria pollutants with regional impacts would be emitted by project-related vehicular trips, as well as by emissions associated with stationary sources used on site.

The net increase in pollutant emissions determines the significance and impact on regional air quality as a result of the proposed project. The results also allow the local government to determine whether the proposed project will deter the region from achieving the goal of reducing pollutants in accordance with the AQMP in order to comply with the NAAQS and CAAQS.

Based on *Guidelines for the Implementation of California Environmental Quality Act,* Appendix G, Public Resources Code (PRC) Sections 15000–15387, a project would normally be considered to have a significant effect on air quality if the project would violate any CAAQS, contribute substantially to an existing air quality violation, expose sensitive receptors to substantial pollutants concentrations, or conflict with adopted environmental plans and goals of the community in which it is located. The following significance thresholds are contained in Appendix G of the *CEQA Guidelines.* A significant impact would occur if a project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) affecting a substantial number of people.

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

According to the SCAQMD, if an individual project results in emissions of criteria air pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then the project would also result in a cumulatively considerable net increase of these criteria pollutants.

POLLUTANTS WITH REGIONAL EFFECTS

The SCAQMD has established daily emissions thresholds for construction and operation of a proposed project in the Basin. The emissions thresholds were established based on the attainment

status of the Basin with regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety (EPA), these emissions thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

Regional Thresholds for Construction and Operational Emissions

The City utilizes the SCAQMD *CEQA Air Quality Handbook* to identify potentially significant impacts on air quality. For the purposes of this analysis, an impact is considered significant if a project:

1. Generates total emissions (direct and indirect) in excess of the thresholds given in Table G;
2. Generates a violation of any ambient air quality standard when added to the local background;
3. Does not conform with the applicable attainment or maintenance plan(s); or
4. Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to ten in a million, and/or a health index (non-cancerous) greater than or equal to one.

Table G: SCAQMD Significance Thresholds

Air Pollutant	Construction Phase	Operational Phase
VOCs	75 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
NOx	100 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day

Source: South Coast Air Quality Management District (2016).

CO = carbon monoxide
lbs = pounds
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
VOCs = volatile organic compounds
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides

Projects in the Basin with operational emissions that exceed any of these emission thresholds are considered to be significant under SCAQMD guidelines. These thresholds, which apply throughout the Basin and were developed by the SCAQMD, apply as both project and cumulative thresholds. If a project exceeds these standards, it is considered to have a project-specific and cumulative impact.

Local Microscale Concentration Standards

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. Typically, for an intersection to exhibit a significant CO concentration, it would operate at level of service (LOS) E or worse without improvements (Caltrans 1997). The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards. If ambient levels are below the standards, a project is considered to have a

significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or Federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm; and
- California State 8-hour CO standard of 9.0 ppm.

THRESHOLDS FOR LOCALIZED IMPACTS ANALYSIS

The SCAQMD published its *Final Localized Significance Threshold Methodology* in June 2003 and updated it in July 2008 (SCAQMD 2003), recommending that all air quality analyses include an assessment of both construction and operational impacts on the air quality of nearby sensitive receptors. Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative. The LST methodology was adopted by the SCAQMD Governing Board in October 2003 (SCAQMD 2003). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable NAAQS or CAAQS, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LSTs, which are voluntary, only apply to CO, NO_2, PM_{10}, and $PM_{2.5}$ emissions during construction and operation at the discretion of the lead agency. LSTs are based on the CAAQS, which are the most stringent AAQS that have been established to provide a margin of safety in the protection of public health and welfare. They are designated to protect sensitive receptors most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. LSTs are based on the size of the project site, distance to the nearest sensitive receptor, and Source Receptor Area. Receptors proximate to the Project Site are the residences to the northwest at 475 feet in distance and southeast at 500 feet in distance.

The Proposed Project would disturb up to 9.5 acres during construction. As previously described, the SCAQMD has produced look-up tables for projects that disturb ≤ 5 acres daily. The SCAQMD has also issued a methodology[1] on applying the CalEEMod emissions software to LSTs for projects greater than five acres. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment. Based on the SCAQMD recommendations and the construction equipment planned, no more than 2 acres[2] would be disturbed on any one day; thus, the 2-acre LSTs have been used for construction emissions.

On-site operational emissions would occur from stationary and mobile sources. On-site vehicle emissions are the largest source of emissions and it is assumed that the on-site travel routes for the

[1] SCAQMD. *Fact Sheet for Applying CalEEMod to Localized Significance Thresholds*. Website: www.aqmd. gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf (accessed April 2018).

[2] A maximum disturbance of 1.5 acres would occur during the grading phase from the use of one rubber-tired dozer, one excavator, and one grader for 8 hours per day.

proposed project would occupy up to 5 acres of the surface area. Therefore, the 5-acre thresholds would apply during project operations.

Sensitive receptors include residences, schools, hospitals, and similar uses that are sensitive to adverse air quality. The nearest residential land use is 475 feet (145 m) to the northeast of the project site. Therefore, the following emissions thresholds for the Pomona/Walnut Valley (SRA 10) apply during project construction and operation:

- Construction LSTs:
  - 275 lbs/day of NOx;
  - 3,558 lbs/day of CO;
  - 47 lbs/day of PM_{10}; and
  - 15 lbs/day of $PM_{2.5}$.
- Operation LSTs:
  - 373 lbs/day of NOx;
  - 5,185 lbs/day of CO;
  - 16.2 lbs/day of PM_{10}; and
  - 5.4 lbs/day of $PM_{2.5}$.

THRESHOLDS FOR POLLUTANTS THAT AFFECT GREENHOUSE GAS

CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

For the purpose of this analysis, Appendix G of the *CEQA Guidelines* has been used as the significance threshold for GHG emissions. A project would normally have a significant effect on the environment if the project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Background on GHG Thresholds

As the SCAQMD has recognized, the analysis of GHGs is a much different analysis than the analysis of criteria pollutants for the following reasons. For criteria pollutants, significance thresholds are

based on daily emissions because attainment or nonattainment is based on daily exceedances of applicable AAQS. Furthermore, several AAQS are based on relatively short-term exposure effects on human health (e.g., 1-hour and 8-hour). However, since the half-life of CO_2 is approximately 100 years, for example, the effects of GHGs are longer term and affect global climate over a relatively long time frame. As a result, the SCAQMD's current position is to evaluate GHG effects over a longer time frame than a single day.

The recommended approach for GHG analysis included in the Office of Planning and Research (OPR) June 2008 release is to (1) identify and quantify GHG emissions, (2) assess the significance of the impact on GHG, and (3) if significant, identify alternatives and/or mitigation measures to reduce the impact to below a level of significance. The June 2008 OPR guidance provides some additional direction regarding planning documents as follows: "CEQA can be a more effective tool for GHG emissions analysis and mitigation if it is supported and supplemented by sound development policies and practices that will reduce GHG emissions on a broad planning scale and that can provide the basis for a programmatic approach to project-specific CEQA analysis and mitigation. For local government lead agencies, adoption of general plan policies and certification of general plan EIRs that analyze broad jurisdiction-wide impacts of GHG emissions can be part of an effective strategy for addressing cumulative impacts and for streamlining later project-specific CEQA reviews."

The State CEQA Guidelines for GHG emissions state: *CEQA Guidelines* Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further, states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

While individual projects are unlikely to measurably affect GHG, each project incrementally contributes toward the potential for GHG on a cumulative basis, in concert with all other past, present, and probable future projects. However, despite this, neither the CEQA statutes nor the OPR guidelines, nor the draft proposed changes to the *CEQA Guidelines* currently prescribe thresholds of significance or a particular methodology for performing an impact analysis. As with most environmental topics, significance criteria are left to the judgment and discretion of the lead agency.

The SCAQMD has adopted a significance threshold of 10,000 MT CO_2e per year (MT CO_2e/yr) for permitted (stationary) sources of GHG emissions for which SCAQMD is the designated lead agency. To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1. Exemptions:** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2. Consistency with a locally adopted GHG Reduction Plan:** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG

emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3. Numerical Screening Threshold:** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant.

For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a "bright-line" screening-level threshold of 3,000 MT CO_2e/yr for all land use types or, under Option 2, the following land-use-specific thresholds: 1,400 MT CO_2e for commercial projects, 3,500 MT CO_2e for residential projects, or 3,000 MT CO_2e for mixed-use projects. This bright-line threshold is based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4. Performance Standards:** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per capita efficiency targets. SCAQMD is not recommending use of a percent emissions reduction target. Instead, SCAQMD proposes a 2020 efficiency target of 4.8 MT CO_2e per year per service population (MT CO_2e/year/SP) for project-level analyses and 6.6 MT CO_2e/year/SP for plan-level projects (e.g., program-level projects such as general plans). The GHG efficiency metric divides annualized GHG emissions by the service population, which is the sum of residents and employees, per the following equation:

  Rate of Emission: GHG Emissions (MT CO_2e/yr) ÷ Service Population

The efficiency evaluation consists of comparing the project's efficiency metric to efficiency targets. Efficiency targets represent the maximum quantity of emissions each resident and employee in the State of California could emit in various years based on emission levels necessary to achieve the statewide GHG emissions reduction goals. A project that results in a lower rate of emissions would be more efficient than a project with a higher rate of emissions, based on the same service population. The metric considers GHG reduction measures integrated into a project's design and operation (or through mitigation). The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for the ARB's 2008 Scoping Plan.

The Proposed Project is not except from the Tier 1 threshold. Under Tier 2 threshold, the Cities of Claremont and Upland have not yet adopted any GHG reduction plans. For the purpose of this analysis, the Proposed Project will first be compared to the SCAQMD interim screening level Tier 3 numerical screening threshold of 3,000 MT CO_2e/yr for residential mixed-use development such as the Proposed Project. If it is determined that the Proposed Project is estimated to exceed this screening threshold under Tier 3, it will then be compared to the SCAQMD-recommended Tier 4 efficiency-based threshold of 4.8 metric tons of CO_2e per service population per year in 2020, and 3.0 metric tons of CO_2e per service population per year in 2035.

IMPACTS AND MITIGATION

Air pollutant emissions associated with the project would occur over the short term from construction activities (e.g., fugitive dust from site preparation and grading) and emissions from equipment exhaust. Long-term regional emissions associated with the project would result from vehicular trips and energy consumption (e.g., electricity usage) by the proposed land uses.

CONSTRUCTION IMPACTS

Equipment Exhaust and Related Construction Activities

Construction activities produce combustion emissions from various sources (e.g., demolition, site preparation, grading, utility engines, tenant improvements, and motor vehicles transporting the construction crew). Exhaust emissions from construction activities envisioned on site would vary daily as construction activity levels change. The use of construction equipment on site would result in localized exhaust emissions. Air pollutant emission sources during project construction would include:

- Exhaust and particulate emissions generated from construction equipment;
- Fugitive dust from soil disturbance during site preparation, grading, and excavation activities; and
- Volatile compounds that evaporate during site paving and painting of the structures.

The purpose of this air quality analysis is to review reasonably foreseeable worst-case, air quality impacts due to construction and occupancy of the project and develop programmatic mitigation measures to address impacts. To accomplish this, the project engineer, the developer, and LSA worked together to develop a preliminary grading plan, construction equipment list, reasonably foreseeable construction activities phasing plan with overlapping phases indicative of incremental development. The analysis using the preliminary construction planning allows for a project-level analysis and mitigation associated with construction activities.

For purposes of air quality analysis, it is assumed that construction would happen in phases. Each individual phase of project development would include the following construction activities:

- Site preparation;
- Grading;
- Building construction;
- Paving and surface improvement; and
- Architectural coating (painting).

The application of paving and architectural coating starts right after building construction and is assumed to continue throughout the construction process.

The construction analysis includes estimating the construction equipment that would be used during each construction activity, the hours of use for that construction equipment, the quantities of earth and debris to be moved, and on-road vehicle trips (worker, soils hauling, and vendor trips). The proposed earthwork for the project assumes balanced cut and fill. CalEEMod modeling and defaults are assumed for the construction activities, off-road equipment, on-road construction fleet mix and trip lengths. Table H lists the tentative project construction schedule for the proposed project based on a probable start date in 2020 and a planned opening in 2021. Table I lists the potential construction equipment to be used during project construction under each project phase.

Table H: Tentative Project Construction Schedule

Phase Number	Phase Name	Number of Days
1	Site Preparation	10
2	Grading	20
3	Building Construction	230
4	Paving	20
5	Architectural Coating	20

Source: Estimated by LSA from the site plan (assuming a 2021 opening year) (January 2020).

Table I: Diesel Construction Equipment Utilized by Construction Phase

Construction Phase	Off-Road Equipment Type	Off-Road Equipment Unit Amount	Hours Used per Day	Horsepower	Load Factor
Site Preparation	Rubber-Tired Dozers	3	8	247	0.40
	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	1	8	158	0.38
	Graders	1	8	187	0.41
	Rubber-Tired Dozers	1	8	247	0.40
	Tractors/Loaders/Backhoes	3	8	97	0.37
Building Construction	Cranes	1	7	231	0.29
	Forklifts	3	8	89	0.20
	Generator Sets	1	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	97	0.37
	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Paving	Pavers	2	8	130	0.42
	Paving Equipment	2	6	132	0.36
	Rollers	2	6	80	0.38

Source: Compiled by LSA using CalEEMod 2016.3.2 (California Emission Estimator Model) defaults (January 2020).

The construction calculations prepared for the project assumed that dust control measures (watering a minimum of three times daily) would be employed to reduce emissions of fugitive dust during site grading. Further, all construction would need to comply with SCAQMD Rule 403 regarding the emission of fugitive dust. The most recent version of CalEEMod (Version 2016.3.2) was used to calculate the construction emissions (Table J). The emissions rates shown in Table J are from the CalEEMod output tables listed as "Mitigated Construction," even though the only measures that

have been applied to the analysis are the required construction emissions control measures, or standard conditions. CalEEMod emission modeling output files for construction are provided in Appendix A of this report.

Table J: Estimated Construction Emissions

Construction Phase	Total Regional Pollutant Emissions (lbs/day)							
	VOC	NOx	CO	SOx	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Site Preparation	4.17	42.48	22.25	0.04	7.25	2.20	3.93	2.02
Grading	2.50	26.44	16.66	0.03	2.72	1.27	1.36	1.17
Building Construction	2.63	21.59	21.03	0.04	1.13	1.14	0.30	1.07
Paving	1.45	12.96	15.22	0.02	0.17	0.68	0.04	0.62
Architectural Coating	44.40	1.58	2.49	0.00	0.20	0.10	0.05	0.10
Peak Daily	**44.40**	**42.48**	**22.25**	**0.04**	**9.45**		**5.95**	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		55.00	
Significant Emissions?	No	No	No	No	No		No	

Source: Compiled by LSA (January 2020).

CO = carbon monoxide
NOx = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
SOx = sulfur oxides
lbs/day = pounds per day
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District
VOC = volatile organic compounds

No exceedances of any criteria pollutants are expected; therefore, no significant impacts would occur for project construction. Standard measures are discussed in the CalEEMod output included in Appendix A. Details of the emission factors and other assumptions are also included in Appendix A.

Fugitive Dust

Fugitive dust emissions are generally associated with land clearing and exposure of soils to the air and wind, as well as cut-and-fill grading operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations, and weather conditions at the time of construction. The proposed project will be required to comply with SCAQMD Rule 403 to control fugitive dust.

Architectural Coatings

Architectural coatings contain VOCs that are part of the O_3 precursors. Based on the proposed project, it is estimated that application of the architectural coatings for the proposed peak construction day will result in a peak of 44 pounds per day (lbs/day) of VOC. Therefore, VOC emissions from architectural coating application would not exceed the SCAQMD VOC threshold of 75 lbs/day.

Construction Source Emission LST Analysis

Local pollutant concentrations are initially addressed using the SCAQMD LST look-up table methodology. As previously described, the SCAQMD has produced look-up tables for projects that disturb less than or equal to 5 acres daily. The SCAQMD has also issued guidance on applying the CalEEMod emissions software to LSTs for projects greater than 5 acres. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, based on the CalEEMod default list of equipment (i.e., four dozers, one grader, and one excavator) required for the proposed project, the maximum daily disturbed acreage is assumed to be approximately 1.5 acres per day. In order to determine the applicability of the SCAQMD's LST look-up tables for the minor amount of construction grading activities and the small amount of equipment utilized, it was assumed that the look-up table for the 2-acre LST threshold would be sufficient for the proposed residential and commercial mixed uses. The closest sensitive receptors to the project site are the existing residences to the northwest and southeast of the site. Table K identifies the emissions thresholds for local pollutants with receptors at a distance of less than 450 feet (137 meters) for 2-acre site and shows that the emissions threshold increases with the size of the site. This area is consistent with the anticipated intensity of construction and based on the number of pieces of construction equipment to be used.

Table K: Construction Localized Impacts Analysis

Emissions Sources	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum On-site Emissions	42	22	9.2	5.9
LST Thresholds – grading at max. 2-acre per day	**275**	**3,558**	**47.0**	**15.0**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).

Note: Source Receptor Area 10 – Pomona/Walnut Valley, 2 acres, receptors at 145 meters.

CO = carbon monoxide
LST = local significance threshold
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Receptors

The nearest sensitive receptors (i.e., single-family residential land uses) are adjacent to the south and west of the project side. Accordingly, LSTs for receptors at approximately 450 feet (137 meters) are utilized in this analysis and provide for a conservative, i.e., "health protective" standard of analysis.

Emissions shown in Table K are less than those shown in Table J because the sources of local concentration include only on-site emission sources. The emissions of each of the pollutants analyzed would be less than the LST threshold shown in Table K, and would therefore be less than significant.

Odors from Construction Activities

Heavy-duty equipment in the project area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after construction is

completed. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required.

SCAQMD Rule 402 regarding nuisances states: "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." The proposed uses are not anticipated to emit any objectionable odors. Therefore, objectionable odors posing a health risk to potential on-site and existing off-site uses would not occur as a result of the proposed project.

Naturally Occurring Asbestos

The proposed project is located in Los Angeles and San Bernardino Counties, which is among the counties found to have serpentine and ultramafic rock in their soils.[1] However, according to the California Geological Survey, no such rock has been identified in the project vicinity. Therefore, the potential risk for naturally occurring asbestos during project construction is less than significant.

Construction Emissions Conclusions

Previously referenced Tables J and K show that daily regional construction emissions would not exceed the daily thresholds and the air quality standards of the CO, NO_2, PM_{10}, and $PM_{2.5}$ pollutant emission thresholds established by the SCAQMD. No additional mitigation is required for the construction equipment.

Heavy-duty equipment in the project area during construction would emit odors, primarily from the equipment exhaust. However, the construction activity would cease to occur after construction is completed. No other sources of objectionable odors have been identified for the proposed project, and no mitigation measures are required.

The potential risk for naturally occurring asbestos during project construction would be less than significant.

OPERATIONAL AIR QUALITY IMPACTS

Long-term air pollutant emission impacts are those associated with stationary sources and mobile sources involving project-related changes. The proposed project would result in net increases in both stationary- and mobile-source emissions. The stationary-source emissions would come from many sources, including the use of consumer products, landscaping equipment, general energy, and solid waste.

Based on the Traffic Impact Analysis (July 2019), the proposed project would generate approximately 1,089 trips per day. The project's average daily trips were entered in the CalEEMod. Area sources include architectural coatings, consumer products, hearth, and landscaping. Energy

[1] California Department of Conservation, California Geological Survey. Asbestos. Website: http://www.conservation.ca.gov/cgs/minerals/hazardous_minerals/asbestos/Pages/index.aspx (accessed October 2019).

sources include natural gas consumption for heating and cooking. CalEEMod results for the project are shown in Table L, which demonstrates that none of the criteria pollutants would exceed SCAQMD emission thresholds. Therefore, project-related long-term air quality impacts would be less than significant and no mitigation is required.

Table L: Regional Operational Emissions

Source	Pollutant Emissions, lbs/day					
	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Area	3.42	1.66	9.77	0.01	0.18	0.18
Energy	0.06	0.55	0.23	<0.01	0.04	0.04
Mobile	1.98	9.61	25.14	0.09	7.18	1.97
Total Project Emissions	**5.47**	**11.81**	**35.14**	**0.10**	**7.40**	**2.19**
SCAQMD Thresholds	**55.00**	**55.00**	**550.00**	**150.00**	**150.00**	**55.00**
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).

CO = carbon monoxide
lbs/day = pounds per day
NOx = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SOx = sulfur oxides
VOC = volatile organic compounds

Localized Impacts Analysis

According to the SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project only if the project includes stationary sources or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or truck transfer facilities). The proposed project does not include such uses. Therefore, in the case of the proposed project, the operational phase LST protocol does not need to be applied. Nonetheless, for the purpose of full disclosure the operational phase LST protocol is applied to the proposed project.

CalEEMod was used to calculate localized NO_2, CO, PM_{10}, and $PM_{2.5}$ pollutant concentrations for operational activities. Table M shows the modeled emissions for the proposed operational activities compared with the appropriate LSTs. By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. Motor vehicle emissions are estimated based on the average trip length for residential land uses. The average trip length used in the CalEEMod does not break down the portion of the motor vehicle emissions generated on site. For a worst-case scenario vehicle emission assessment of the mobile source, the emissions shown in Table M include all on-site project-related area sources and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related new vehicle traffic that will occur on site. A total of 5 percent is considered conservative because the average round trip lengths assumed are 14.70 miles for home-work, 5.90 miles for home-shop, and 8.70 miles for home-other types of trips. It is unlikely that the average on-site distance driven will be even 1,000 feet, which is approximately 5 percent of the total miles traveled. Considering the total trip length included in the CalEEMod, the 5 percent assumption is conservative.

Table M shows that the operational emission rates would not exceed the LSTs for residents in the project area. Therefore, the proposed operational activity would not result in a locally significant air quality impact.

Table M: Operational Localized Impacts Analysis

Emissions Sources	NOx (lbs/day)	CO (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)
Maximum On-site Emissions	2.14	11.02	0.53	0.27
LST Thresholds	**373**	**5,185**	**16.2**	**5.4**
Significant Emissions?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (January 2020).

Note: Source Receptor Area 10 – Pomona/Walnut Valley, 5 acres, receptors at 145 meters.

CO = carbon monoxide
LST = local significance threshold
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size

Odors from Operational Activities

Land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project may generate odors from garbage and green waste collections. However, the odor would cease to occur after garbage and green waste collection trucks remove the wastes from the individual homes each week. As such, proposed residential uses would not generate objectionable odors off site. No other sources of objectionable odors have been identified for the proposed project; therefore, the impacts associated with odors would be less than significant and no mitigation measures are required.

Construction Impacts to Off-site Residents

The greatest potential for TAC emissions during construction activities would be related to emissions of DPM associated with heavy equipment operations during demolition, grading, and trenching activities. In addition, while incidental amounts of substances containing TACs, such as oils, solvents, and paints, could be used, these products would comply with all applicable SCAQMD rules for their manufacture and use and would not contribute substantially to overall health risks from TACs. According to SCAQMD methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk. Individual cancer risk is the likelihood that a person exposed to concentrations of TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The SCAQMD *CEQA Air Quality Handbook* recommends that sensitive receptors located within one-quarter mile of a facility that emits TACs be considered in an evaluation of TAC-related health impacts. Sensitive receptors located beyond the one-quarter mile distance are generally not required to be evaluated due to atmospheric mixing and dispersion of pollutants.

Construction-related activities would result in short-term emissions of DPM from the off-road heavy-duty diesel equipment exhaust. The greatest potential for DPM emissions associated with construction would be during grading activities. Because the construction schedule estimates that the phases that require the most heavy-duty diesel vehicle usage, such as grading, would last for a much shorter duration (e.g., approximately 2 months), construction of the proposed project would not result in a substantial, long-term (i.e., 30-year residential life) source of TAC emissions. Additionally, the SCAQMD guidance does not require an HRA for short-term construction emissions. It is, therefore, not necessary to evaluate long-term cancer impacts from construction activities that occur over a relatively short duration. In addition, there would be no residual emissions or

corresponding individual cancer risk after construction. As a result, construction TAC emissions would have a less than significant impact.

LONG-TERM MICROSCALE (CO HOT SPOT) ANALYSIS

Vehicular trips associated with the proposed project would contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, CO disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

At the time of the publishing of the *1993 Handbook*, the Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Basin and in California have steadily declined. In 2007, the SCAQMD was designated in attainment for CO under both the CAAQS and NAAQS. As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the Basin were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. A CO hot spot analysis was conducted at four busy intersections in Los Angeles County at the peak morning and afternoon periods and did not predict a violation of CO standards.[1] Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017). One of the top four worst intersections in the Basin (i.e., Sunset Boulevard/Highland Avenue)[2] is located in the City of Los Angeles, approximately 66 miles west of the proposed project. Since the SCAQMD modeled intersections do not exceed the CO standards, intersections within the proposed project study area with less volumes of traffic and under less extreme conditions would not exceed the CO standards. Buildout of the proposed project would not produce the volume of traffic, as described above, required to generate a CO hot spot. Therefore, implementation of the proposed project would not be expected to result in CO hot spots, and impacts would be less than significant. No mitigation is required.

[1] The four intersections were Long Beach Boulevard/Imperial Highway; Wilshire Boulevard/Veteran Avenue; Sunset Boulevard/Highland Avenue; and La Cienega Boulevard/Century Boulevard. The busiest intersection evaluated (Wilshire Boulevard/Veteran Avenue) had a daily traffic volume of approximately 100,000 vehicles and LOS E in the morning peak hour and LOS F in the evening peak hour.

[2] The intersection of Sunset Boulevard/Highland Avenue is within the City of Los Angeles and is used to represent a condition where there is a high volume of traffic during the a.m. and p.m. peak hours to demonstrate that intersections that are below the volume of traffic at this particular intersection, under less severe atmospheric conditions (i.e., where vertical and horizontal air does not mix), would not result in a CO hot spot.

AIR QUALITY MANAGEMENT PLAN CONSISTENCY

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review due to the air quality plan strategy being based on projections from local General Plans.

The AQMP is based on regional growth projections developed by SCAG. The proposed project is a residential development of 80 apartment units and would be defined as a not regionally significant project under CEQA Section 15206 and does not meet SCAG's Intergovernmental Review criteria.

Pursuant to the methodology provided in Chapter 12 of the 1993 SCAQMD *CEQA Air Quality Handbook*, consistency with the Basin 2016 AQMP is affirmed when a project (1) does not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. While the project with mitigation measures would result in short-term construction pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, operational pollutant emissions would be less than SCAQMD significance thresholds; therefore, the project would not result in an increase in the frequency or severity of an air quality standards violation and would not cause a new air quality standard violation.
2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities; therefore, the proposed project is not defined as significant.

With respect to the first criterion, Tables J and L show that criteria pollutants during construction and operation of the proposed project would not have the potential to cause or affect a violation of the ambient air quality standards. Because the proposed project would not introduce any substantial stationary sources of emissions, CO is the preferred benchmark pollutant for assessing local area pollutant impacts from post-construction motor vehicle operations. As indicated earlier, no intersections would require a CO hot spot analysis and impacts would be less than significant. Therefore, the proposed project would not increase the frequency or severity of an existing CO violation or cause or contribute to new CO violations.

With respect to the second criterion for determining consistency with AQMP Growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2016 RTP/SCS regarding population, housing, and growth trends. According to the 2016 RTP/SCS, the forecast population for the County of Los Angeles and County of San Bernardino Subregion in 2040 is approximately 11,513,435 and 2,731,321 persons, respectively. In 2015, the projected occupancy year of the proposed project, the County of Los Angeles and County of San Bernardino subregion is anticipated to have a population of approximately 10,158,776 and 2,111,258 persons, respectively.

Therefore, the forecast population for the County of Los Angeles and County of San Bernardino subregion will grow by approximately 1,974,722 persons between 2015 and 2040. The proposed project's 110 residential units would introduce an estimated net residential population of approximately 314 persons, based on the household size of 2.86 persons per unit for apartment housing units used in the CalEEMod. Thus, project residents would account for less than 0.02 percent of the population growth forecast by SCAG in the County of Los Angeles and County of San Bernardino subregion between 2015 and 2040. Because similar projections form the basis of the 2016 AQMP, it can be concluded that the proposed project would be consistent with the projections in the AQMP.

GREENHOUSE GAS EMISSIONS

This section evaluates potential significant impacts related to GHG that could result from implementation of the proposed project. Because it is not possible to tie specific GHG emissions to actual changes in climate, this evaluation focuses on the project's emission of GHGs. Mitigation measures are identified as appropriate.

Greenhouse Gas Emissions Background

Construction emissions were amortized into the operational phase in accordance with SCAQMD's proposed methodology (SCAQMD 2009). Implementation of a development project could contribute to global climate change through direct emissions of GHGs from onsite area sources and vehicle trips generated by the project, and indirectly through offsite energy production required for onsite activities, water use, and waste disposal. Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, global climate change impacts of a project are considered on a cumulative basis.

Construction and operation of the project would generate GHG emissions, with the majority of energy consumption (and associated generation of GHG emissions) occurring during the project's operation (as opposed to during its construction). Typically, more than 80 percent of the total energy consumption takes place during the use of buildings, and less than 20 percent of energy is consumed during construction (United Nations Environment Programme 2007). Overall, the following activities associated with the proposed project could directly or indirectly contribute to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, each of which typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO_2, CH_4, and N_2O). Furthermore, CH_4 is emitted during the fueling of heavy equipment.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH_4 (the major component of natural gas) and CO_2 (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. Preliminary estimates indicate that the total energy used to pump and treat this water exceeds 6.5 percent of the total electricity used in the State per year (State of California 2008).
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing

the waste, and they produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips.

Preliminary guidance from the OPR and recent letters from the Attorney General critical of CEQA documents that have taken different approaches indicate that lead agencies should calculate, or estimate, emissions from vehicular traffic, energy consumption, water conveyance and treatment, waste generation, and construction activities.

Construction GHG Emissions

The proposed project construction emissions were calculated using CalEEMod Version 2016.3.2. CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecast based on the proposed construction schedule and applying the mobile source derived from the SCAQMD-recommended CalEEMod. The calculations of the emissions generated during project construction activities reflects the types and quantities of construction equipment that would be used to grade and excavate the project site, construct the proposed building and related improvements, and plant new landscaping within the project site.

Table N lists the annual GHG emissions for each of the planned construction phases (details are provided in the CalEEMod output in Appendix A).

Table N: Regional Construction Emissions

Construction Phase	Peak Annual Emissions (MT/yr)				Total Emissions per year (MT CO_2e/year)
	CO_2	CH_4	N_2O	CO_2e	
Site Preparation 2020	17.61	<0.01	0	17.74	497.79
Grading 2020	27.54	<0.01	0	27.75	
Building Construction 2020	386.14	0.07	0	387.77	
Building Construction 2021	38.46	<0.01	0	38.62	
Paving 2021	21.46	<0.01	0	21.62	
Architectural Coatings 2021	4.28	<0.01	0	4.28	
Total Construction Emissions Amortized over 30 years					**16.59**

Source: Compiled by LSA (January 2020).
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
MT/CO_2e = metric tons of carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide

Operational GHG Emissions

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources and indirect emissions from stationary sources associated with energy consumption. The emission calculations for the proposed project include credits or reductions for consistency with

regulatory requirements and project design measures set forth in this GHG analysis, such as reductions in energy or water demand (compliance with 2016 CALGreen). Operational and construction GHG emissions, as shown in Table O, were calculated using CalEEMod (Version 2016.3.2). Based on SCAQMD guidance, construction emissions were amortized over 30 years (a typical project lifetime) and added to the total project operational emissions. Mobile-source emissions of GHGs would include project-generated vehicle trips associated with the residential uses. The project would have increased population density over an empty lot and an improved pedestrian network, which was accounted for in the analysis. Area-source emissions would be associated with activities including landscaping and maintenance of proposed land uses, natural gas for heating, and other sources. Increases in stationary-source emissions would also occur at off-site utility providers as a result of demand for electricity, natural gas, and water by the proposed project.

Table O: Operational Greenhouse Gas Emissions

Source	Pollutant Emissions (MT/yr)					
	Bio-CO_2	**NBio-CO_2**	**Total CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction Emissions Amortized over 30 Years	0	16.52	16.52	<0.01	0	16.59
Operational Emissions						
Area	0	24.31	24.31	<0.01	0	24.49
Energy	0	280.91	280.91	<0.01	<0.01	282.42
Mobile	0	1,287.66	1,287.66	0.06	0	1,289.27
Waste	2.39	34.40	36.79	0.25	0	37.72
Water	**17.62**	**1,643.79**	**1,661.41**	**1.22**	<0.01	44.83
Total Project Emissions	2.39	34.40	36.79	0.25	**0**	**1,695.32**
					SCAQMD Tier 3 Threshold	**3,000**
					Significant?	**No**

Source: Compiled by LSA (January 2020).
Bio-CO_2 = biologically generated CO_2
CO_2 = carbon dioxide
MT/yr = metric tons per year
NBio-CO_2 = non-biologically generated CO_2
CH_4 = methane
CO_2e = carbon dioxide equivalent
N_2O = nitrous oxide
SCAQMD = South Coast Air Quality Management District

As shown in Table O, the proposed project would generate 1,695 MT CO_2e/yr. The project's emissions are less than the SCAQMD Tier 3 threshold of 3,000 MT CO_2e/yr for residential mixed use projects. Based on this GHG analysis, the proposed project impacts would be less than significant.

Consistency with Applicable GHG Reduction Plans and Policies

This section provides a consistency analysis that describes the extent the proposed project complies with or exceeds performance-based standards included in the regulations outlined in the applicable portions of the Climate Change Scoping Plan, RTP/SCS, and City's RRG-CAP. As shown herein, the proposed project would be consistent with the applicable GHG reduction plans and policies.

Climate Change Scoping Plan

The 2006 Global Warming Solution Act (AB 32) requires that emissions are reduced to 1990 levels by 2020. In 2008, the ARB approved a *Climate Change Scoping Plan* as required by AB 32. The *Climate Change Scoping Plan* has a range of GHG reduction actions, which include direct regulations,

alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program. As shown in Table O, the proposed project operation would result in net increase of 1,695 MT CO_2e/yr. The breakdown of emissions by source category shows approximately less than 1 percent from area sources, 45 percent from energy consumption, 46 percent from mobile sources, 3 percent from solid waste generations, and 5 percent from water supply, treatment, and distribution.

Regional Transportation Plan/Sustainable Communities Strategy

The SCAG region was home to about 18.3 million people in 2012 and currently includes approximately 5.9 million homes and 7.4 million jobs. By 2040, the integrated growth forecast projects that these figures will increase by 3.8 million people, with nearly 1.5 million more homes and 2.4 million more jobs. The 2016 RTP/SCS is the region's transportation and sustainability investment strategy for protecting and enhancing the region's quality of life and economic prosperity through this period. The 2016 RTP/SCS is also expected to help California reach its GHG reduction goals, with reductions in per capita transportation emissions of 9 percent by 2020 and 16 percent by 2035. In addition, the 2016 RTP/SCS GHG emissions reduction trajectory shows that more aggressive GHG emissions reductions are projected for 2040. The 2016 RTP/SCS would result in an estimated 8 percent decrease in per capita GHG emissions by 2020, 18 percent decrease in per capita GHG emissions by 2035, and 21 percent decrease in per capita GHG emissions by 2040. By meeting and exceeding the SB 375 targets for 2020 and 2035, as well as achieving an approximately 21 percent decrease in per capita GHG emissions by 2040, the 2016 RTP/SCS is expected to fulfill and exceed its portion of SB 375 compliance with respect to meeting the California's GHG emission reduction goals.

At the regional level, the 2016 RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs. Generally, projects are consistent with the provisions and general policies of applicable City and regional land use plans and regulations, such as SCAG's SCS, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals. Therefore, the proposed project would be consistent with the GHG reduction-related actions and strategies contained in the 2016 RTP/SCS.

Cities GHG Emission Reduction Strategies

As discussed above, the scoping plan outlines a programmatic approach to review the potential GHG-related impacts associated with new development in the State of California. The City of Claremont has drafted a Sustainable City Plan that outlines several energy efficient goals that directly relate to GHG emission reduction goals. For example, the City's goal is to apply sustainable design standards to all new facilities community wide and promote sustainable design practices in homes and commercial buildings (i.e., CALGREEN Building Standards). For the City of Upland, the energy conservation goals under the Housing Element of the General Plan presents a strategic guide for the City in establishing policy to meet the efficiency and GHG reduction targets. The proposed project would be required to meet the applicable Building Energy Efficient Standards. As summarized in Table P, the project would be consistent with GHG Emission Reduction Strategies and applicable State and local regulations. To facilitate implementation of the Green Building Code, both

Cities mandated all new discretionary development projects to incorporate by reference the mandatory requirements of the 2019 California Green Building Standards Code. The proposed project would comply with performance-based standards included in the Green Building Code (e.g., 2019 Building Energy Efficiency Standards). As shown in Table P, the project would be consistent with all applicable GHG reduction strategies.

Table P: GHG Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
State and Regional Regulations	
Energy	
California Building Energy Efficiency Standards (Title 24, Part 6). Maximize energy efficiency building and appliance standards, and pursue additional efficiency efforts including new technologies, and new policy and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California (including both investor-owned and publicly owned utilities).	**Consistent.** The proposed project will comply with the requirements of the 2019 California Building Energy Efficiency Standards (Title 24, Part 6) including measures to incorporate energy-efficient building design features.
Water	
Water Use Efficiency. Reduce per capita water use by 20% by 2020. SB X7-7 is part of a California legislative package passed in 2009 that requires urban retail water suppliers to reduce per-capita water use by 10% from a baseline level by 2015, and to reduce per capita water use by 20% by 2020. Green accountability performance (GAP) Goal 16 directly aligns with SB X7-7. In Southern California, energy costs and GHG emissions associated with the transport, treatment, and delivery of water from outlying regions are high. Therefore, the region has extra incentive to reduce water consumption. While this is considered a state measure, it is up to the local water retailers, jurisdictions, and water users to meet these targets.	**Consistent.** The proposed project will comply with the requirements of Title 19 – Article VIII – Chapter 19.570 – Water Efficient Landscaping and Irrigation, including measures to increase water use efficiency. Water-efficient irrigation systems and devices and drought-tolerant landscaping will be installed on the project site.
Solid Waste	
Construction and Demolition Waste Diversion. Meet mandatory requirement to divert 50% of C&D waste from landfills by 2020 and exceed requirement by diverting 90% of C&D waste from landfills by 2035.	**Consistent.** In compliance with CALGreen requirements, at least 65 percent of all nonhazardous construction waste generated by the proposed project would be recycled and/or salvaged (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). Furthermore, 100 percent of excavated soil shall be reused or recycled.
Transportation	
Pavley and Low Carbon Fuel Standard (LCFS). ARB identified this measure as a Discrete Early Action Measure. This measure would reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.	**Consistent.** The project does not involve the manufacture, sale, or purchase of vehicles. However, vehicles that operate within and access the project site will comply with Pavley and Low Carbon Fuel Standard.
Local Plans - City of Claremont Sustainable City Plan and City of Upland Housing Elements Energy Conservation	
Green Building Development. Promote and incentivize at least Tier 1 voluntary standards within CALGreen for all new residential and nonresidential buildings. Develop a heat island reduction plan and facilitate green building development by removing regulatory and procedural barriers.	**Consistent.** The 2019 Building and Energy Efficiency Standards will be effective January 1, 2020, and would be applicable to the proposed project. Pursuant to the County's Green Building Ordinance, residential buildings would be required to achieve the Tier 1 energy standards as outlined in the California Building and

Table P: GHG Emission Reduction Strategies Consistency

Measure/Regulation	Project Consistency
	Energy Efficiency Code. The proposed project would meet or exceed Title 24 energy use requirements.
Solar Installations. Promote and incentivize solar installations for new and existing homes, commercial buildings, carports and parking areas, water heaters, and warehouses.	**Consistent.** The current Building and Energy Efficiency Standards mandate that new homes have solar panels. The proposed project would meet or exceed Title 24 energy use requirements.
Electric Vehicle Infrastructure. Install electric vehicle (EV) charging facilities at residence parking area and/or garages.	**Consistent.** The current Building and Energy Efficiency Standards now requires installation of electric vehicle charging spaces in new residential homes (2019 CALGreen). The proposed project would meet or exceed 2019 CalGreen requirements.

Source: LSA (January 2020).

Claremont and Upland General Plan Policies. The Cities of Claremont and Upland include policies that are directly and indirectly related to GHG emissions. Table Q evaluates the consistency of the proposed Project with the Cities' General Plan policies.

Table Q: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
City of Claremont	
Policy 5-18.1: Enhance pedestrian and bike facilities within the City and encourage alternative modes of transportation.	**Consistent.** The project would comply with City policy regarding pedestrian and bicycle accommodations. The project would provide a pedestrian network along streets and on-site internal pedestrian walkways. Sidewalks are required on all arterial and collector streets. All collector and arterial streets around the proposed project have shared bike lanes.
Policy 5-18.2: Encourage the use of clean fuel vehicles.	**Consistent.** The proposed project would be required to be consistent with applicable electric vehicle charging station requirements detailed in the Green Building Standards Code (Title 24, California Code of Regulations). As such, the project would be equipped with the electric vehicle changing plug-in infrastructure in the parking lot area.
Policy 5-18.3: Promote the use of fuel-efficient heating and cooling equipment and other appliances, such as water heaters, swimming pool heaters, cooking equipment, refrigerators, furnaces, and boiler units.	**Consistent.** The proposed project will comply with the requirements of the 2020 California Building Energy Efficiency Standards (Title 24, Part 6) including measures to incorporate energy-efficient building design features.
Policy 5-18.4: Promote the use of clean air technologies such as fuel cell technologies, renewable energy sources. UV coatings, and alternative, non-fossil fuels.	**Consistent.** The proposed project would be required to be consistent with applicable electric vehicle charging station requirements detailed in the Green Building Standards Code (Title 24, California Code of Regulations). As such, the project would be equipped with the electric vehicle changing plug-in infrastructure in the parking lot area.
Policy 5-18.5: Continue to require the planting of street trees along City streets and inclusion of trees and landscaping for all development projects to help improve	**Consistent.** The project would include trees along the perimeter of the project site and in the parks.

Table Q: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
airshed and minimize urban heat island effects.	
Policy 5-18.6: Encourage small businesses to utilize clean, innovative technologies to reduce air pollution.	**Not Applicable.** This objective is aimed at industrial business, not retail commercial.
Policy 5-18.7: Implement principles of green building.	**Consistent. The proposed project will comply with the requirements of the 2020 California Building Energy Efficiency Standards (Title 24, Part 6) including measures to incorporate energy-efficient building design features.**
Policy 5-18.8: Support jobs/housing balance within the community so more people can both live and work within the community. To reduce vehicle trips, encourage people to telecommute or work out of home or in local satellite offices.	**Consistent.** The project would increase household density with 11.5 dwelling units per acre and would increase employment opportunities in the City by approximately 2 to 6 jobs. It is assumed that these jobs would be filled by local residents. By providing local jobs, the project would improve the jobs-housing balance and help reduce vehicle miles traveled by local residents.
City of Upland Open Space and Conservation Element of the General Plan	
Policy OSC-4.1 Land Use Patterns. Promote land use patterns that reduce the number and length of motor vehicle trips.	**Consistent.** The Project is a mixed-use design where residential uses and commercial retail uses will be developed. Such development reduces vehicle trips for nearby residents as retail services are located within walking or biking distance. As such, the design of the Project will contribute to a reduction of motor vehicle trips, and thus would be consistent with this policy.
Policy OSC-4.2 Compact Development. Where development opportunities near shopping areas and transit corridors exist, prioritize higher-density residential development.	**Consistent.** The proposed Project is located along Foothill Boulevard (a major road corridor traversing the City of Upland and City of Claremont). The proposed Project includes higher-density residential uses in the form of townhomes and flats. The proposed Project will be developed in a compact form on approximately 3 acres of land.
Policy OSC-4.3 Mixed Retail Development. Encourage employment areas to include a mix of retail support services, and allow new small-scale retail and service uses within established residential neighborhoods to reduce vehicle trips.	**Consistent.** The proposed Project is a mixed-use design that will include the development of single-family residential units, townhomes, flats, commercial retail uses (5,000 square feet of retail and 2,000 square feet of dining), and parks. The Project site is within 500 feet of established residential neighborhoods.

Table Q: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
Policy OSC-4.4 Separation of Sensitive Land Uses. To the extent practicable, separate sensitive land uses (schools, senior centers, medical facilities, and residences) from significant sources of air pollutants, toxic air contaminants, or odor emissions. **Policy OSC-4.5 Design of Sensitive Uses.** Require new development with sensitive uses located adjacent to mobile and stationary toxic air contaminants to be designed with consideration of site and building orientation, location of trees, and incorporation of appropriate technology for improved air quality (i.e., ventilation and filtration) to lessen any potential health risks.	**Consistent.** The portion of Project located within the City of Upland will consist mainly of townhomes fronting Foothill Boulevard and Monte Vista Avenue. The preliminary site plan indicates landscaping (in the form of trees) will be planted between townhomes and Foothill Boulevard and Monte Vista Avenue. This will lessen potential health risks of on-site residents from mobile air contaminants generated by vehicles traveling along these roads.
Policy OSC-4.6 Protect all Residents Equally. Ensure that all land use decisions are made in an equitable manner in order to protect residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.	**Consistent.** The proposed Project is designed with residents in mind. The site plan includes development of single-family residential units, townhomes, and flats. Best management practices and standard design techniques will be implemented as part of the Project to protect residents from the health effects of air pollution. This EIR has conducted modeling and analysis and has concluded that implementation of the Project would not expose residents to health effects related to air pollution.
Policy OSC-4.8 Reduction in Commuting. Promote expansion of employment opportunities within Upland to reduce commuting to areas outside of the City.	**Consistent.** The proposed Project is a mixed-use design that will include 5,000 square feet of retail and 2,000 square feet of outdoor dining, which would increase employment opportunities for residents in Upland.
Policy OSC-4.10 Vehicle Idling. Continue to enforce the vehicle idling restrictions established by the State.	**Consistent.** During construction, the construction contractor will implement requirements to limit vehicle idling. As a condition of approval, the applicable will be required to install signs at the loading areas of the retail stores detailing idling limits for delivery trucks.
Policy OSC-4.11 New Development. Review proposed development projects as required by CEQA to ensure projects incorporate feasible measures that reduce construction and operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$) through project design.	**Consistent.** As discussed in this section (Section 4.5) and Section 4.1 Air Quality of this EIR, the proposed Project will include standard construction and operational measures to reduce air pollutant emissions. The modeling and analysis included in this EIR indicates that the proposed Project would not exceed federal, State, or local air quality or greenhouse gas emissions standards above and beyond threshold limits.
Policy OSC-4.12 Health Risk Assessment. New sources of toxic air pollutants shall prepare a Health Risk Assessment as required by Section 44300 of the California Health and Safety Code. The Assessment shall be used to establish appropriate land use buffer zones around those areas posing substantial health risks based upon the California Air Resources Board's guidance	**Consistent.** As discussed in Section 4.1 Air Quality of this EIR, Toxic Air Contaminants (TACs) associated with construction and operation of the proposed Project was not high enough to warrant preparation of a health risk assessment.

Table Q: General Plan Consistency Analysis, Greenhouse Gases

General Plan Policies	General Plan Consistency Analysis
provided in the *Air Quality Land Use Handbook*.	
Policy OSC-4.13 Best Management Practices. Require best management practices to reduce air pollution associated with construction of development projects.	**Consistent.** As described in this EIR, the proposed Project will implement standard best management practices during construction and once the Project is operational and occupied to reduce air pollution exposure. The EIR included modeling and analysis, which led to the conclusion that air pollutant emissions during Project construction and operation would not exceed federal, State, or local standards.
Policy OSC-4.14 Construction Mitigation. Review construction plans associated with development projects to determine if all feasible mitigation measures are included.	**Consistent.** The proposed Project will implement standard best management practices during construction activities to reduce air pollutant emissions generated during construction. The EIR, in Section 4.1 Air Quality, determined that the amount of emissions generated during construction would not exceed federal, State, or local threshold levels and therefore would not warrant additional construction mitigation.
Policy OSC-4.15 Green Building Practices. Promote green building practices that support healthy indoor living and working environments that are well-ventilated and contaminant-free.	**Consistent.** The proposed Project will implement green building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials.
Policy OSC-4.18 Coordinated Planning. Coordinate air quality planning efforts with other local, regional and State agencies, and encourage community participation in air quality planning.	**Consistent.** As detailed in Sections 4.1 Air Quality and 4.5 Greenhouse Gas Emissions and Global Climate Change air quality and greenhouse gas emissions modeling, analysis, and conclusions were based on standards from federal, local, regional, and State agencies. Air quality and GHG emissions generated by the Project during construction and operation were determined to be within standards. Modeling and analysis took into account coordination of air quality planning efforts with other agencies.

Source: LSA (January 2020).

In summary, the regulatory compliance analysis provided above demonstrates that the proposed project would comply with the regulations and reduction actions/strategies outlined in the Climate Change Scoping Plan, RTP/SCS, and the City's general plans.

CUMULATIVE IMPACTS

In analyzing cumulative impacts from a proposed project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the Basin is listed as nonattainment for the State and federal ambient air quality standards. The proposed project would have a cumulatively considerable impact if project-generated emissions would exceed thresholds for NOx, VOC, PM_{10}, and/or $PM_{2.5}$. If the proposed project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still have a cumulatively considerable impact on air quality and GHG if the emissions from the project, in combination with emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the proposed project would be considered to have a cumulative impact only if its contribution accounts for a significant portion of the cumulative total emissions.

Background ambient air quality, as measured at the monitoring stations maintained and operated by SCAQMD, measures the concentrations of pollutants from existing sources; therefore, past and present project impacts are included in the background ambient air quality data.

The geographic extent for the analysis of cumulative impacts related to air quality includes the central area of the South Coast Air Basin. Due to the nonattainment status of the Basin, the primary air pollutants of concern would be NOx and VOCs, which are ozone precursors, and PM_{10} and $PM_{2.5}$. Project-related NOx and VOCs are primarily emitted from motor vehicles and construction equipment, while PM_{10} and $PM_{2.5}$ are emitted primarily as fugitive dust during construction. Because of the nature of ozone as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum ozone impacts generally occur downwind of the area in which the ozone precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, would tend to occur locally; thus, projects occurring in the same general area and in the same time period would tend to create cumulative air quality impacts.

The project would contribute criteria pollutants to the area during project construction. A number of individual projects in the area may be under construction simultaneously with the proposed project. Depending on construction schedules and actual implementation of projects in the area, generation of fugitive dust and pollutant emissions during construction could result in substantial short-term increases in air pollutants. However, each project would be required to comply with the SCAQMD's standard construction measures. The proposed project's short-term construction CO, NO_2, PM_{10} and $PM_{2.5}$ emissions would not exceed the LSTs. Therefore, construction of the proposed project would have a less than significant impact with regard to regional and localized emissions and impacts would not be cumulatively considerable.

As climate change impacts are cumulative in nature, no typical single project can result in emissions of such a magnitude that it, in and by itself, would be significant on a project basis. The proposed project has incorporated sustainability design measures in accordance with regulatory requirements as provided throughout the analysis and to reduce the proposed project's potential impact with respect to GHG emissions. As GHG emissions would not exceed the SCAQMD Tier 3 numerical screening threshold and project design measures will be applied to lower the GHG emissions, the proposed project would result in a less than significant cumulative impact related to GHG emissions. The proposed project's GHG reduction measures make the proposed project consistent with AB 32, 2016 RTP/SCS, and City's General Plans. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. Given this consistency, it is concluded that the proposed project's impacts are not cumulatively considerable.

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APPENDIX A

CALEEMOD PRINTOUTS

The Commons

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	110.00	Space	0.99	44,000.00	0
Condo/Townhouse	83.00	Dwelling Unit	3.13	83,000.00	237
Single Family Housing	27.00	Dwelling Unit	5.27	48,600.00	77
Strip Mall	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	502.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE CO2 Intensity Factor is based on year 2021 average.

Land Use - Project site is 9.50 acres.

Construction Phase - Construction is anticipated to start in early 2020 and complted by early 2021.

Vehicle Trips - Trip Generation Rates with Internal Capture and Pass-by trips from Traffic Impact Analysis - Table 5-A.

Woodstoves - No wood stoves and fireplaces.

Energy Use -

Sequestration - Approx. 100 trees would be planted on-site - based on conceptual site plan.

Construction Off-road Equipment Mitigation - All construction equipment with 50 hp or greater would utilize Tier 2 engines. Fugitive dust emissions would be control with on-site watering at least three times daily.

Energy Mitigation - Rooftop solar electricity and high efficienct lighting ssystems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberNoFireplace	8.30	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00
tblFireplaces	NumberWood	4.15	0.00
tblFireplaces	NumberWood	1.35	0.00
tblLandUse	LotAcreage	5.19	3.13
tblLandUse	LotAcreage	8.77	5.27
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblSequestration	NumberOfNewTrees	0.00	100.00
tblVehicleTrips	WD_TR	5.81	6.08
tblVehicleTrips	WD_TR	9.52	7.85
tblVehicleTrips	WD_TR	44.32	74.40
tblWoodstoves	NumberCatalytic	4.15	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	4.15	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1653	42.4773	22.1789	0.0416	18.2675	2.1990	20.4664	9.9840	2.0230	12.0071	0.0000	4,049.3840	4,049.3840	1.1974	0.0000	4,066.5833
2021	44.4039	19.6127	20.1510	0.0412	1.1340	0.9701	2.1041	0.3036	0.9120	1.2156	0.0000	4,014.4475	4,014.4475	0.7181	0.0000	4,031.3707
Maximum	**44.4039**	**42.4773**	**22.1789**	**0.0416**	**18.2675**	**2.1990**	**20.4664**	**9.9840**	**2.0230**	**12.0071**	**0.0000**	**4,049.3840**	**4,049.3840**	**1.1974**	**0.0000**	**4,066.5833**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1653	42.4773	22.1789	0.0416	7.2470	2.1990	9.4460	3.9263	2.0230	5.9494	0.0000	4,049.3840	4,049.3840	1.1974	0.0000	4,066.5833
2021	44.4039	19.6127	20.1510	0.0412	1.1340	0.9701	2.1041	0.3036	0.9120	1.2156	0.0000	4,014.4475	4,014.4475	0.7181	0.0000	4,031.3707
Maximum	**44.4039**	**42.4773**	**22.1789**	**0.0416**	**7.2470**	**2.1990**	**9.4460**	**3.9263**	**2.0230**	**5.9494**	**0.0000**	**4,049.3840**	**4,049.3840**	**1.1974**	**0.0000**	**4,066.5833**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.80**	**0.00**	**48.83**	**58.88**	**0.00**	**45.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Energy	0.0643	0.5495	0.2347	3.5100e-003		0.0444	0.0444		0.0444	0.0444		701.2630	701.2630	0.0134	0.0129	705.4302
Mobile	1.9024	9.6090	23.7909	0.0841	7.1125	0.0703	7.1828	1.9029	0.0657	1.9685		8,560.4590	8,560.4590	0.4374		8,571.3948
Total	**5.3867**	**11.8146**	**33.7923**	**0.0980**	**7.1125**	**0.2903**	**7.4028**	**1.9029**	**0.2857**	**2.1885**	**0.0000**	**11,258.0879**	**11,258.0879**	**0.5047**	**0.0492**	**11,285.3547**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Energy	0.0413	0.3526	0.1506	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.9758	449.9758	8.6200e-003	8.2500e-003	452.6498
Mobile	1.9024	9.6090	23.7909	0.0841	7.1125	0.0703	7.1828	1.9029	0.0657	1.9685		8,560.4590	8,560.4590	0.4374		8,571.3948
Total	**5.3637**	**11.6177**	**33.7082**	**0.0968**	**7.1125**	**0.2744**	**7.3869**	**1.9029**	**0.2698**	**2.1726**	**0.0000**	**11,006.8007**	**11,006.8007**	**0.4999**	**0.0446**	**11,032.5742**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.43**	**1.67**	**0.25**	**1.29**	**0.00**	**5.48**	**0.21**	**0.00**	**5.57**	**0.73**	**0.00**	**2.23**	**2.23**	**0.95**	**9.38**	**2.24**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	2/14/2020	5	10	
2	Grading	Grading	2/15/2020	3/13/2020	5	20	
3	Building Construction	Building Construction	3/14/2020	1/29/2021	5	230	
4	Paving	Paving	1/30/2021	2/26/2021	5	20	
5	Architectural Coating	Architectural Coating	2/27/2021	3/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.99

Residential Indoor: 266,490; Residential Outdoor: 88,830; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 2,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	90.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0600	0.6653	1.9400e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		193.1132	193.1132	5.5600e-003		193.2522
Total	**0.0888**	**0.0600**	**0.6653**	**1.9400e-003**	**0.2012**	**1.5300e-003**	**0.2027**	**0.0534**	**1.4100e-003**	**0.0548**		**193.1132**	**193.1132**	**5.5600e-003**		**193.2522**

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0888	0.0600	0.6653	1.9400e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		193.1132	193.1132	5.5600e-003		193.2522
Total	**0.0888**	**0.0600**	**0.6653**	**1.9400e-003**	**0.2012**	**1.5300e-003**	**0.2027**	**0.0534**	**1.4100e-003**	**0.0548**		**193.1132**	**193.1132**	**5.5600e-003**		**193.2522**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0500	0.5544	1.6200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		160.9277	160.9277	4.6300e-003		161.0435
Total	**0.0740**	**0.0500**	**0.5544**	**1.6200e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1800e-003**	**0.0456**		**160.9277**	**160.9277**	**4.6300e-003**		**161.0435**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.5554**	**1.2734**	**3.8288**	**1.3133**	**1.1716**	**2.4849**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0740	0.0500	0.5544	1.6200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		160.9277	160.9277	4.6300e-003		161.0435
Total	**0.0740**	**0.0500**	**0.5544**	**1.6200e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1800e-003**	**0.0456**		**160.9277**	**160.9277**	**4.6300e-003**		**161.0435**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0694	2.1057	0.5678	4.9700e-003	0.1280	0.0106	0.1386	0.0368	0.0101	0.0470		530.7548	530.7548	0.0373		531.6878
Worker	0.4441	0.2998	3.3262	9.6900e-003	1.0060	7.6700e-003	1.0137	0.2668	7.0700e-003	0.2739		965.5662	965.5662	0.0278		966.2610
Total	**0.5135**	**2.4054**	**3.8940**	**0.0147**	**1.1340**	**0.0183**	**1.1522**	**0.3036**	**0.0172**	**0.3208**		**1,496.3210**	**1,496.3210**	**0.0651**		**1,497.9488**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0694	2.1057	0.5678	4.9700e-003	0.1280	0.0106	0.1386	0.0368	0.0101	0.0470		530.7548	530.7548	0.0373		531.6878
Worker	0.4441	0.2998	3.3262	9.6900e-003	1.0060	7.6700e-003	1.0137	0.2668	7.0700e-003	0.2739		965.5662	965.5662	0.0278		966.2610
Total	**0.5135**	**2.4054**	**3.8940**	**0.0147**	**1.1340**	**0.0183**	**1.1522**	**0.3036**	**0.0172**	**0.3208**		**1,496.3210**	**1,496.3210**	**0.0651**		**1,497.9488**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0591	1.9108	0.5170	4.9200e-003	0.1280	4.0300e-003	0.1320	0.0368	3.8600e-003	0.0407		526.7476	526.7476	0.0358		527.6422
Worker	0.4151	0.2698	3.0588	9.3800e-003	1.0060	7.4500e-003	1.0134	0.2668	6.8600e-003	0.2737		934.3360	934.3360	0.0251		934.9643
Total	**0.4742**	**2.1806**	**3.5758**	**0.0143**	**1.1340**	**0.0115**	**1.1454**	**0.3036**	**0.0107**	**0.3144**		**1,461.0836**	**1,461.0836**	**0.0609**		**1,462.6065**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0591	1.9108	0.5170	4.9200e-003	0.1280	4.0300e-003	0.1320	0.0368	3.8600e-003	0.0407		526.7476	526.7476	0.0358		527.6422
Worker	0.4151	0.2698	3.0588	9.3800e-003	1.0060	7.4500e-003	1.0134	0.2668	6.8600e-003	0.2737		934.3360	934.3360	0.0251		934.9643
Total	**0.4742**	**2.1806**	**3.5758**	**0.0143**	**1.1340**	**0.0115**	**1.1454**	**0.3036**	**0.0107**	**0.3144**		**1,461.0836**	**1,461.0836**	**0.0609**		**1,462.6065**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3852**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0692**	**0.0450**	**0.5098**	**1.5600e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.7227**	**155.7227**	**4.1900e-003**		**155.8274**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3852**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0692	0.0450	0.5098	1.5600e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		155.7227	155.7227	4.1900e-003		155.8274
Total	**0.0692**	**0.0450**	**0.5098**	**1.5600e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**155.7227**	**155.7227**	**4.1900e-003**		**155.8274**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**44.3209**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0540	0.6118	1.8800e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		186.8672	186.8672	5.0300e-003		186.9929
Total	**0.0830**	**0.0540**	**0.6118**	**1.8800e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**186.8672**	**186.8672**	**5.0300e-003**		**186.9929**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**44.3209**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0830	0.0540	0.6118	1.8800e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		186.8672	186.8672	5.0300e-003		186.9929
Total	**0.0830**	**0.0540**	**0.6118**	**1.8800e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**186.8672**	**186.8672**	**5.0300e-003**		**186.9929**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9024	9.6090	23.7909	0.0841	7.1125	0.0703	7.1828	1.9029	0.0657	1.9685		8,560.4590	8,560.4590	0.4374		8,571.3948
Unmitigated	1.9024	9.6090	23.7909	0.0841	7.1125	0.0703	7.1828	1.9029	0.0657	1.9685		8,560.4590	8,560.4590	0.4374		8,571.3948

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	504.64	470.61	401.72	1,657,577	1,657,577
Parking Lot	0.00	0.00	0.00		
Single Family Housing	211.95	267.57	232.74	761,566	761,566
Strip Mall	372.00	210.20	102.15	590,443	590,443
Total	1,088.59	948.38	736.61	3,009,587	3,009,587

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Parking Lot	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Single Family Housing	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Strip Mall	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0413	0.3526	0.1506	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.9758	449.9758	8.6200e-003	8.2500e-003	452.6498
NaturalGas Unmitigated	0.0643	0.5495	0.2347	3.5100e-003		0.0444	0.0444		0.0444	0.0444		701.2630	701.2630	0.0134	0.0129	705.4302

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	3905.9	0.0421	0.3600	0.1532	2.3000e-003		0.0291	0.0291		0.0291	0.0291		459.5180	459.5180	8.8100e-003	8.4200e-003	462.2487
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2032.37	0.0219	0.1873	0.0797	1.2000e-003		0.0151	0.0151		0.0151	0.0151		239.1020	239.1020	4.5800e-003	4.3800e-003	240.5229
Strip Mall	22.4658	2.4000e-004	2.2000e-003	1.8500e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		2.6430	2.6430	5.0000e-005	5.0000e-005	2.6587
Total		**0.0643**	**0.5495**	**0.2347**	**3.5100e-003**		**0.0444**	**0.0444**		**0.0444**	**0.0444**		**701.2630**	**701.2630**	**0.0134**	**0.0129**	**705.4303**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.60518	0.0281	0.2401	0.1022	1.5300e-003		0.0194	0.0194		0.0194	0.0194		306.4915	306.4915	5.8700e-003	5.6200e-003	308.3128
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.2055	0.0130	0.1111	0.0473	7.1000e-004		8.9800e-003	8.9800e-003		8.9800e-003	8.9800e-003		141.8236	141.8236	2.7200e-003	2.6000e-003	142.6663
Strip Mall	0.0141164	1.5000e-004	1.3800e-003	1.1600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6608	1.6608	3.0000e-005	3.0000e-005	1.6706
Total		**0.0413**	**0.3526**	**0.1506**	**2.2500e-003**		**0.0285**	**0.0285**		**0.0285**	**0.0285**		**449.9758**	**449.9758**	**8.6200e-003**	**8.2500e-003**	**452.6498**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Unmitigated	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2417					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7203					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1815	1.5510	0.6600	9.9000e-003		0.1254	0.1254		0.1254	0.1254	0.0000	1,980.0000	1,980.0000	0.0380	0.0363	1,991.7662
Landscaping	0.2767	0.1051	9.1067	4.8000e-004		0.0502	0.0502		0.0502	0.0502		16.3659	16.3659	0.0159		16.7635
Total	**3.4201**	**1.6561**	**9.7667**	**0.0104**		**0.1756**	**0.1756**		**0.1756**	**0.1756**	**0.0000**	**1,996.3659**	**1,996.3659**	**0.0539**	**0.0363**	**2,008.5296**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2417					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7203					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1815	1.5510	0.6600	9.9000e-003		0.1254	0.1254		0.1254	0.1254	0.0000	1,980.0000	1,980.0000	0.0380	0.0363	1,991.7662
Landscaping	0.2767	0.1051	9.1067	4.8000e-004		0.0502	0.0502		0.0502	0.0502		16.3659	16.3659	0.0159		16.7635
Total	**3.4201**	**1.6561**	**9.7667**	**0.0104**		**0.1756**	**0.1756**		**0.1756**	**0.1756**	**0.0000**	**1,996.3659**	**1,996.3659**	**0.0539**	**0.0363**	**2,008.5296**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Commons

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	110.00	Space	0.99	44,000.00	0
Condo/Townhouse	83.00	Dwelling Unit	3.13	83,000.00	237
Single Family Housing	27.00	Dwelling Unit	5.27	48,600.00	77
Strip Mall	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	502.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

The Commons - South Coast Air Basin, Summer

Project Characteristics - SCE CO2 Intensity Factor is based on year 2021 average.

Land Use - Project site is 9.50 acres.

Construction Phase - Construction is anticipated to start in early 2020 and complted by early 2021.

Vehicle Trips - Trip Generation Rates with Internal Capture and Pass-by trips from Traffic Impact Analysis - Table 5-A.

Woodstoves - No wood stoves and fireplaces.

Energy Use -

Sequestration - Approx. 100 trees would be planted on-site - based on conceptual site plan.

Construction Off-road Equipment Mitigation - All construction equipment with 50 hp or greater would utilize Tier 2 engines. Fugitive dust emissions would be control with on-site watering at least three times daily.

Energy Mitigation - Rooftop solar electricity and high efficienct lighting ssystems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberNoFireplace	8.30	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00
tblFireplaces	NumberWood	4.15	0.00
tblFireplaces	NumberWood	1.35	0.00
tblLandUse	LotAcreage	5.19	3.13
tblLandUse	LotAcreage	8.77	5.27
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblSequestration	NumberOfNewTrees	0.00	100.00
tblVehicleTrips	WD_TR	5.81	6.08
tblVehicleTrips	WD_TR	9.52	7.85
tblVehicleTrips	WD_TR	44.32	74.40
tblWoodstoves	NumberCatalytic	4.15	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	4.15	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1572	42.4719	22.2473	0.0423	18.2675	2.1990	20.4664	9.9840	2.0230	12.0071	0.0000	4,128.0984	4,128.0984	1.1978	0.0000	4,145.2845
2021	44.3963	19.5931	20.4195	0.0420	1.1340	0.9700	2.1039	0.3036	0.9119	1.2155	0.0000	4,091.0598	4,091.0598	0.7183	0.0000	4,107.9686
Maximum	**44.3963**	**42.4719**	**22.2473**	**0.0423**	**18.2675**	**2.1990**	**20.4664**	**9.9840**	**2.0230**	**12.0071**	**0.0000**	**4,128.0984**	**4,128.0984**	**1.1978**	**0.0000**	**4,145.2845**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.1572	42.4719	22.2473	0.0423	7.2470	2.1990	9.4460	3.9263	2.0230	5.9494	0.0000	4,128.0984	4,128.0984	1.1978	0.0000	4,145.2845
2021	44.3963	19.5931	20.4195	0.0420	1.1340	0.9700	2.1039	0.3036	0.9119	1.2155	0.0000	4,091.0598	4,091.0598	0.7183	0.0000	4,107.9686
Maximum	**44.3963**	**42.4719**	**22.2473**	**0.0423**	**7.2470**	**2.1990**	**9.4460**	**3.9263**	**2.0230**	**5.9494**	**0.0000**	**4,128.0984**	**4,128.0984**	**1.1978**	**0.0000**	**4,145.2845**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**56.80**	**0.00**	**48.83**	**58.88**	**0.00**	**45.81**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Energy	0.0643	0.5495	0.2347	3.5100e-003		0.0444	0.0444		0.0444	0.0444		701.2630	701.2630	0.0134	0.0129	705.4302
Mobile	1.9808	9.4150	25.1434	0.0888	7.1125	0.0699	7.1824	1.9029	0.0653	1.9681		9,024.2593	9,024.2593	0.4373		9,035.1919
Total	**5.4651**	**11.6206**	**35.1447**	**0.1026**	**7.1125**	**0.2899**	**7.4024**	**1.9029**	**0.2852**	**2.1881**	**0.0000**	**11,721.8882**	**11,721.8882**	**0.5046**	**0.0492**	**11,749.1517**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Energy	0.0413	0.3526	0.1506	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.9758	449.9758	8.6200e-003	8.2500e-003	452.6498
Mobile	1.9808	9.4150	25.1434	0.0888	7.1125	0.0699	7.1824	1.9029	0.0653	1.9681		9,024.2593	9,024.2593	0.4373		9,035.1919
Total	**5.4421**	**11.4237**	**35.0606**	**0.1014**	**7.1125**	**0.2740**	**7.3865**	**1.9029**	**0.2693**	**2.1722**	**0.0000**	**11,470.6010**	**11,470.6010**	**0.4998**	**0.0446**	**11,496.3713**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.42**	**1.69**	**0.24**	**1.23**	**0.00**	**5.49**	**0.21**	**0.00**	**5.58**	**0.73**	**0.00**	**2.14**	**2.14**	**0.96**	**9.38**	**2.15**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	2/14/2020	5	10	
2	Grading	Grading	2/15/2020	3/13/2020	5	20	
3	Building Construction	Building Construction	3/14/2020	1/29/2021	5	230	
4	Paving	Paving	1/30/2021	2/26/2021	5	20	
5	Architectural Coating	Architectural Coating	2/27/2021	3/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.99

Residential Indoor: 266,490; Residential Outdoor: 88,830; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 2,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	90.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0807	0.0546	0.7336	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.8905	205.8905	5.9300e-003		206.0389
Total	**0.0807**	**0.0546**	**0.7336**	**2.0700e-003**	**0.2012**	**1.5300e-003**	**0.2027**	**0.0534**	**1.4100e-003**	**0.0548**		**205.8905**	**205.8905**	**5.9300e-003**		**206.0389**

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0807	0.0546	0.7336	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.8905	205.8905	5.9300e-003		206.0389
Total	**0.0807**	**0.0546**	**0.7336**	**2.0700e-003**	**0.2012**	**1.5300e-003**	**0.2027**	**0.0534**	**1.4100e-003**	**0.0548**		**205.8905**	**205.8905**	**5.9300e-003**		**206.0389**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716		2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**6.5523**	**1.2734**	**7.8258**	**3.3675**	**1.1716**	**4.5390**		**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0455	0.6114	1.7200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		171.5755	171.5755	4.9400e-003		171.6991
Total	**0.0673**	**0.0455**	**0.6114**	**1.7200e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1800e-003**	**0.0456**		**171.5755**	**171.5755**	**4.9400e-003**		**171.6991**

3.3 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	2.4288	26.3859	16.0530	0.0297		1.2734	1.2734		1.1716	1.1716	0.0000	2,872.4851	2,872.4851	0.9290		2,895.7106
Total	**2.4288**	**26.3859**	**16.0530**	**0.0297**	**2.5554**	**1.2734**	**3.8288**	**1.3133**	**1.1716**	**2.4849**	**0.0000**	**2,872.4851**	**2,872.4851**	**0.9290**		**2,895.7106**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0673	0.0455	0.6114	1.7200e-003	0.1677	1.2800e-003	0.1689	0.0445	1.1800e-003	0.0456		171.5755	171.5755	4.9400e-003		171.6991
Total	**0.0673**	**0.0455**	**0.6114**	**1.7200e-003**	**0.1677**	**1.2800e-003**	**0.1689**	**0.0445**	**1.1800e-003**	**0.0456**		**171.5755**	**171.5755**	**4.9400e-003**		**171.6991**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0664	2.1064	0.5124	5.1000e-003	0.1280	0.0104	0.1384	0.0368	9.9800e-003	0.0468		545.5826	545.5826	0.0349		546.4556
Worker	0.4037	0.2729	3.6682	0.0103	1.0060	7.6700e-003	1.0137	0.2668	7.0700e-003	0.2739		1,029.4527	1,029.4527	0.0297		1,030.1944
Total	**0.4701**	**2.3793**	**4.1806**	**0.0154**	**1.1340**	**0.0181**	**1.1521**	**0.3036**	**0.0171**	**0.3207**		**1,575.0353**	**1,575.0353**	**0.0646**		**1,576.6500**

3.4 Building Construction - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0664	2.1064	0.5124	5.1000e-003	0.1280	0.0104	0.1384	0.0368	9.9800e-003	0.0468		545.5826	545.5826	0.0349		546.4556
Worker	0.4037	0.2729	3.6682	0.0103	1.0060	7.6700e-003	1.0137	0.2668	7.0700e-003	0.2739		1,029.4527	1,029.4527	0.0297		1,030.1944
Total	**0.4701**	**2.3793**	**4.1806**	**0.0154**	**1.1340**	**0.0181**	**1.1521**	**0.3036**	**0.0171**	**0.3207**		**1,575.0353**	**1,575.0353**	**0.0646**		**1,576.6500**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0563	1.9154	0.4651	5.0600e-003	0.1280	3.9100e-003	0.1319	0.0368	3.7400e-003	0.0406		541.4875	541.4875	0.0335		542.3246
Worker	0.3767	0.2457	3.3792	0.0100	1.0060	7.4500e-003	1.0134	0.2668	6.8600e-003	0.2737		996.2085	996.2085	0.0269		996.8797
Total	**0.4329**	**2.1610**	**3.8443**	**0.0151**	**1.1340**	**0.0114**	**1.1453**	**0.3036**	**0.0106**	**0.3142**		**1,537.6959**	**1,537.6959**	**0.0603**		**1,539.2043**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0563	1.9154	0.4651	5.0600e-003	0.1280	3.9100e-003	0.1319	0.0368	3.7400e-003	0.0406		541.4875	541.4875	0.0335		542.3246
Worker	0.3767	0.2457	3.3792	0.0100	1.0060	7.4500e-003	1.0134	0.2668	6.8600e-003	0.2737		996.2085	996.2085	0.0269		996.8797
Total	**0.4329**	**2.1610**	**3.8443**	**0.0151**	**1.1340**	**0.0114**	**1.1453**	**0.3036**	**0.0106**	**0.3142**		**1,537.6959**	**1,537.6959**	**0.0603**		**1,539.2043**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3852**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.5 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.1297					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3852**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0628	0.0410	0.5632	1.6700e-003	0.1677	1.2400e-003	0.1689	0.0445	1.1400e-003	0.0456		166.0347	166.0347	4.4800e-003		166.1466
Total	**0.0628**	**0.0410**	**0.5632**	**1.6700e-003**	**0.1677**	**1.2400e-003**	**0.1689**	**0.0445**	**1.1400e-003**	**0.0456**		**166.0347**	**166.0347**	**4.4800e-003**		**166.1466**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**44.3209**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0753	0.0491	0.6758	2.0000e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		199.2417	199.2417	5.3700e-003		199.3759
Total	**0.0753**	**0.0491**	**0.6758**	**2.0000e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**199.2417**	**199.2417**	**5.3700e-003**		**199.3759**

3.6 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	44.1020					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**44.3209**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0753	0.0491	0.6758	2.0000e-003	0.2012	1.4900e-003	0.2027	0.0534	1.3700e-003	0.0547		199.2417	199.2417	5.3700e-003		199.3759
Total	**0.0753**	**0.0491**	**0.6758**	**2.0000e-003**	**0.2012**	**1.4900e-003**	**0.2027**	**0.0534**	**1.3700e-003**	**0.0547**		**199.2417**	**199.2417**	**5.3700e-003**		**199.3759**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9808	9.4150	25.1434	0.0888	7.1125	0.0699	7.1824	1.9029	0.0653	1.9681		9,024.2593	9,024.2593	0.4373		9,035.1919
Unmitigated	1.9808	9.4150	25.1434	0.0888	7.1125	0.0699	7.1824	1.9029	0.0653	1.9681		9,024.2593	9,024.2593	0.4373		9,035.1919

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	504.64	470.61	401.72	1,657,577	1,657,577
Parking Lot	0.00	0.00	0.00		
Single Family Housing	211.95	267.57	232.74	761,566	761,566
Strip Mall	372.00	210.20	102.15	590,443	590,443
Total	1,088.59	948.38	736.61	3,009,587	3,009,587

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Parking Lot	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Single Family Housing	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Strip Mall	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0413	0.3526	0.1506	2.2500e-003		0.0285	0.0285		0.0285	0.0285		449.9758	449.9758	8.6200e-003	8.2500e-003	452.6498
NaturalGas Unmitigated	0.0643	0.5495	0.2347	3.5100e-003		0.0444	0.0444		0.0444	0.0444		701.2630	701.2630	0.0134	0.0129	705.4302

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	3905.9	0.0421	0.3600	0.1532	2.3000e-003		0.0291	0.0291		0.0291	0.0291		459.5180	459.5180	8.8100e-003	8.4200e-003	462.2487
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2032.37	0.0219	0.1873	0.0797	1.2000e-003		0.0151	0.0151		0.0151	0.0151		239.1020	239.1020	4.5800e-003	4.3800e-003	240.5229
Strip Mall	22.4658	2.4000e-004	2.2000e-003	1.8500e-003	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004		2.6430	2.6430	5.0000e-005	5.0000e-005	2.6587
Total		**0.0643**	**0.5495**	**0.2347**	**3.5100e-003**		**0.0444**	**0.0444**		**0.0444**	**0.0444**		**701.2630**	**701.2630**	**0.0134**	**0.0129**	**705.4303**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.60518	0.0281	0.2401	0.1022	1.5300e-003		0.0194	0.0194		0.0194	0.0194		306.4915	306.4915	5.8700e-003	5.6200e-003	308.3128
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.2055	0.0130	0.1111	0.0473	7.1000e-004		8.9800e-003	8.9800e-003		8.9800e-003	8.9800e-003		141.8236	141.8236	2.7200e-003	2.6000e-003	142.6663
Strip Mall	0.0141164	1.5000e-004	1.3800e-003	1.1600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		1.6608	1.6608	3.0000e-005	3.0000e-005	1.6706
Total		**0.0413**	**0.3526**	**0.1506**	**2.2500e-003**		**0.0285**	**0.0285**		**0.0285**	**0.0285**		**449.9758**	**449.9758**	**8.6200e-003**	**8.2500e-003**	**452.6498**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296
Unmitigated	3.4201	1.6561	9.7667	0.0104		0.1756	0.1756		0.1756	0.1756	0.0000	1,996.3659	1,996.3659	0.0539	0.0363	2,008.5296

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2417					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7203					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1815	1.5510	0.6600	9.9000e-003		0.1254	0.1254		0.1254	0.1254	0.0000	1,980.0000	1,980.0000	0.0380	0.0363	1,991.7662
Landscaping	0.2767	0.1051	9.1067	4.8000e-004		0.0502	0.0502		0.0502	0.0502		16.3659	16.3659	0.0159		16.7635
Total	**3.4201**	**1.6561**	**9.7667**	**0.0104**		**0.1756**	**0.1756**		**0.1756**	**0.1756**	**0.0000**	**1,996.3659**	**1,996.3659**	**0.0539**	**0.0363**	**2,008.5296**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2417					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.7203					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1815	1.5510	0.6600	9.9000e-003		0.1254	0.1254		0.1254	0.1254	0.0000	1,980.0000	1,980.0000	0.0380	0.0363	1,991.7662
Landscaping	0.2767	0.1051	9.1067	4.8000e-004		0.0502	0.0502		0.0502	0.0502		16.3659	16.3659	0.0159		16.7635
Total	**3.4201**	**1.6561**	**9.7667**	**0.0104**		**0.1756**	**0.1756**		**0.1756**	**0.1756**	**0.0000**	**1,996.3659**	**1,996.3659**	**0.0539**	**0.0363**	**2,008.5296**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

The Commons

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	110.00	Space	0.99	44,000.00	0
Condo/Townhouse	83.00	Dwelling Unit	3.13	83,000.00	237
Single Family Housing	27.00	Dwelling Unit	5.27	48,600.00	77
Strip Mall	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	502.65	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - SCE CO2 Intensity Factor is based on year 2021 average.

Land Use - Project site is 9.50 acres.

Construction Phase - Construction is anticipated to start in early 2020 and complted by early 2021.

Vehicle Trips - Trip Generation Rates with Internal Capture and Pass-by trips from Traffic Impact Analysis - Table 5-A.

Woodstoves - No wood stoves and fireplaces.

Energy Use -

Sequestration - Approx. 100 trees would be planted on-site - based on conceptual site plan.

Construction Off-road Equipment Mitigation - All construction equipment with 50 hp or greater would utilize Tier 2 engines. Fugitive dust emissions would be control with on-site watering at least three times daily.

Energy Mitigation - Rooftop solar electricity and high efficienct lighting ssystems would be utilized in accordance with 2019 building energy efficiency standards.

Water Mitigation - Low-flow water fixtures for indoor water use reduction and high efficiency irrigation for outdoor water use reduction.

Waste Mitigation - Assuming California's goal of 75 percent recycling, composting, or source reduction of solid waste beyond 2020.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberNoFireplace	8.30	0.00
tblFireplaces	NumberNoFireplace	2.70	0.00
tblFireplaces	NumberWood	4.15	0.00
tblFireplaces	NumberWood	1.35	0.00
tblLandUse	LotAcreage	5.19	3.13
tblLandUse	LotAcreage	8.77	5.27
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblSequestration	NumberOfNewTrees	0.00	100.00
tblVehicleTrips	WD_TR	5.81	6.08
tblVehicleTrips	WD_TR	9.52	7.85
tblVehicleTrips	WD_TR	44.32	74.40
tblWoodstoves	NumberCatalytic	4.15	0.00
tblWoodstoves	NumberCatalytic	1.35	0.00
tblWoodstoves	NumberNoncatalytic	4.15	0.00
tblWoodstoves	NumberNoncatalytic	1.35	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3162	2.7380	2.4512	4.8800e-003	0.2748	0.1424	0.4172	0.1152	0.1334	0.2486	0.0000	431.2911	431.2911	0.0790	0.0000	433.2671
2021	0.4829	0.3519	0.3884	7.3000e-004	0.0153	0.0179	0.0332	4.1000e-003	0.0168	0.0209	0.0000	64.1949	64.1949	0.0132	0.0000	64.5243
Maximum	**0.4829**	**2.7380**	**2.4512**	**4.8800e-003**	**0.2748**	**0.1424**	**0.4172**	**0.1152**	**0.1334**	**0.2486**	**0.0000**	**431.2911**	**431.2911**	**0.0790**	**0.0000**	**433.2671**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3162	2.7380	2.4512	4.8800e-003	0.1798	0.1424	0.3221	0.0644	0.1334	0.1978	0.0000	431.2908	431.2908	0.0790	0.0000	433.2668
2021	0.4829	0.3519	0.3884	7.3000e-004	0.0153	0.0179	0.0332	4.1000e-003	0.0168	0.0209	0.0000	64.1948	64.1948	0.0132	0.0000	64.5242
Maximum	**0.4829**	**2.7380**	**2.4512**	**4.8800e-003**	**0.1798**	**0.1424**	**0.3221**	**0.0644**	**0.1334**	**0.1978**	**0.0000**	**431.2908**	**431.2908**	**0.0790**	**0.0000**	**433.2668**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**32.77**	**0.00**	**21.11**	**42.60**	**0.00**	**18.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2020	4-30-2020	0.9371	0.9371
2	5-1-2020	7-31-2020	0.7937	0.7937
3	8-1-2020	10-31-2020	0.7944	0.7944
4	11-1-2020	1-31-2021	0.7658	0.7658
5	2-1-2021	4-30-2021	0.5937	0.5937
		Highest	0.9371	0.9371

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5774	0.0325	1.1466	1.8000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	24.3087	24.3087	2.2300e-003	4.1000e-004	24.4872
Energy	0.0117	0.1003	0.0428	6.4000e-004		8.1100e-003	8.1100e-003		8.1100e-003	8.1100e-003	0.0000	280.9079	280.9079	0.0117	4.1000e-003	282.4218
Mobile	0.3012	1.5949	3.9383	0.0140	1.1430	0.0114	1.1545	0.3063	0.0107	0.3170	0.0000	1,287.6640	1,287.6640	0.0644	0.0000	1,289.2739
Waste						0.0000	0.0000		0.0000	0.0000	15.2243	0.0000	15.2243	0.8997	0.0000	37.7176
Water						0.0000	0.0000		0.0000	0.0000	2.3912	34.3966	36.7878	0.2476	6.2100e-003	44.8280
Total	**0.8904**	**1.7277**	**5.1277**	**0.0148**	**1.1430**	**0.0274**	**1.1704**	**0.3063**	**0.0266**	**0.3329**	**17.6156**	**1,627.2772**	**1,644.8928**	**1.2257**	**0.0107**	**1,678.7285**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5774	0.0325	1.1466	1.8000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	24.3087	24.3087	2.2300e-003	4.1000e-004	24.4872
Energy	7.5300e-003	0.0643	0.0275	4.1000e-004		5.2000e-003	5.2000e-003		5.2000e-003	5.2000e-003	0.0000	136.7889	136.7889	5.0200e-003	2.1100e-003	137.5431
Mobile	0.3012	1.5949	3.9383	0.0140	1.1430	0.0114	1.1545	0.3063	0.0107	0.3170	0.0000	1,287.6640	1,287.6640	0.0644	0.0000	1,289.2739
Waste						0.0000	0.0000		0.0000	0.0000	15.2243	0.0000	15.2243	0.8997	0.0000	37.7176
Water						0.0000	0.0000		0.0000	0.0000	1.9130	29.1881	31.1011	0.1982	4.9900e-003	37.5416
Total	**0.8862**	**1.6917**	**5.1124**	**0.0145**	**1.1430**	**0.0245**	**1.1675**	**0.3063**	**0.0237**	**0.3300**	**17.1373**	**1,477.9497**	**1,495.0870**	**1.1695**	**7.5100e-003**	**1,526.5633**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.47**	**2.08**	**0.30**	**1.56**	**0.00**	**10.62**	**0.25**	**0.00**	**10.92**	**0.87**	**2.71**	**9.18**	**9.11**	**4.58**	**29.94**	**9.06**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	70.8000
Total	**70.8000**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/1/2020	2/14/2020	5	10	
2	Grading	Grading	2/15/2020	3/13/2020	5	20	
3	Building Construction	Building Construction	3/14/2020	1/29/2021	5	230	
4	Paving	Paving	1/30/2021	2/26/2021	5	20	
5	Architectural Coating	Architectural Coating	2/27/2021	3/26/2021	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0.99

Residential Indoor: 266,490; Residential Outdoor: 88,830; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 2,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	90.00	20.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.1000e-004	3.4100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8898	0.8898	3.0000e-005	0.0000	0.8904
Total	**4.0000e-004**	**3.1000e-004**	**3.4100e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8898**	**0.8898**	**3.0000e-005**	**0.0000**	**0.8904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0352**	**0.0110**	**0.0462**	**0.0194**	**0.0101**	**0.0295**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-004	3.1000e-004	3.4100e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8898	0.8898	3.0000e-005	0.0000	0.8904
Total	**4.0000e-004**	**3.1000e-004**	**3.4100e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8898**	**0.8898**	**3.0000e-005**	**0.0000**	**0.8904**

3.3 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2639	0.1605	3.0000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	26.0588	26.0588	8.4300e-003	0.0000	26.2694
Total	**0.0243**	**0.2639**	**0.1605**	**3.0000e-004**	**0.0655**	**0.0127**	**0.0783**	**0.0337**	**0.0117**	**0.0454**	**0.0000**	**26.0588**	**26.0588**	**8.4300e-003**	**0.0000**	**26.2694**

3.3 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.1000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4829	1.4829	4.0000e-005	0.0000	1.4840
Total	**6.7000e-004**	**5.1000e-004**	**5.6900e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4829**	**1.4829**	**4.0000e-005**	**0.0000**	**1.4840**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0243	0.2639	0.1605	3.0000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	26.0587	26.0587	8.4300e-003	0.0000	26.2694
Total	**0.0243**	**0.2639**	**0.1605**	**3.0000e-004**	**0.0256**	**0.0127**	**0.0383**	**0.0131**	**0.0117**	**0.0249**	**0.0000**	**26.0587**	**26.0587**	**8.4300e-003**	**0.0000**	**26.2694**

3.3 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.1000e-004	5.6900e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4829	1.4829	4.0000e-005	0.0000	1.4840
Total	**6.7000e-004**	**5.1000e-004**	**5.6900e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4829**	**1.4829**	**4.0000e-005**	**0.0000**	**1.4840**

3.4 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2215	2.0049	1.7607	2.8100e-003		0.1167	0.1167		0.1098	0.1098	0.0000	242.0324	242.0324	0.0591	0.0000	243.5086
Total	**0.2215**	**2.0049**	**1.7607**	**2.8100e-003**		**0.1167**	**0.1167**		**0.1098**	**0.1098**	**0.0000**	**242.0324**	**242.0324**	**0.0591**	**0.0000**	**243.5086**

3.4 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0800e-003	0.2241	0.0565	5.3000e-004	0.0132	1.1000e-003	0.0143	3.8000e-003	1.0500e-003	4.8500e-003	0.0000	51.1313	51.1313	3.4100e-003	0.0000	51.2166
Worker	0.0419	0.0322	0.3568	1.0300e-003	0.1032	8.0000e-004	0.1040	0.0274	7.4000e-004	0.0281	0.0000	92.9806	92.9806	2.6800e-003	0.0000	93.0475
Total	**0.0489**	**0.2563**	**0.4133**	**1.5600e-003**	**0.1164**	**1.9000e-003**	**0.1183**	**0.0312**	**1.7900e-003**	**0.0330**	**0.0000**	**144.1119**	**144.1119**	**6.0900e-003**	**0.0000**	**144.2641**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2215	2.0049	1.7607	2.8100e-003		0.1167	0.1167		0.1098	0.1098	0.0000	242.0322	242.0322	0.0591	0.0000	243.5083
Total	**0.2215**	**2.0049**	**1.7607**	**2.8100e-003**		**0.1167**	**0.1167**		**0.1098**	**0.1098**	**0.0000**	**242.0322**	**242.0322**	**0.0591**	**0.0000**	**243.5083**

3.4 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0800e-003	0.2241	0.0565	5.3000e-004	0.0132	1.1000e-003	0.0143	3.8000e-003	1.0500e-003	4.8500e-003	0.0000	51.1313	51.1313	3.4100e-003	0.0000	51.2166
Worker	0.0419	0.0322	0.3568	1.0300e-003	0.1032	8.0000e-004	0.1040	0.0274	7.4000e-004	0.0281	0.0000	92.9806	92.9806	2.6800e-003	0.0000	93.0475
Total	**0.0489**	**0.2563**	**0.4133**	**1.5600e-003**	**0.1164**	**1.9000e-003**	**0.1183**	**0.0312**	**1.7900e-003**	**0.0330**	**0.0000**	**144.1119**	**144.1119**	**6.0900e-003**	**0.0000**	**144.2641**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0200	0.1830	0.1740	2.8000e-004		0.0101	0.0101		9.4600e-003	9.4600e-003	0.0000	24.3219	24.3219	5.8700e-003	0.0000	24.4686
Total	**0.0200**	**0.1830**	**0.1740**	**2.8000e-004**		**0.0101**	**0.0101**		**9.4600e-003**	**9.4600e-003**	**0.0000**	**24.3219**	**24.3219**	**5.8700e-003**	**0.0000**	**24.4686**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-004	0.0204	5.1600e-003	5.0000e-005	1.3200e-003	4.0000e-005	1.3700e-003	3.8000e-004	4.0000e-005	4.2000e-004	0.0000	5.0989	5.0989	3.3000e-004	0.0000	5.1072
Worker	3.9300e-003	2.9100e-003	0.0330	1.0000e-004	0.0104	8.0000e-005	0.0105	2.7500e-003	7.0000e-005	2.8300e-003	0.0000	9.0404	9.0404	2.4000e-004	0.0000	9.0464
Total	**4.5300e-003**	**0.0233**	**0.0381**	**1.5000e-004**	**0.0117**	**1.2000e-004**	**0.0118**	**3.1300e-003**	**1.1000e-004**	**3.2500e-003**	**0.0000**	**14.1393**	**14.1393**	**5.7000e-004**	**0.0000**	**14.1536**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0200	0.1830	0.1740	2.8000e-004		0.0101	0.0101		9.4600e-003	9.4600e-003	0.0000	24.3219	24.3219	5.8700e-003	0.0000	24.4686
Total	**0.0200**	**0.1830**	**0.1740**	**2.8000e-004**		**0.0101**	**0.0101**		**9.4600e-003**	**9.4600e-003**	**0.0000**	**24.3219**	**24.3219**	**5.8700e-003**	**0.0000**	**24.4686**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.0000e-004	0.0204	5.1600e-003	5.0000e-005	1.3200e-003	4.0000e-005	1.3700e-003	3.8000e-004	4.0000e-005	4.2000e-004	0.0000	5.0989	5.0989	3.3000e-004	0.0000	5.1072
Worker	3.9300e-003	2.9100e-003	0.0330	1.0000e-004	0.0104	8.0000e-005	0.0105	2.7500e-003	7.0000e-005	2.8300e-003	0.0000	9.0404	9.0404	2.4000e-004	0.0000	9.0464
Total	**4.5300e-003**	**0.0233**	**0.0381**	**1.5000e-004**	**0.0117**	**1.2000e-004**	**0.0118**	**3.1300e-003**	**1.1000e-004**	**3.2500e-003**	**0.0000**	**14.1393**	**14.1393**	**5.7000e-004**	**0.0000**	**14.1536**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.3000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.6000e-004	5.2300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4350	1.4350	4.0000e-005	0.0000	1.4359
Total	**6.2000e-004**	**4.6000e-004**	**5.2300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4350**	**1.4350**	**4.0000e-005**	**0.0000**	**1.4359**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	1.3000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2000e-004	4.6000e-004	5.2300e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4350	1.4350	4.0000e-005	0.0000	1.4359
Total	**6.2000e-004**	**4.6000e-004**	**5.2300e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4350**	**1.4350**	**4.0000e-005**	**0.0000**	**1.4359**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.4432**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	5.6000e-004	6.2800e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7220	1.7220	5.0000e-005	0.0000	1.7231
Total	**7.5000e-004**	**5.6000e-004**	**6.2800e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7220**	**1.7220**	**5.0000e-005**	**0.0000**	**1.7231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1900e-003	0.0153	0.0182	3.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	2.5533	2.5533	1.8000e-004	0.0000	2.5576
Total	**0.4432**	**0.0153**	**0.0182**	**3.0000e-005**		**9.4000e-004**	**9.4000e-004**		**9.4000e-004**	**9.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.8000e-004**	**0.0000**	**2.5576**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	5.6000e-004	6.2800e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7220	1.7220	5.0000e-005	0.0000	1.7231
Total	**7.5000e-004**	**5.6000e-004**	**6.2800e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7220**	**1.7220**	**5.0000e-005**	**0.0000**	**1.7231**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3012	1.5949	3.9383	0.0140	1.1430	0.0114	1.1545	0.3063	0.0107	0.3170	0.0000	1,287.6640	1,287.6640	0.0644	0.0000	1,289.2739
Unmitigated	0.3012	1.5949	3.9383	0.0140	1.1430	0.0114	1.1545	0.3063	0.0107	0.3170	0.0000	1,287.6640	1,287.6640	0.0644	0.0000	1,289.2739

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	504.64	470.61	401.72	1,657,577	1,657,577
Parking Lot	0.00	0.00	0.00		
Single Family Housing	211.95	267.57	232.74	761,566	761,566
Strip Mall	372.00	210.20	102.15	590,443	590,443
Total	1,088.59	948.38	736.61	3,009,587	3,009,587

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Strip Mall	16.60	8.40	6.90	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Parking Lot	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Single Family Housing	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924
Strip Mall	0.551391	0.043400	0.201050	0.120272	0.016162	0.005864	0.021029	0.030512	0.002059	0.001866	0.004766	0.000706	0.000924

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	62.2904	62.2904	3.5900e-003	7.4000e-004	62.6018
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	164.8060	164.8060	9.5100e-003	1.9700e-003	165.6299
NaturalGas Mitigated	7.5300e-003	0.0643	0.0275	4.1000e-004		5.2000e-003	5.2000e-003		5.2000e-003	5.2000e-003	0.0000	74.4985	74.4985	1.4300e-003	1.3700e-003	74.9412
NaturalGas Unmitigated	0.0117	0.1003	0.0428	6.4000e-004		8.1100e-003	8.1100e-003		8.1100e-003	8.1100e-003	0.0000	116.1020	116.1020	2.2300e-003	2.1300e-003	116.7919

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	1.42565e+006	7.6900e-003	0.0657	0.0280	4.2000e-004		5.3100e-003	5.3100e-003		5.3100e-003	5.3100e-003	0.0000	76.0784	76.0784	1.4600e-003	1.3900e-003	76.5305
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	741814	4.0000e-003	0.0342	0.0146	2.2000e-004		2.7600e-003	2.7600e-003		2.7600e-003	2.7600e-003	0.0000	39.5860	39.5860	7.6000e-004	7.3000e-004	39.8213
Strip Mall	8200	4.0000e-005	4.0000e-004	3.4000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4376	0.4376	1.0000e-005	1.0000e-005	0.4402
Total		**0.0117**	**0.1003**	**0.0428**	**6.4000e-004**		**8.1000e-003**	**8.1000e-003**		**8.1000e-003**	**8.1000e-003**	**0.0000**	**116.1020**	**116.1020**	**2.2300e-003**	**2.1300e-003**	**116.7919**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse	950890	5.1300e-003	0.0438	0.0186	2.8000e-004		3.5400e-003	3.5400e-003		3.5400e-003	3.5400e-003	0.0000	50.7431	50.7431	9.7000e-004	9.3000e-004	51.0446
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	440008	2.3700e-003	0.0203	8.6300e-003	1.3000e-004		1.6400e-003	1.6400e-003		1.6400e-003	1.6400e-003	0.0000	23.4805	23.4805	4.5000e-004	4.3000e-004	23.6200
Strip Mall	5152.5	3.0000e-005	2.5000e-004	2.1000e-004	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2750	0.2750	1.0000e-005	1.0000e-005	0.2766
Total		**7.5300e-003**	**0.0643**	**0.0275**	**4.1000e-004**		**5.2000e-003**	**5.2000e-003**		**5.2000e-003**	**5.2000e-003**	**0.0000**	**74.4985**	**74.4985**	**1.4300e-003**	**1.3700e-003**	**74.9412**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	418315	95.3751	5.5000e-003	1.1400e-003	95.8519
Parking Lot	15400	3.5112	2.0000e-004	4.0000e-005	3.5287
Single Family Housing	221624	50.5298	2.9200e-003	6.0000e-004	50.7825
Strip Mall	67500	15.3899	8.9000e-004	1.8000e-004	15.4668
Total		**164.8060**	**9.5100e-003**	**1.9600e-003**	**165.6299**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	160709	36.6414	2.1100e-003	4.4000e-004	36.8246
Parking Lot	5728.8	1.3062	8.0000e-005	2.0000e-005	1.3127
Single Family Housing	84894.8	19.3559	1.1200e-003	2.3000e-004	19.4526
Strip Mall	21873	4.9870	2.9000e-004	6.0000e-005	5.0119
Total		**62.2904**	**3.6000e-003**	**7.5000e-004**	**62.6018**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5774	0.0325	1.1466	1.8000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	24.3087	24.3087	2.2300e-003	4.1000e-004	24.4872
Unmitigated	0.5774	0.0325	1.1466	1.8000e-004		7.8400e-003	7.8400e-003		7.8400e-003	7.8400e-003	0.0000	24.3087	24.3087	2.2300e-003	4.1000e-004	24.4872

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.2700e-003	0.0194	8.2500e-003	1.2000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	22.4528	22.4528	4.3000e-004	4.1000e-004	22.5863
Landscaping	0.0346	0.0131	1.1383	6.0000e-005		6.2700e-003	6.2700e-003		6.2700e-003	6.2700e-003	0.0000	1.8559	1.8559	1.8000e-003	0.0000	1.9010
Total	**0.5774**	**0.0325**	**1.1466**	**1.8000e-004**		**7.8400e-003**	**7.8400e-003**		**7.8400e-003**	**7.8400e-003**	**0.0000**	**24.3087**	**24.3087**	**2.2300e-003**	**4.1000e-004**	**24.4872**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.2700e-003	0.0194	8.2500e-003	1.2000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	22.4528	22.4528	4.3000e-004	4.1000e-004	22.5863
Landscaping	0.0346	0.0131	1.1383	6.0000e-005		6.2700e-003	6.2700e-003		6.2700e-003	6.2700e-003	0.0000	1.8559	1.8559	1.8000e-003	0.0000	1.9010
Total	**0.5774**	**0.0325**	**1.1466**	**1.8000e-004**		**7.8400e-003**	**7.8400e-003**		**7.8400e-003**	**7.8400e-003**	**0.0000**	**24.3087**	**24.3087**	**2.2300e-003**	**4.1000e-004**	**24.4872**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	31.1011	0.1982	4.9900e-003	37.5416
Unmitigated	36.7878	0.2476	6.2100e-003	44.8280

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	5.40778 / 3.40926	26.4059	0.1776	4.4600e-003	32.1746
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.75916 / 1.10903	8.5899	0.0578	1.4500e-003	10.4664
Strip Mall	0.370363 / 0.226996	1.7920	0.0122	3.0000e-004	2.1870
Total		**36.7878**	**0.2476**	**6.2100e-003**	**44.8280**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	4.32623 / 3.20129	22.3251	0.1422	3.5800e-003	26.9461
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.40733 / 1.04138	7.2624	0.0463	1.1600e-003	8.7656
Strip Mall	0.29629 / 0.21315	1.5135	9.7400e-003	2.4000e-004	1.8299
Total		**31.1011**	**0.1982**	**4.9800e-003**	**37.5416**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.2243	0.8997	0.0000	37.7176
Unmitigated	15.2243	0.8997	0.0000	37.7176

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	38.18	7.7502	0.4580	0.0000	19.2008
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Strip Mall	5.25	1.0657	0.0630	0.0000	2.6402
Total		**15.2243**	**0.8997**	**0.0000**	**37.7176**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	38.18	7.7502	0.4580	0.0000	19.2008
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	31.57	6.4084	0.3787	0.0000	15.8766
Strip Mall	5.25	1.0657	0.0630	0.0000	2.6402
Total		**15.2243**	**0.8997**	**0.0000**	**37.7176**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	70.8000	0.0000	0.0000	70.8000

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	100	70.8000	0.0000	0.0000	70.8000
Total		**70.8000**	**0.0000**	**0.0000**	**70.8000**

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APPENDIX C-1:

Biological Resources Assessment, The Commons Project, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, LSA Associates, Inc., March 2020

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BIOLOGICAL RESOURCES ASSESSMENT

THE COMMONS

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

LSA

March 2020

BIOLOGICAL RESOURCES ASSESSMENT

THE COMMONS

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

Prepared for:

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LSA Project No. CCT1801

LSA

March 2020

EXECUTIVE SUMMARY

The City of Claremont (City) retained LSA to conduct a Biological Resources Assessment in support of The Commons Project (project). The assessment included a literature review, field survey, and this report. The project is a master planned residential/mixed-use development. The City is the Lead Agency for the project and required this study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

Marginally suitable habitat is present within the project area for coastal California gnatcatcher (*Polioptila californica californica*), a federally-listed as threatened species. Focused surveys will be required to determine presence or absence of this species, and any impacts and mitigation.

The project area contains suitable habitat for nesting birds protected by the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code. However, the U.S. Fish and Wildlife Service (USFWS) has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities. It is recommended that vegetation removal be conducted outside the general bird nesting season (February 1 through August 31) to avoid impacts to nesting birds. If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal.

No drainage features, ponded areas, or riparian habitat potentially subject to the jurisdiction of the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (USACE), and/or Regional Water Quality Control Board (RWQCB) were found within the study area.

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A: PLANT AND ANIMAL SPECIES OBSERVED
B: SPECIAL-STATUS SPECIES SUMMARY

INTRODUCTION

LSA has prepared this Biological Resources Assessment (Assessment) for compliance with the California Environmental Quality Act (CEQA). This Assessment evaluates approximately 9.7 acres of land in the Cities of Claremont, Los Angeles County, and Upland, San Bernardino County, as part of The Commons Project. The study area consists of Assessor's Parcel Numbers (APNs) 8307-003-066 (City of Claremont), and 1006-312-02, 03, and 04 (City of Upland) and is located on the northwest corner of Foothill Boulevard and Monte Vista Avenue in Township 1 South, Range 8 West, Section 3, San Bernardino Baseline and Meridian, as depicted on the United States Geological Survey (USGS) *Ontario, California* 7.5-minute topographic quadrangle map (Figure 1).

PROJECT DESCRIPTION

This project proposes to develop approximately 9.7 acres of undeveloped, vacant land into a master planned residential/mixed-use development. A preliminary site plan for the project indicates approximately 27 single-family detached homes, 68 townhomes, and 5,000 square feet of retail with 15 flats above the retail spaces and related parking in the City of Claremont and 48 townhomes in the City of Upland. In recognition of Cable Airport, which is located approximately 0.4 mile northeast of the site, the development includes a large open space that runs through the middle of the site to accommodate an existing avigation easement.

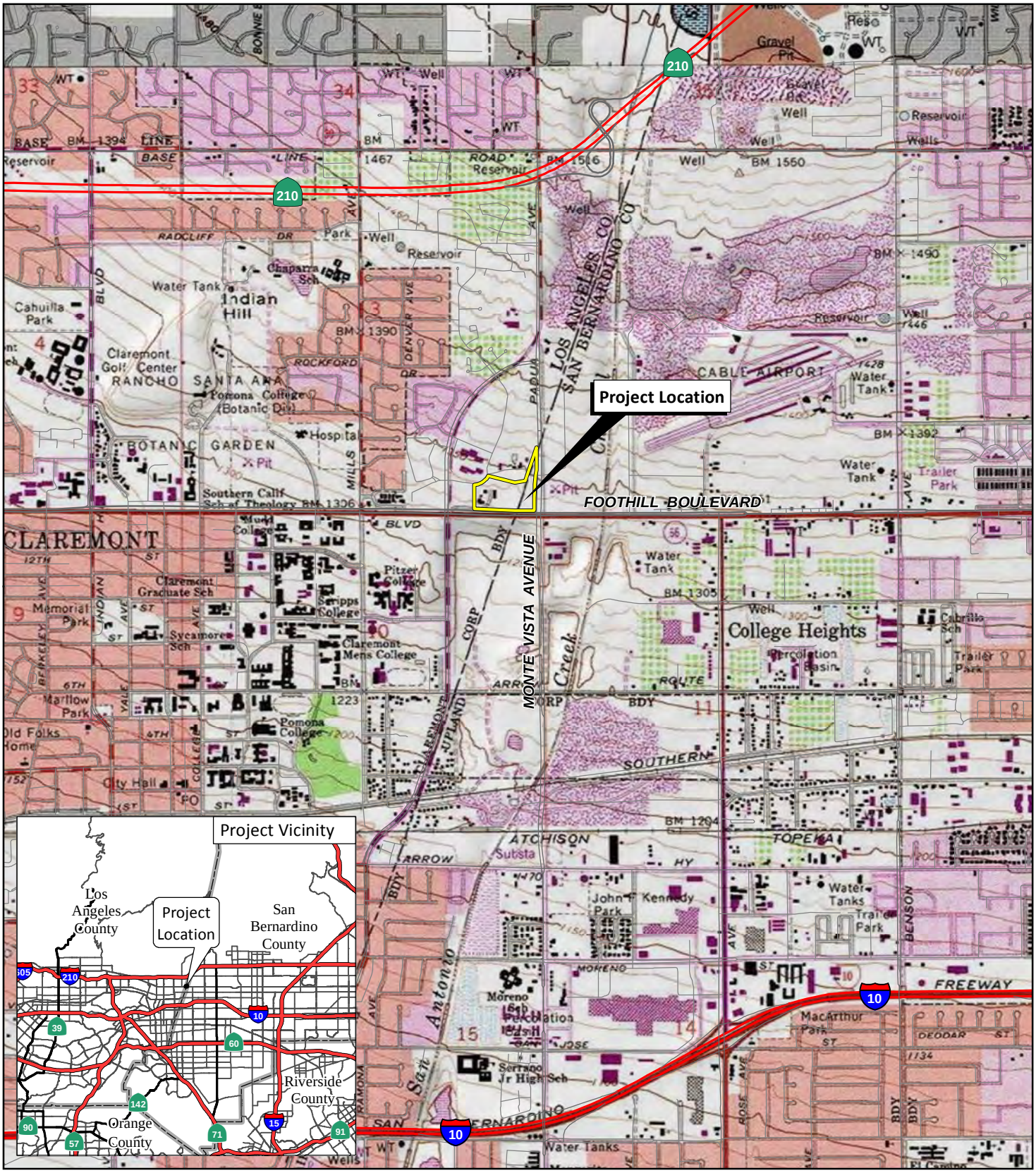
METHODS

Literature Review

A literature review was conducted to assist in determining the existence or potential occurrence of special-status plant and animal species on or in the vicinity of the project. Database records for the *Ontario, California* USGS 7.5-minute quadrangle and surrounding quadrangles within a one-mile radius of the project were searched on May 30, 2019, using the California Department of Fish and Wildlife's Natural Diversity Data Base application Rarefind 5 online edition (CDFW CNDDB, v 5.2.14, https://www.wildlife.ca.gov/Data/CNDDB/) and the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS online edition v8-03 0.39, http://www.cnps.org/inventory). Current and historic aerial photographs (Google Earth 2019 and NETRonline Historic Aerials 2018) were reviewed, and U.S. Fish and Wildlife Service (USFWS) listed species and designated critical habitat information was used to determine the locations of any listed species sightings and critical habitat boundaries on and in the vicinity of the project. Soil types were determined using the WebSoil Survey (USDA/NRCS, http://websoilsurvey.sc.egov.usda.gov).

Field Survey

A general reconnaissance-level field survey was conducted on October 25, 2019, by LSA Biologist Denise Woodard between the hours of 1150 and 1330. Weather conditions consisted of clear, sunny skies, temperatures ranging from 86 to 90 degrees Fahrenheit, and winds ranging from 5 to 8 miles per hour. Notes were taken on general site conditions, vegetation, and suitability of habitat for various special-status elements.



LSA

FIGURE 1

The Commons

Regional and Project Location

SOURCE: USGS 7.5' Quads: Ontario, 1981, Mt. Baldy, 1988, CA; ESRI Streetmap, 2013.

I:\CCT1801\Reports\Cultural\fig1_Reg_Loc.mxd (8/15/2018)

RESULTS

Existing Site Conditions

The project study area includes the project footprint and is located on the northwestern corner of Foothill Boulevard and Monte Vista Avenue in the City of Claremont and the City of Upland. The study area is bordered to the north by open space and light industrial development, to the south by Foothill Boulevard, to the east by Monte Vista Avenue and commercial/industrial development, and to the west by Andrew Road and commercial/industrial development.

Land use within the project site includes vacant land with areas of unlawful dumping. Concrete rubble and building (cinderblock and brick) and asphalt debris along with modern refuse were noted on the surface throughout the study area.

Land use within the project study area includes vacant land and disturbed areas. Disturbed areas consist of 4.27 acres and include areas of unlawful dumping of building debris (e.g., concrete, cinderblock and asphalt) and other refuse, such as landscape waste. At the time of the October 2019 field survey, the construction of the Foothill Boulevard rehabilitation project was underway along the southerly site boundary. The southwest portion of the study area was being utilized as a construction staging and laydown yard for the Foothill Boulevard rehabilitation project as well as construction-related activities.

Topography and Soils

Topography within the study area is generally flat with a slight north to south slope. Elevations range from approximately 1,330 to 1,370 feet above mean sea level. The highest elevation occurs in the northeastern portion of the study area, while the lowest elevation occurs in the southwestern portion of the study area.

Soils on the site are mapped by the *Natural Resource Conservation Service* as Soboba stony loamy sand, 2 to 9 percent slopes (WebSoil Survey). Soils observed on the site appeared consistent with this designation and consist of coarse sand, gravel, cobble and rock.

In the past, the San Antonio Creek floodplain drained through the project site, but the creek was channelized in the late 1940s and 1950s. San Antonio Creek now drains within a concrete-lined channel approximately 0.2 mile east of the site. The site drains via overland sheet flow generally to the southwest corner of the site to the existing curb and gutter along Foothill Boulevard. At this point, flows continue within the curb and gutter to the west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. Runoff enters the site from developed and undeveloped properties to the north. Two channel features direct off-site flows through the site to two box culverts located beneath Foothill Boulevard. These flows continue onto the property south of Foothill Boulevard, where they are retained and infiltrated within a former quarry site.

Vegetation

Vegetation occupying the majority of the project study area is best described as Riversidean Alluvial Fan Sage Scrub (RAFSS) (R.F. Holland 1986), a designated California Department of Fish and Wildlife

(CDFW) Natural Community of Concern. The RAFSS is of low quality and intermixed with ruderal vegetation occupying 5.37 acres of the project site. Dominant native RAFSS species identified include California buckwheat (*Eriogonum fasciculatum*), scalebroom (*Lepidospartum squamatum*), and laurel sumac (*Malosma laurina*). Other species observed include California sagebrush (*Artemisia californica*), California cholla (*Cylindropuntia californica*), sapphire woollystar (*Eriastrum sapphirinum*), and chaparral yucca (*Hesperoyucca whipplei*).

As a result of land use practices, ruderal vegetation was observed intermixed with RAFSS habitat within the study area. Dominant ruderal species identified include shortpod mustard (*Hirschfeldia incana*), tree tobacco (*Nicotiana glauca*), fiddleneck (*Amsinckia menziesii*), and red brome (*Bromus madritensis* ssp. *rubens*). Other ruderal species observed on site include tree of heaven (*Ailanthus altissima*) and Peruvian pepper trees (*Schinus molle*).

Ornamental trees (0.26 acre) were also noted within the study area and include several red gum trees (*Eucalyptus camaldulensis*) planted along Foothill Boulevard.

Wildlife

Wildlife observed on site included yellow-rumped warbler (*Setophaga coronata*), mourning dove (*Zenaida macroura*), common side-blotched lizard (*Uta stansburiana*), and desert cottontail (*Sylvilagus audubonii*).

Figure 2 shows vegetation, land use and photograph locations and Figure 3 provides site photographs. A complete list of plant and animal species observed during the field survey is included as Appendix A.

Potential Jurisdictional Waters, Wetlands and Streambeds

The U.S. Army Corps of Engineers (USACE), under Section 404 of the Federal Clean Water Act (CWA), regulates discharges of dredged or fill material into "waters of the United States." These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a connection to interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or it may be indirect (through a connection identified in USACE regulations). The USACE typically regulates as non-wetland waters of the U.S. any body of water displaying an "ordinary high water mark" (OHWM). In order to be considered a "jurisdictional wetland" under Section 404, an area must possess hydrophytic vegetation, hydric soils, and wetland hydrology. The CDFW, under Sections 1600 et seq. of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams. A stream is defined by the presence of a channel bed and banks and at least an occasional flow of water. The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA, through water quality certification of any activity that may result in a discharge to jurisdictional waters of the U.S. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

Two remnant drainage features associated with two existing concrete box culverts under Foothill Boulevard. No evidence of flows (e.g., OHWM), riparian habitat or wetlands was observed within these two features during the October 2019 field survey. Based on historic aerial photograph



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LEGEND

Biological Study Area

Photograph Locations

Box Culverts

Land Use

Developed/Disturbed (4.27 ac)

Ornamental (0.26 ac)

Riversidean Alluvial Fan Sage Scrub (Disturbed) (5.37 ac)

N

0 75 150

FEET

SOURCE: Google (2018)

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FIGURE 2

The Commons

Vegetation, Land Use, and Photograph Locations



Photo 1: View of disturbed Riversidean alluvial fan sage scrub.



Photo 2: View of construction activities along Foothill Boulevard.



Photo 3: View of Riversidean alluvial fan sage scrub along remnant drainage feature.



Photo 4: View of general site conditions.

LSA

FIGURE 3

The Commons
Site Photographs

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Photo 5: View of equipment staging area for the Foothill Boulevard rehabilitation project.



Photo 6: View of disturbed Riversidean alluvial fan sage scrub.



Photo 7: View of general site conditions.

LSA

FIGURE 3

The Commons
Site Photographs

I:\CCT1801\G\Bio\Site Photos.cdr (11/22/2019)

review, the San Antonio Creek floodplain drained through the study area, but was channelized in the late 1940s and 1950s. San Antonio Creek now drains within a concrete-lined channel about 0.2 mile east of the study area. Historic aerial photographs also show that water was being diverted through the site and/or being drained onto the study area from adjacent industrial practices from as early as 1948. Conveyance of flows into these two drainage features may have occurred up until recent times, before lands in the project area, especially to the north, became more densely developed. Currently, these two drainage features show no upstream connectivity to natural water conveyance features or systems.

In personal communications between Denise Woodard and project Engineer Gary Andreasen of Gary Andreasen, Inc., on December 18, 2019, Mr. Andreasen stated that water only sheet flows across the site during large (25-year to 50-year) storm events. In support of this statement, the projects' Standard Urban Stormwater Mitigation Plan (SUSMP) (Everest Environmental 2018), states the project site currently drains via sheet flow overland to the southwest corner of the site to the existing curb and gutter on Foothill Boulevard. Flows continue within the curb and gutter west prior to entering Los Angeles Flood Control-owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard. The underground storm drain pipe carries flows to the San Antonio Creek Channel, a completely hardened and engineered drainage conveyance system. Based on this SUSMP study, the on-site flows are not carried via the two on-site drainage features.

An existing underground storm drain collects storm water runoff from the gutter at the northeast corner of Monte Vista Avenue/Foothill Boulevard and discharges directly into the box culvert along Foothill Boulevard to the property south of the roadway. These flows are not released onto project site.

Because the two on-site features have no connectivity to any natural water conveyance feature or system they are not features regulated by the USACE under Section 404 of the CWA, the CDFW under Section 1602 of the Fish and Game Code, or the RWQCB under Section 401 of the CWA.

Special-Status Species

This section discusses special-status species observed or potentially occurring within the limits of the project area. Legal protection for special-status species varies widely, from the comprehensive protection extended to listed threatened/endangered species, to no legal status at present. The CDFW, U.S. Fish and Wildlife Service (USFWS), local agencies, and special-status groups such as the CNPS, publish watch lists of declining species. Species on watch lists can be included as part of the special-status species assessment. Species that are candidates for State and/or Federal listing and species on watch lists are included in the special-status species list. Inclusion of species described in the special-status species analysis is based on the following criteria:

- Direct observation of the species or its sign in the survey area or immediate vicinity during previous biological studies;
- Sighting by other qualified observers;
- Record reported by the CNDDB, published by the CDFW;

- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Survey area lies within known distribution of a given species and contains appropriate habitat.

The special-status species analysis revealed 14 special-status species reported within a 1.5-mile radius of the project vicinity, of which four species are state and/or federally listed as Endangered or Threatened. Appendix B summarizes the special-status plant and animal species potentially present within the project area and their potential to occur on site.

Threatened and Endangered Species and Critical Habitat

Under provisions of Section 7(a)(2) of the Federal Endangered Species Act (FESA), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed threatened or endangered species or destroy or adversely modify critical habitat. The USFWS designates as threatened or endangered, species that are at risk of extinction and may also adopt recovery plans that identify specific areas that are essential to the conservation of a listed species. Critical habitat areas that may require special management considerations or protections can also be designated.

The California Endangered Species Act (CESA) is administered by the CDFW and prohibits the "take" of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (Fish and Game Code Section 2050 to 2097). "Take" is defined as hunt, pursue, catch, capture, or kill. Sections 2091 and 2081 of the CESA allow the CDFW to authorize exceptions to the prohibition of "take" of State-listed threatened or endangered plant and animal species for purposes such as public and private development. The CDFW requires formal consultation to ensure that a proposed project's actions would not jeopardize the continued existence of any listed species or destroy or adversely affect listed species' habitats.

Listed below are the federal and/or State listed species reported to been found within a 1.5-mile radius of the project vicinity:

- Coastal California gnatcatcher (*Polioptila californica californica*; federally listed as threatened; California Species of Special Concern[1][CSC]);
- San Bernardino kangaroo rat (*Dipodomys merriami parvus*; federally listed as endangered);
- California black rail (*Laterallus jamaicensis coturniculus*; State listed as threatened); and
- Nevin's barberry (*Berberis nevinii*; State and federally listed as endangered, and CNPS California Rare Plant Rank [CRPR] of 1B[2]).

The coastal California gnatcatcher, San Bernardino kangaroo rat, California black rail, and Nevin's barberry are discussed in further detail below.

1 Refers to species with vulnerable or seriously declining populations.
2 CRPR Status 1B Plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere.

Coastal California Gnatcatcher. The RAFFS habitat consisting of 5.37 acres in the study area provides low quality habitat for the coastal California gnatcatcher. Focused surveys for the California gnatcatcher would be required to determine its presence or absence and any potential project effects. According to currently accepted survey protocol for the Coastal California gnatcatcher, the breeding season survey period is from March 15 through June 30 with a minimum of six site visits, and the nonbreeding season survey period from July 1 through March 14, with a minimum of nine site visits.

San Bernardino Kangaroo Rat. Although the project study area contains some of the primary habitat elements (e.g., sandy soils and alluvial fan sage scrub habitat), the study area is considered unsuitable habitat for the San Bernardino kangaroo rat. The study area is no longer subject to geomorphological and hydrological processes typical of fluvial systems, and is not proximal to active floodplains with suitable habitat. Active floodplain processes have been cut off by the channelization of San Antonio Creek and adjacent surrounding development. In addition, the study area is not within USFWS-designated critical habitat for the San Bernardino kangaroo rat (USFWS 2002), which occurs approximately 8.5 miles to the northeast of the project site and is separated from the study area by State Route 210.

Because habitat within the study area is considered unsuitable for the San Bernardino kangaroo rat, the project will have no effects to this species.

California Black Rail. The California black rail habitat consists of shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. California black rail habitat is absent from the study area. Therefore, the project will have no effect to this species.

Nevin's Barberry. Nevin's barberry is found within varying topographical conditions, ranging from flat sandy washes, terraces, and canyon floors to rocky ridges and summits. Nevin's barberry is also associated with mesic habitats such as alluvial scrub, chamise chaparral, coastal sage scrub, oak woodland, and riparian scrub or woodland from 220 to 2,700 feet in elevation. The species is widely available in the nursery trade, and cultivated Nevin's barberry plants have been introduced outside of the species' native range. Marginally suitable habitat, Riversidean alluvial fan scrub, is present within the study area for this species. This perennial species was not observed during the October 2019 field survey and is considered absent. Therefore, the Nevin's barberry is considered absent from the study area and the project will have no effects to this species.

No federally designated critical habitat is present on or in the immediate vicinity of the study area.

Non-Listed Special-Status Species

Of the 10 non-listed special-status species identified as potentially present in Appendix B, habitat within the study is considered to provide low to moderate suitable habitat for five of these species: mesa horkelia (*Horkelia cuneata* var. *puberula*), crotch bumble bee (*Bombus crotchii*), California glossy snake (*Arizona elegans occidentalis*), coast horned lizard (*Phrynosoma blainvillii*), and northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*).

These special-status species have no official State or federal protection status and legal protection varies widely; however, they do require consideration under CEQA. Due to the low to moderate probability for occurrence of these species, relatively small project footprint (9.7 acres), and isolated habitat conditions, potential project effects to these non-listed special interest species are not considered substantial.

Nesting/Migratory Birds

During the bird breeding season (typically February 1 through August 31), large trees adjacent to the project study area may be used by hawks, ravens, or other large birds for nesting. Trees, shrubs, and other vegetation on site may provide nest sites for smaller birds, and burrowing owls may nest in ground squirrel burrows, pipes, or similar features. Additionally, the site is suitable for ground nesting species, such as killdeer (*Charadrius vociferous*). Nesting bird species, with potential to occur are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA) (16 USC 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

To avoid potential effects to fully protected raptors, special-status bird species, and other nesting birds protected by the California Fish and Game Code, and for compliance with MSHCP Incidental Take Permit Condition 5, the following measure will be implemented:

- A nesting bird pre-construction survey will be conducted by a qualified biologist within three days prior to ground-disturbing activities. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the qualified biologist and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active.

Wildlife Movement, Corridors, and Nursery Sites

Local wildlife movement will be temporarily disrupted during the vegetation removal and construction processes, but this effect would be localized and short term. Although the project will result in the incremental loss of Riversidean alluvial fan sage scrub habitat, the project study area is located in an area that has been regionally isolated by surrounding industrial/commercial development. As a result, the project study area does not provide for regional wildlife movement or serve as a regional wildlife corridor. The project study area does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas.

Natural Communities of Concern

The RAFSS is a CNDDB designated special-status plant community. The project will result in the loss of 5.37 acres of low-quality RAFSS habitat and is considered to be an incremental loss of this natural community in the region. However, this plant community is highly degraded, small in size (5.37

acres), isolated by surrounding development and no longer functions as part of a fluvial system. For these reasons, project effects to RAFSS are not considered substantial.

The RAFSS does, however, provide potentially suitable habitat for the coastal California gnatcatcher and a focused survey is required to determine its presence or absence. If the gnatcatcher is determined to be present, mitigation for project effects to RAFSS would be required.

Local Policies and Ordinances

The project is not subject to any local policies or ordinances related to biological resources.

Adopted Habitat Conservation Plans

The project is not within an adopted Habitat Conservation Plan area.

IMPACTS AND RECOMMENDATIONS

Following is a discussion of potential disturbances and recommendations for avoidance, minimization, and mitigation measures pursuant to applicable local, State, and federal policy.

Potential Jurisdictional Waters

No drainage features, ponded areas, or riparian habitat potentially subject to jurisdiction by the CDFW, USACE, and/or RWQCB were found within the study area. Therefore, the project will have no effects to jurisdictional waters, wetlands, or streambeds.

Threatened and Endangered Species

The Riversidean alluvial fan sage scrub on the project site provides potentially suitable habitat for the California gnatcatcher. Focused surveys for the California gnatcatcher are required to determine its presence or absence and any potential project effects to this species.[3]

If the survey reveals listed Californian gnatcatcher to be absent from the project site, no additional actions are required. If the California gnatcatcher is determined to be present, an Endangered Species Act Section 10 Incidental Take Permit (ITP) will need to be obtained from the USFWS before construction permits are issued. The USFWS ITP would require the preparation of Habitat Conservation Plan (HCP) with regard to the impacts of the project on the California gnatcatcher, and identify minimize and mitigate such impacts.

Non-Listed Special-Status Species

Five special-status species identified in Appendix B have a low to moderate probability of occurrence in the study area. Project effects to these species are not considered substantial.

[3] Focused California gnatcatcher surveys are underway (February 2020). While the required number of surveys has not yet been completed, to date, this species has not been identified on site through the completion of three separate survey dates.

Nesting/Migratory Birds

To avoid potential effects to fully protected raptors, special-status bird species, and other nesting birds protected by the California Fish and Game Code, the following measure will be implemented:

- A nesting bird pre-construction survey will be conducted by a qualified biologist three days prior to ground-disturbing activities. Should nesting birds be found, an exclusionary buffer will be established by the qualified biologist. The buffer may be up to 500 feet in diameter depending on the species of nesting bird found. This buffer will be clearly marked in the field by construction personnel under guidance of the qualified biologist and construction or clearing will not be conducted within this zone until the qualified biologist determines that the young have fledged or the nest is no longer active.

Indirect Effects

Indirect effects to surrounding areas as a result of the proposed project may include, but are not limited to, noise, lighting, traffic, and increased storm water runoff. Although indirect effects are anticipated on sensitive biological resources on adjacent undeveloped land north of the project, indirect effects are not anticipated to be substantial due to the following factors:

- The relatively small footprint of the project (9.7 acres); and
- The project's adjacency to existing industrial/commercial development and established roadways.

Cumulative Effects

The proposed project will result in an incremental loss of 5.37 acres of RAFSS habitat in the region. The project is not expected to result in substantial cumulative effects due to the following factors:

- Existing adjacent industrial industrial/commercial development and established roadways;
- Project effects to RAFFS are not considered substantial and any effect to the coastal California gnatcatcher would be mitigated for through the ITP process; and
- The project area does not function as a corridor for wildlife movement.

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APPENDIX A

PLANT AND ANIMAL SPECIES OBSERVED

Plant and Animal Species Observed

Scientific Name	Common Name
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Agavaceae	**Century Plant Family**
Hesperoyucca whipplei	chaparral yucca
Poaceae	**Grass Family**
Bromus diandrus (nonnative species)	Ripgut grass
Bromus madritensis ssp. *rubens* (nonnative species)	Red brome
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Anacardiaceae	**Sumac Family**
Malosma laurina	Laurel sumac
Rhus ovata	Sugar bush
Schinus molle (non-native species)	Peruvian peppertree
Asteraceae	**Sunflower Family**
Ambrosia acanthicarpa	Annual bur-sage
Artemisia californica	California sagebrush
Cirsium sp.	Thistle
Lepidospartum squamatum	Scalebroom
Boraginaceae	**Forget-me-not Family**
Amsinckia menziesii	Menzies' fiddleneck
Brassicaceae	**Mustard Family**
Hirschfeldia incana (non-native species)	Shortpod mustard
Cactaceae	**Cactus Family**
Cylindropuntia californica	California cholla
Opuntia oricola	Chaparral pricklypear
Euphorbiaceae	**Spurge Family**
Ricinus communis (non-native species)	Castor bean
Lamiaceae	**Mint family**
Marrubium vulgare (non-native species)	Horehound
Myrtaceae	**Myrtle family**
Eucalyptus camaldulensis (non-native species)	Red gum
Polemoniaceae	**Phlox Family**
Eriastrum sapphirinum	Sapphire woollystar
Polygonaceae	**Buckwheat family**
Eriogonum fasciculatum	California buckwheat
Rhamnaceae	**Buckthorn Family**
Rhamnus crocea	Redberry buckthorn
Simaroubaceae	**Quassia Family**
Ailanthus altissima (non-native species)	Tree of heaven
Solanaceae	**Nightshade family**
Datura wrightii	Sacred thorn-apple
Nicotiana glauca (non-native species)	Tree tobacco

Plant and Animal Species Observed

Scientific Name	Common Name
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Agavaceae	**Century Plant Family**
Hesperoyucca whipplei	chaparral yucca
Poaceae	**Grass Family**
Bromus diandrus (nonnative species)	Ripgut grass
Bromus madritensis ssp. *rubens* (nonnative species)	Red brome
REPTILIA	**REPTILES**
Crotaphytidae	**Collared and Leopard Lizards**
Uta stansburiana	Common side-blotched lizard
AVES	**BIRDS**
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Parulidae	**New World Warbler**
Setophaga coronata	Yellow-rumped warbler
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and Hares**
Sylvilagus audubonii	Desert cottontail

APPENDIX B

SPECIAL-STATUS SPECIES SUMMARY

Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Plants				
Berberis nevinii **Nevin's barberry**	US: FE CA: SE/1B	Gravelly wash margins in alluvial scrub or coarse soils and rocky slopes in chaparral at 70 to 825 meters (220 to 2,700 feet) elevation. Known occurrences at higher elevations are planted (not natural). Known only from Los Angeles, San Bernardino, Riverside, and San Diego Counties, California.	Blooms March through June (evergreen shrub, survey year-round)	**Absent.** This perennial species was not observed during the October 2019 field survey.
Horkelia cuneata ssp. *puberula* **Mesa horkelia**	US: – CA: 1B	Sandy or gravelly soils in chaparral, or rarely in cismontane woodland or coastal scrub at 70 to 825 meters (200 to 2,700 feet) elevation. Known only from San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Bernardino Counties, California. Believed extirpated from Riverside and San Diego Counties.	Blooms February through July (sometimes to September) (perennial herb)	**Low.** Marginally suitable habitat is present in the form of sandy soils and coastal scrub.
Sidalcea neomexicana **Salt Spring checkerbloom**	US: – CA: 2B	Alkaline springs and brackish marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Kern, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Believed extirpated from Los Angeles County. Also known from Arizona, New Mexico, Nevada, Utah, and Mexico.	Blooms March through June (perennial herb)	**Absent.** No suitable habitat (alkaline springs and brackish marshes) is present.
Thysanocarpus rigidus **Rigid fringepod**	US: – CA: 1B	Dry rocky slopes, in oak, pine, or juniper woodland at 600 to 2,200 meters (2,000 to 7,200 feet) elevation. In California, known from Los Angeles, Riverside, San Bernardino, and San Diego Counties. Also occurs in Mexico.	Blooms February through May (annual herb)	**Absent.** No suitable habitat (rocky slopes, in oak, pine, or juniper woodland) is present.
Invertebrates				
Bombus crotchii **Crotch bumble bee**	US: – CA: SA	Nectars on *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia*, and *Eriogonum* in coastal California east to the Sierra-Cascade crest and south into Mexico.	Spring and summer	**Low.** Marginally suitable habitat is present within Riversidean alluvial fan sage scrub vegetation.
Diplectrona californica **California diplectronan caddisfly**	US: – CA: SA	No information has been published on the larvae of this species, but other larvae in the genus live in fast-flowing, cool streams. Known only from the type locality (Claremont, pre-1914 collection) in Los Angeles County, and Thurman Flats (north of Yucaipa) in San Bernardino County, California.	Adults have been collected in May	**Absent.** No suitable habitat (fast-flowing, cool streams) is present.

Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Reptiles				
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation in Southern California.	Nearly year round, at least in southern areas	**Absent.** No suitable habitat (sandy or loose loamy soils with high moisture) is present.
Arizona elegans occidentalis **California glossy snake**	US: – CA: SSC	Scrub and grassland habitats, often with loose or sandy soils. Patchily distributed from the eastern portion of San Francisco Bay to southern San Joaquin Valley and in non-desert areas of southern California. Also occurs in Baja California, Mexico.	Most active March through June (nocturnal)	**Low.** Marginally suitable scrub habitat is present.
Phrynosoma blainvillii (coronatum) **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) elevation.	April through July with reduced activity August through October	**Low to Moderate.** Suitable habitat (sandy soil in open areas) is present within the project area.
Birds				
Laterallus jamaicensis coturniculus **California black rail**	US: – CA: ST/CFP	Requires shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. Prefers areas of moist soil vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges, with scattered small pools. Known from coastal California, northwestern Baja California, the lower Imperial Valley, and the lower Colorado River of Arizona and California. Now extirpated from virtually all of coastal Southern California.	Year-round	**Absent.** No suitable habitat (shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation) is present.
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) elevation in cismontane southwestern California and Baja California.	Year-round	**Low.** Marginally suitable habitat (Riversidean alluvial fan sage scrub) is present.

Special-Status Species Summary

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Mammals				
Chaetodipus fallax fallax **Northwestern San Diego pocket mouse**	US: – CA: SSC	Found in sandy herbaceous areas, usually associated with rocks or coarse gravel in coastal scrub, chaparral, grasslands, and sagebrush, from Los Angeles County through southwestern San Bernardino, western Riverside, and San Diego Counties to northern Baja California.	Year-round	**Low to Moderate.** Suitable habitat (sandy, herbaceous areas in coastal scrub and chaparral) is present.
Dipodomys merriami parvus **San Bernardino kangaroo rat**	US: FE CA: SSC	Gravelly and sandy soils of alluvial fans, braided river channels, active channels and terraces; San Bernardino Valley (San Bernardino County) and San Jacinto Valley (Riverside County). In San Bernardino County, this species occurs primarily in the Santa Ana River and its tributaries north of Interstate 10, with small remnant populations in the Etiwanda alluvial fan, the northern portion of the Jurupa Mountains in the south Bloomington area, and in Reche Canyon. In Riverside County, this species occurs along the San Jacinto River east of approximately Sanderson Avenue, and along Bautista Creek. Remnant populations may also occur within Riverside County in Reche Canyon, San Timoteo Canyon, Laborde Canyon, the Jurupa Mountains, and the Santa Ana River Wash north of State Route 60.	Nocturnal, active year-round	**Absent**. Although alluvial fan sage scrub is present, the site is small, isolated and no longer associated with an active fluvial system.
Neotoma lepida intermedia **San Diego desert woodrat**	US: – CA: SSC	Found in desert scrub and coastal sage scrub habitat, especially in association with cactus patches. Builds stick nests around cacti, or on rocky crevices. Occurs along the Pacific slope from San Luis Obispo County to northwest Baja California.	Year-round, mainly nocturnal, occasionally crepuscular and diurnal	**Low to Moderate.** Suitable habitat (coastal sage scrub habitat with cactus patches) is present.

LEGEND

US: Federal Classifications

FE Listed as Endangered.

FT Listed as Threatened.

CA: State Classifications

SE State-listed as Endangered.

ST State-listed as Threatened.

SSC Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.

CFP California Fully Protected. Refers to animals protected from take under Fish and Game Code sections 3511, 4700, 5050, and 5515.

SA Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or rarity status.

1B California Rare Plant Rank 1B – rare, threatened or endangered in California and elsewhere.

2B California Rare Plant Rank 2B – rare, threatened or endangered in California, but more common elsewhere.

California Rare Plant Ranks are assigned by a committee of government agency and non-governmental botanical experts, including experts from the California Native Plant Society, and are not official State designations of rarity status.

APPENDIX C-2:

California Gnatcatcher Protocol Surveys for The Commons, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California. LSA Associates, Inc. April 2020

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

April 24, 2020

Ms. Stacey Love, Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Mr. Justin Garcia, Environmental Scientist
Nongame Wildlife Program
California Department of Fish and Wildlife
1812 9th Street
Sacramento, California 95811

Subject: Results of a Focused Coastal California Gnatcatcher Survey for the Commons Project in the Cities of Claremont and Upland (LSA Project No. CCT1801)

Dear Ms. Love and Mr. Garcia:

This letter report documents the results of a focused presence/absence survey for the coastal California gnatcatcher (*Polioptila californica californica*) by LSA for the Commons Project located in the Cities of Claremont, Los Angeles County, and Upland, San Bernardino County, California.

STUDY AREA

The 9.7-acre study area consists of Assessor's Parcel Numbers (APNs) 8307-003-066 (City of Claremont), and 1006-312-02, 03, and 04 (City of Upland) and is located on the northwest corner of Foothill Boulevard and Monte Vista Avenue in Township 1 South, Range 8 West, Section 3, San Bernardino Baseline and Meridian, as depicted on the United States Geological Survey (USGS) *Ontario, California* 7.5-minute topographic quadrangle map (attached Figure 1). Topography within the study area is generally flat with a slight north-to-south slope. Elevations range from approximately 1,330 to 1,370 feet above mean sea level. The study area contains disturbed areas (4.3 acres) and includes areas of unlawful dumping of building debris (e.g., concrete, cinderblock, and asphalt) and other refuse, such as landscape waste. Vegetation occupying the majority of the project study area is best described as Riversidean Alluvial Fan Sage Scrub (RAFSS). The RAFSS is of low quality and intermixed with ruderal vegetation occupying 5.4 acres of the project site. Dominant native RAFSS species identified include California buckwheat (*Eriogonum fasciculatum*), scalebroom (*Lepidospartum squamatum*), and laurel sumac (*Malosma laurina*). Dominant ruderal species identified include shortpod mustard (*Hirschfeldia incana*), tree tobacco (*Nicotiana glauca*), fiddleneck (*Amsinckia menziesii*), and red brome (*Bromus madritensis* ssp. *rubens*). Other ruderal species observed on site include tree of heaven (*Ailanthus altissima*) and Peruvian pepper trees (*Schinus molle*). Ornamental trees were also noted within the study area and include several red gum trees (*Eucalyptus camaldulensis*) planted along Foothill Boulevard.

METHODS

The survey was conducted by Stanley Spencer, PhD under LSA Federal 10(a)(1)(A) Permit TE-777965 and California Department of Fish and Wildlife attachments to Scientific Collecting Permit SC-000777 providing Conditions for Research on Listed Birds (February 14, 2018–February 14, 2021). The survey was conducted following the cross season survey methods and in accordance with the 1997 U.S. Fish

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LSA is a business name of LSA Associates, Inc.

and Wildlife Service California gnatcatcher survey guidelines for breeding and nonbreeding season surveys. The survey included four nonbreeding and four breeding season surveys. It was conducted by walking throughout the survey area listening and watching for coastal California gnatcatchers. Taped vocalizations were played at intervals of about 15 minutes during the surveys until California gnatcatcher was detected. Table A summarizes survey dates, time and weather conditions during the survey.

Table A: Survey Dates, Time, and Weather Conditions

Date	Time	Weather
January 29, 2020	0900–1020	67° Fahrenheit, <1 percent cloud cover, winds 3–8 miles per hour
February 12, 2020	0935–1200	52-54° Fahrenheit, 2 percent cloud cover, winds <1 mile per hour
February 26, 2020	0830–0944	64 to 71° Fahrenheit, 0 cloud cover, winds 1–3 miles per hour
March 1, 2020	0845–0945	56 to 60° Fahrenheit, 50 to 20 percent cloud cover, winds 1–3 miles per hour
March 18, 2020	0945–1045	56 to 55° Fahrenheit, 100 percent cloud cover, winds 1–3 miles per hour
March 25, 2020	1000–1100	58 to 62° Fahrenheit, 30 to 40 percent cloud cover, winds 3–8 miles per hour
April 1, 2020	0855–0959	62 to 69° Fahrenheit, 10 percent cloud cover, winds 1–3 miles per hour
April 8, 2020	0950–1040	51 to 53° Fahrenheit, 98 to 95 percent cloud cover, winds 1–3 miles per hour

RESULTS

No coastal California gnatcatchers were observed during the survey and the species is considered absent at this time. A list of bird species observed during the survey is attached.

If you have any questions regarding these results, please feel free to contact me at (951) 781-9310.

Sincerely,

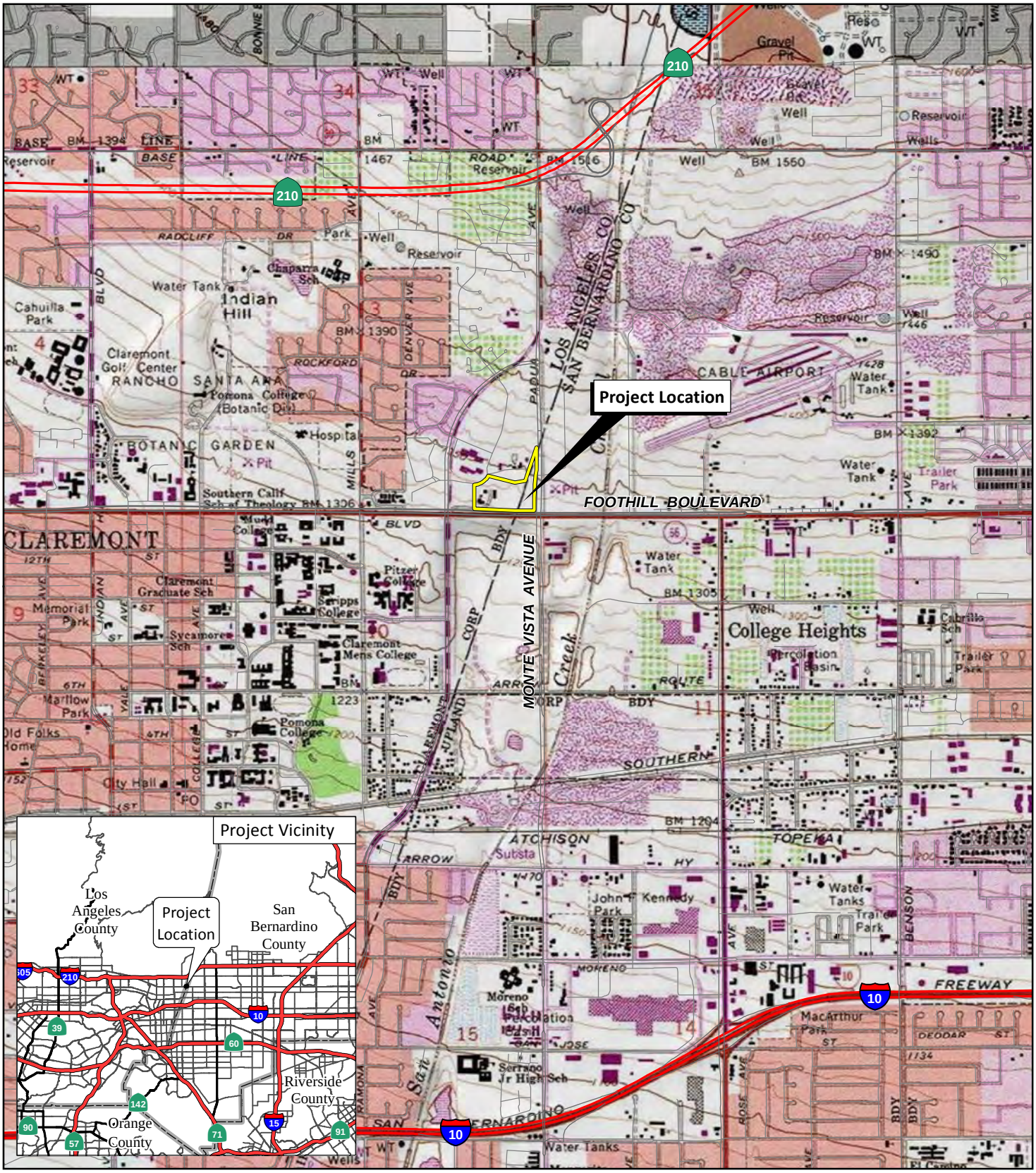
LSA ASSOCIATES, INC.

Stanley Spencer, PhD
Associate

Attachments: Bird Species Observed
Figure 1: Project Location Map

BIRD SPECIES OBSERVED

Scientific Name	Common Name
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Columbidae	**Pigeons and Doves**
Zenaida macroura	Mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
Cathartidae	**American Vultures**
Cathartes aura	Turkey vulture
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
Corvidae	**Crows and Ravens**
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Aegithalidae	**Bushtits**
Psaltriparus minimus	Bushtit
Troglodytidae	**Wrens**
Thryomanes bewickii	Bewick's wren
Mimidae	**Mockingbirds and Thrashers**
Mimus polyglottos	Northern mockingbird
Toxostoma redivivum	California thrasher
Fringillidae	**Finches**
Haemorhous mexicanus	House finch
Spinus psaltria	Lesser goldfinch
Passerellidae	**New World Sparrows**
Melozone crissalis	California towhee
Zonotrichia leucophrys	White-crowned sparrow
Parulidae	**Wood Warblers**
Setophaga coronata	Yellow-rumped warbler



LSA

FIGURE 1

N

0 1000 2000
FEET

The Commons Project

Regional and Project Location

SOURCE: USGS 7.5' Quads: Ontario, 1981, Mt. Baldy, 1988, CA; ESRI Streetmap, 2013.

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APPENDIX D:

Cultural Resources Assessment for the Commons Specific Plan, in the Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California. LSA Associates, Inc., May 2019

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CULTURAL RESOURCES ASSESSMENT

CLAREMONT COMMONS SPECIFIC PLAN

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

LSA

May 2019

CULTURAL RESOURCES ASSESSMENT

CLAREMONT COMMONS SPECIFIC PLAN

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

Prepared for:

City of Claremont
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LSA Project No. CCT1801

National Archaeological Data Base Information:

Type of Study: Records Search, Survey, Built Environment Review
Sites Recorded: 19-004863, 36-033017 and 36-033018
USGS Quadrangle: *Ontario, California*
Acreage: 9.7

LSA

November 2019

MANAGEMENT SUMMARY

LSA conducted a cultural resources assessment for the Claremont Commons Specific Plan located in the City of Claremont (City), Los Angeles County, California. The assessment included a records search, archival research, field surveys, and this report. The subject property is approximately 9.7 acres in the Cities of Claremont and Upland and is currently vacant. The City is the Lead Agency for the project and required this study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

The purpose of the study is to provide the City with the necessary information and analysis to determine, as mandated by CEQA, whether the proposed project would cause substantial adverse changes to any historical/archaeological resources that may exist in or around the project area. In order to identify and evaluate such resources, LSA conducted a historical/archaeological resources records search, pursued historical background research, and carried out intensive-level field surveys.

The segment of former Route 66 (now Foothill Boulevard) adjacent to the project area was evaluated by Caltrans in 2010 as lacking sufficient integrity to contribute to the significance of Route 66 as a whole and was not a "historical resource" under CEQA. Therefore, it does not require consideration as part of this study.

Despite the identification of several previously undocumented archaeological resources, this study did not encounter any "historical resources" as defined by CEQA within the project area and the value of the resources within the project parcels has been realized by the current recordation. The project area has been disturbed by development, chronic dumping and erosion. However, the proximity of a historically renowned archaeological site and location within the former drainage of a major water course indicates the project parcels have some sensitivity for subsurface prehistoric resources. Therefore, archaeological monitoring of earthmoving activities in undisturbed soil is recommended.

In the event undocumented buried cultural materials are encountered during earthmoving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

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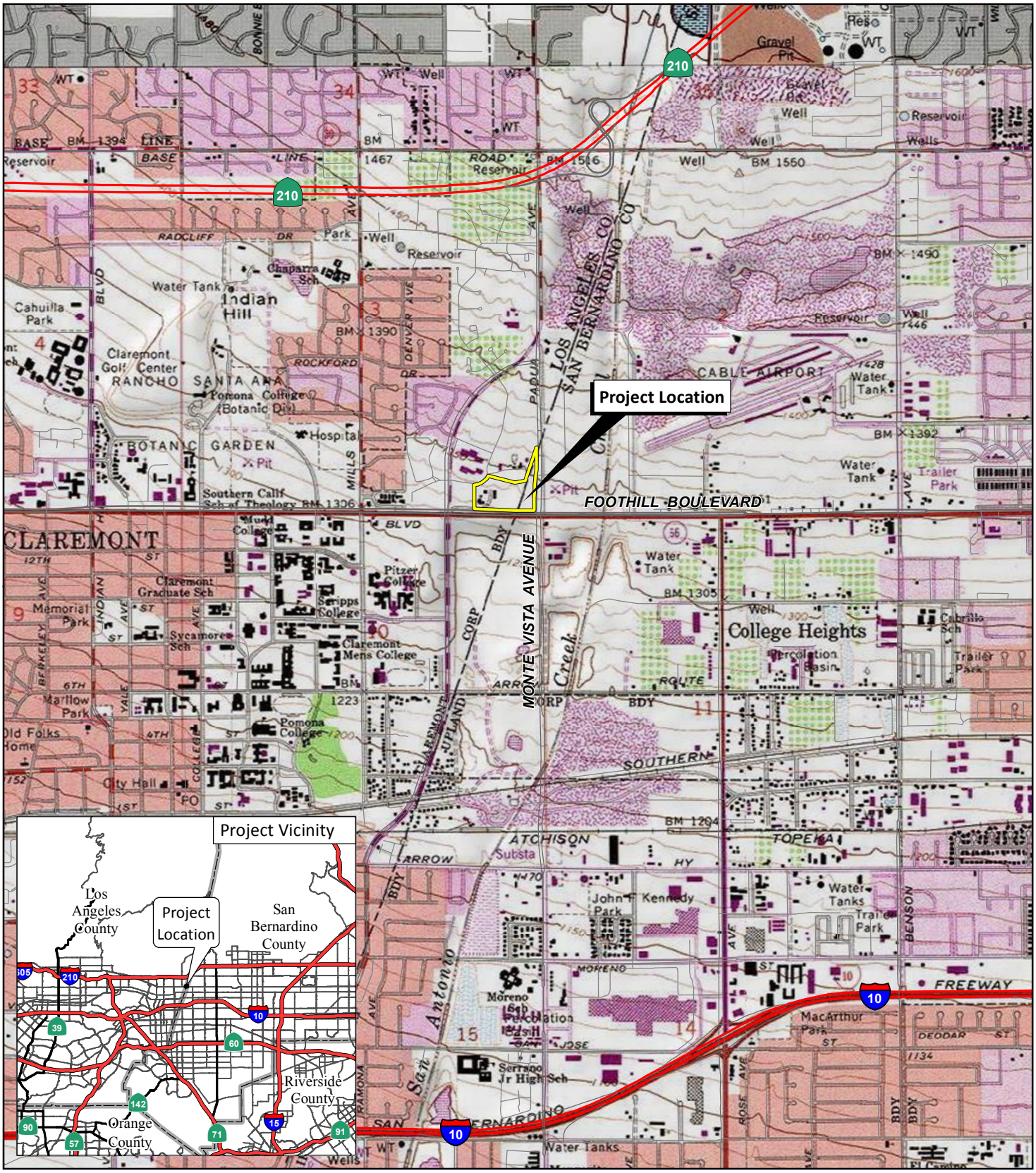
INTRODUCTION

In fall 2018, LSA performed a cultural resources study on approximately 9.7 acres of land in the Cities of Claremont, Los Angeles County, and Upland, San Bernardino County (Figure 1). The subject property of the study, Assessor's Parcel Numbers (APNs) 8307-003-066 (Claremont), and 1006-312-02, 03, and 04 (Upland), is located on the northwest corner of Foothill Boulevard and Padua Avenue in Township 1 South, Range 8 West, San Bernardino Baseline and Meridian, as depicted on the United States Geological Survey (USGS) *Ontario, California* 7.5-minute topographic quadrangle map. The study is part of the environmental review process for a Specific Plan for proposed mixed-use development. The City, as Lead Agency for the project, required the study in compliance with CEQA (PRC § 21000, et seq.).

LSA performed the present study to provide the City with the necessary information and analysis to determine, as mandated by CEQA, whether the proposed project would cause substantial adverse changes to any historical/archaeological resources that may exist in or around the project area. In order to identify and evaluate such resources, LSA conducted a historical/archaeological resources records search, pursued historical background research, and carried out intensive-level field surveys. This report is a complete account of the methods, results, and final conclusion of the study.



LSA

FIGURE 1

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Claremont Commons Specific Plan

Regional and Project Location

SOURCE: USGS 7.5' Quads: Ontario, 1981, Mt. Baldy, 1988, CA; ESRI Streetmap, 2013.

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SETTING

NATURAL SETTING

The natural setting of the project vicinity is presented based on the underlying theoretical assumption that humans and human societies are in continual interaction with the physical environment. Being an integral and major part of the ecological system, humans adapt to the environment through technological and behavioral changes. Locations of archaeological sites are based on the constraints of these adaptations, whether it is proximity to a particular resource, topographical restrictions, or shelter and protection. Sites will also contain an assemblage of artifacts and ecofacts consistent with the particular interaction.

Hydrology

The project region is characterized by a temperate climate, with dry, hot summers and moderate winters. Rainfall ranges from 12 to 16 inches annually (Beck and Haase 1974). Precipitation usually occurs in the form of winter rain, with warm monsoonal showers in summer. An ephemeral drainage currently transects the eastern edge of the project parcels. The Santa Ana Wash, once a south-flowing braided watercourse that formerly transected the western parcel (APN 8307-003-066) and bounded the eastern side of the project is now channelized approximately one mile west of the project (USGS 1897, 2019).

Biology

At an average elevation of approximately 870 feet above mean sea level (amsl), the project is within the Lower Sonoran Life Zone of California (Schoenherr 1992), which ranges from below sea level to 3,500 feet amsl. Although the natural vegetation has been almost completely removed from the project by past cultivation and weed abatement disking, pioneer species such as hare oat, mustard, Russian thistle, telegraph weed, tree of paradise, and xeric grasses were noted on the property. Extensive fauna are known locally, including many endemic species of reptiles, birds, and insects.

Geology

The project area is located at the northern end of the Peninsular Ranges Geomorphic Province, which extends from the Transverse Ranges to the tip of Baja California and includes the Los Angeles Basin (California Geological Survey 2002; Norris and Webb 1976). This region is characterized by a series of mountain ranges separated by northwest-trending valleys subparallel to faults branching from the San Andreas Fault. The geology of this province is similar to that of the Sierra Nevada, with numerous rock outcroppings useful to the prehistoric Native Americans for resource milling, shelter, and ceremonial art.

CULTURAL SETTING

Prehistory

Chronologies of prehistoric cultural change in Southern California have been attempted numerous times, and several are reviewed in Moratto (1984). No single description is universally accepted as the various chronologies are based primarily on material developments identified by researchers familiar

with sites in a particular region and variation exists essentially due to the differences in those items found at the sites. Small differences occur over time and space, which combine to form patterns that are variously interpreted.

Currently, two primary regional culture chronology syntheses are commonly referenced in the archaeological literature. The first, Wallace (1955), describes four cultural horizons or time periods: Horizon I – Early Man (9000–6000 BC), Horizon II – Milling Stone Assemblages (6000–3000 BC), Horizon III – Intermediate Cultures (3000 BC–AD 500), and Horizon IV – Late Prehistoric Cultures (AD 500–historic contact). This chronology was refined (Wallace 1978) using absolute chronological dates obtained after 1955.

The second cultural chronology (Warren 1968) is based broadly on Southern California prehistoric cultures and was also revised (Warren 1984; Warren and Crabtree 1986). Warren's (1984) chronology includes five periods in prehistory: Lake Mojave (7000–5000 BC), Pinto (5000–2000 BC), Gypsum (2000 BC–AD 500), Saratoga Springs (AD 500–1200), and Protohistoric (AD 1200–historic contact). Changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment, which begins with gradual environmental warming in the late Pleistocene, continues with the desiccation of the desert lakes, followed by a brief return to pluvial conditions, and concludes with a general warming and drying trend, with periodic reversals that continue to the present (Warren and Crabtree 1986).

After AD 500, there was an influx of Native American groups from the eastern deserts into southern California. These groups brought changes in subsistence focus and associated technologies, as well as burial practices. These cultural changes along with the group migrations are known as the Shoshonean Intrusion or Shoshonean Wedge (Kroeber 1925; Koerper 1979) and the Takic Wedge (Bergin and Ferraro 1999). The term Takic Wedge refers to the wedge of Takic culture groups that moved to the coast, displacing tribes of the Hokan and Yuman language stocks to the north and south (Shipley 1978). The ethnographically recorded Luiseño, Juaneño, and Gabrielino are thought to be the descendants of prehistoric Takic populations that settled along the coast during the Late Prehistoric Period, or perhaps even earlier. The Serrano and Cahuilla, more distant from the coast, are also Takic-speaking tribes within this wedge.

Ethnography

The project area is near the intersection of the traditional cultural territories of the Gabrielino and Serrano (Kroeber 1925; Heizer 1968). Tribal territories were somewhat fluid and changed over time. The first written accounts of these Southern California tribes are attributed to the mission fathers, and later documentation was by others as indicated below.

Gabrielino

The territory of the Gabrielino included portions of Los Angeles, Orange, and San Bernardino Counties during ethnohistoric times (Kroeber 1925; Heizer 1968). It encompassed an extremely diverse environment that included coastal beaches, lagoons and marshes, inland river valleys, foothills and mountains (Bean and Smith 1978a).

The Gabrielino caught and collected seasonally available food resources, and led a semi-sedentary lifestyle, living in permanent communities along inland watercourses and coastal estuaries. Individuals from these villages took advantage of the varied resources available. Groups moved to temporary camps on a seasonal rotation to collect plant foods such as acorns, buckwheat, chía, berries, and fruits, and to conduct communal rabbit and deer hunts. They also established seasonal camps along the coast and near bays and estuaries to gather shellfish and hunt waterfowl (Hudson 1971).

The Gabrielino lived in small communities, which were the focus of family life. Patrilineally linked, extended families occupied each village (Kroeber 1925; Bean and Smith 1978a). Both clans and villages were apparently exogamous, marrying individuals from outside the clan or village (Heizer 1968). Gabrielino villages were politically independent and were administered by a chief, who inherited his position from his father. Shamans guided religious and medical activities, while group hunting or fishing was supervised by individual male specialists (Bean and Smith 1978a).

The nearest historically known Native American village to the project area was the Gabrielino community of *Tooypinga* (also described to Alfred Kroeber as *Toibi*), located approximately 4.5 miles to the southwest somewhere in the Pomona area (Kroeber 1925; McCawley 1996).

Serrano

The Serrano lived in the area generally north of Cahuilla territory (western Riverside County), occupying much of present-day San Bernardino County and northeastern Los Angeles County as there was some overlap in the ancestral areas. The term Serrano is Spanish for "mountaineer" or "highlander" and is derived from *sierra*, meaning "mountain range" and was given to people who inhabited the areas of the San Bernardino Mountains that had no associated mission (Bean and Smith 1978b). The Serrano culture group consists of two divisions, a mountain division, referred to as the Mountain Serrano, and a desert division, referred to as the Desert Serrano (Sutton and Earle 2017).

The Serrano were hunter-gatherers who exploited whatever flora was available in the area they happened to be, generally it was acorns, pinion nuts, honey, mesquite, yucca, and cactus fruits, in addition to various seeds, bulbs, and roots. Plants were consumed both raw and cooked. Food processing involved the use of manos, metates, mortars, and pestles. Antelope, deer, mountain sheep, rabbits, and rodents were hunted and captured, and the most common hunting implements were the bow and arrow, throwing stick, traps, snares, and deadfalls. Meat was prepared in earth ovens, by boiling in watertight baskets, or by parching (Bean and Smith 1978b).

The Serrano had a patrilineal society composed of clans and families linked by both ancestry and ceremony, and most lived in small communities near reliable sources of water (springs, perennial seeps, streams, and small lakes) (Benedict 1924). The basic settlement unit of the Serrano was a village with a number of small satellite resource-gathering camps.

The Serrano were described by Benedict (1924), Bright (1975), Strong (1929), and others.

History

In California, the historic era is generally divided into three periods: the Spanish Period (1769 to 1821), the Mexican Period (1821 to 1848), and the American Period (1848 to present). As the cultural resources identified within the project area date to the 20th century, the historic background will focus on local communities of the American Period.

Claremont

At the suggestion of early resident Henry Austin Palmer, the Santa Fe Railroad laid its tracks through the north end of Pomona in January 1887, constructed a temporary depot, and established a post office (Landsberg et al. 2014; Salley 1977). The railroad's subsidiary Pacific Land Improvement Company (PLIC) quickly built a land office and hotel to promote the sale of residential lots. The community was named for Claremont, New Hampshire, the home town of a historically obscure PLIC board member (Gudde 1986; Landsberg et al 2014). It was one of many town sites laid out by PLIC between San Bernardino and Los Angeles in anticipation of an expanding population facilitated by the arrival of the railroad during this time. The local real estate boom lasted less than a year, and Claremont would have become one of a long list of railroad "ghost towns" if not for the interest of the recently-established Pomona College (a small congregational school) to which the PLIC gifted the Hotel Claremont and 260 vacant lots in 1888 (City of Claremont 2019). The community grew around the college, a grammar school was established, and a fire department organized the following year (Landsberg et al. 2014). By the turn of the century, the town included a general store, bank, jail, and several other businesses (Landsberg et al. 2014). The City of Claremont was officially incorporated on October 3, 1907, and several additional colleges were established around Pomona College in the 1920s. Along with the colleges, the citrus industry became the economic base of the community (Landsberg et al. 2014) with citrus ranches spreading across all of the foothills. At its height, the industry supported four citrus packing houses and several supporting facilities on the railroad line through Claremont. Citrus continued to flourish locally until after the Second World War, when rising land values fostered residential development, with many growers selling their land. From the mid-1950s, the San Bernardino Freeway allowed easy access to surrounding communities, contributing to the continuing trend of suburban development.

Several lumber yard buildings constructed within the project area in the mid-to-late 1940s (Historic Aerials var.; Planes of Fame 2019) (19-004863, see below) were occupied by "The Air Museum" in 1957. The museum moved from this site to Ontario Airport in 1963, from there to Buena Park in 1970, ending up at Chino Airport in 1973 to become the Planes of Fame Air Museum where it remains today (Planes of Fame 2019).

Upland

The community's name is attributed to citrus grower Charles D. Adams, who in 1897 suggested the name for a new citrus association located in North Ontario, which was uphill (or "up land") from Ontario, and where fruit produced at a higher altitude was considered of better quality (Clucas 2007). In 1902, the local residents persuaded the San Bernardino County Board of Supervisors to rename the community Upland, after the Upland Citrus Association, which was embraced by the Santa Fe railroad and local newspaper (Clucas 2007). Around this time, Upland essentially comprised half a dozen citrus packing houses surrounded by citrus groves, and the community was incorporated in 1907 in response

to the threat of annexation by neighboring Ontario (Clucas 2007; Gallup et al. 1989). Upland played a central role for the fruit industry in the Inland Empire, attracting more business as other packing houses closed in the La Verne and Claremont areas (Messecar and Lancaster 2009). Despite a long era of success, Upland's citrus industry began to decline in the late 1960s after a series of climatic and natural disasters began to decimate the citrus groves. This decline, along with the increasing demand for housing following World War II throughout Southern California saw the groves slowly give way to residential development. From the mid-1950s, the San Bernardino Freeway made commuting to Los Angeles easier and accelerated the transition of Upland from a rural citrus area to a residential and commercial community.

METHODS

RECORDS SEARCH

On September 10, 2018, a cultural resources records search was conducted for the project area by the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. It included a review of all recorded historic and prehistoric archaeological sites within one mile of the project, as well as a review of known cultural resource survey and excavation reports. In addition, the California State Historic Property Data File (HPD), which includes the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI), was searched.

ADDITIONAL RESEARCH

LSA Archaeologist Riordan Goodwin reviewed historic aerial photographs and historic maps during October 2018.

ARCHAEOLOGICAL FIELD SURVEY

On October 10, 2018, Mr. Goodwin conducted a pedestrian survey of all accessible exposed areas of the project parcels utilizing systematic parallel transects spaced by approximately 10 meters (approximately 35 feet) where possible. Special attention was paid to areas of exposed soil for surface artifacts and features and rodent burrows for evidence of archaeosols. The purpose of this survey was to identify and document, prior to the beginning of ground-disturbing activities, any cultural resources and thus also to identify any area(s) that might be sensitive for buried cultural resources.

RESULTS

RECORDS SEARCH

Results of the September 10, 2018, records search at the SCCIC indicate there have been 38 previous cultural resources studies conducted within a one-mile radius of the project, none of which included the project area. Although no cultural resources have been documented in the project area, one prehistoric archaeological site (19-000108), several historic period archaeological sites (36-007792, 36-007794, and 19-004450) have been documented within one mile along with more than 246 historic period built environment resources. Although most of the built environment resources are not documented on site records in the CHRIS system, they are listed in the Los Angeles County Historic Properties Directory. The nearest resource documented on a site record (bounding the southern edge of the project area) is Foothill Boulevard/Route 66 (36-002910). The single prehistoric resource known as "Indian Hill" (19-000108, indicated on maps, minimally documented as a severely impacted flake stone artifact deposit, and anecdotally attributed ground stone artifacts and habitation) was approximately 0.8 miles west of the project area (Rector 1966; Cunningham et al. 1990, City of Claremont 2019).

Table A: Resources within One Mile Documented on DPR forms

Primary #	OHP #	Site Description*	Status Code
36-002910	—	Historic highway/road (Foothill Boulevard/Route 66)	2S2
36-007792	—	Historic refuse scatter	—
36-007793	—	Isolated historic artifact	—
36-007794	—	Historic trash scatter	—
36-015497	—	Historic highway/road, Baseline Road	—
36-018721	—	Historic bridge, c. 1929	—
36-018743	—	Historic bridge, c. 1929	—
36-020273	—	Historic bridge, c. 1926	—
36-024507	—	Historic industrial building	—
19-000108	—	"Indian Hill", prehistoric artifact deposit and possible habitation site	—
19-004450	—	Historic period refuse scatter	—
19-185223	033793	157 East 7th Street, Chidlaw House, c. 1891	3S
19-185226	033796	139 E. 7th Street, Hastings House, c. 1907	3S
19-185227	033797	135 East 7th Street, Mulcahy House, c. 1910	3S
19-185228	033978	115, 117 East 7th Street, Jencks House/Sholdes House, c. 1898	3S
19-185280	033850	121 E. 10th Street, Phil Dike's Studio, c. 1910	5S2
19-185281	033851	131 E. 10th Street, Stover House, c. 1908	5S2
19-185282	033852	143 East 10th Street, Blaisdell House, c. 1908	3S
19-185354	033926	Historic Street, West 11th Street, c. 1941	5S2
19-186027	034601	College Way, Pomona/Sumner Hall, c. 1887	7N

Table A: Resources within One Mile Documented on DPR forms

Primary #	OHP #	Site Description*	Status Code
19-186028	034602	Pomona College, Le Bus Court Marston Quadrangle, c. 1920	5S2
19-186029	034603	Claremont College, Pomona/Crookshank Hall, c. 1922	3D
19-186030	034604	Pomona College, Carnegie Library, c. 1908	3D
19-186031	034605	College Avenue, Holmes Hall/Pomona College, c. 1893	5D2
19-186032	034606	College Avenue, Bridges Hall "Big Bridges" c. 1931	3D
19-186033	034607	300 6th Street, Smith Tower, c. 1929	5D2
19-186034	0340608	302 6th Street, Fray Hall, c. 1929	7N
19-186035	034609	304 6th Street, Norton Hall, c. 1929	5D2
19-183036	034610	Pomona College, Renwick Gymnasium, c. 1899	3D
19-186037	034611	Pomona College, Replica House, c. 1937	5D2
19-186038	034612	Pomona College, Brackett Observatory	3D
19-186039	034613	Pomona College, Pomona/Clark Hall, c. 1929	5D2
19-186040	034614	College Way, Smiley Hall, c. 1908	7N
19-186041	034615	Amherst Avenue, Greek Theater, c. 1910	3D
19-186042	034616	Bonita Avenue, Rembrandt Hall, c. 1914	3D
19-186043	034617	Bonita Avenue, Pomona/Harwood Hall,	7N
19-186044	034618	9th Street, Lang Art Building, c. 1937	1D, 7N
19-186045	034619	Bonita Avenue, Bridges Hall of Music "Little Bridges," c. 1915	3D
19-186046	034620	500 N. College Avenue, Pearsons Hall, c. 1898	5D2
19-186047	034621	Harvard Avenue, Mason's Hall, c. 1922	7N
19-186048	034622	Dartmouth Avenue, Honnold Library, c. 1952	5D2
19-186049	034623	College Avenue, Harper Hall, c. 1932	7N
19-186050	034624	9th Street, Presidents House, c. 1928	1D, 5D2
19-186051	034625	Columbia Avenue, Denison Library, c. 1930	1D, 3D
19-186052	034626	12th Street, Grace Scripps/Eleanor Toll Hall, c. 1927–28	1D,7N
19-186053	34627	10th Street, Balch Hall, c. 1929	1D,3D
19-186054	34628	12th Street, Browning/Dorsey Hall, c. 1929	1D,3D
19-186055	034629	Mills Avenue, Margaret Fowler Memorial Garden	1D, 5D2
19-186056	034630	9th Street, Oriental Garden/Scripps, c. 1930	1D,5D2
19-186057	34631	12th Street, Rose Garden/Scripps,	1D,5D2
19-186058	34632	Claremont Boulevard, Claremont College campus, c. 1893–1973	5S2
19-186146	76497	10th Street, Scripps College for Women, c. 1927–1970	1S
19-187085	—	Historic Road/Highway, The Mojave Road, c. 1859	—
19-190111	—	Historic Road/Highway, State Route 66, c. 1915	—

ADDITIONAL RESEARCH

The buildings utilized by "The Air Museum" in the 1950s were constructed sometime in the mid-to-late 1940s in APN 8307-003-066 to serve a lumber yard. They were removed sometime between 1980 and 1994 (Historic Aerials var.; Planes of Fame 2019).

ARCHAEOLOGICAL FIELD SURVEY

On October 10, 2018, Mr. Goodwin conducted a pedestrian survey of the entire project area. Visibility was fair at approximately 60 percent with considerable obstruction by vegetation and soil/structural debris piles dumped throughout the site. The project parcel has been subjected to surface disturbance from the construction of the buildings and erosion from the ephemeral drainage in APNs 1006-312-03 and 1006-312-04. Concrete rubble and building (cinderblock and brick) and asphalt debris along with modern refuse were noted on the surface throughout the project parcels. Soils are sandy alluvium. The following archaeological resources were identified within the project area:

19-004863

Raised building foundation, slab, apron, wall, steps, and indeterminate features of concrete, cinderblock, brick, and tarmac, dating to the mid-to-late 1940s located in APN 8307003066 (in Los Angeles County). See site record in Appendix A.

36-033017

This small refuse scatter located in APN 100-631-203 (in San Bernardino County) primarily comprises 20+ sanitary and condensed milk cans, along with 1-gallon fuel and paint cans, a cone-top beverage or brake fluid (?) can (1930s~1950s), coffee can lids, bottle and jar glass, and miscellaneous debris (see below). With few exceptions, the items are fragmentary. The few index artifacts include a condensed milk can (1917–1929), an amethyst glass milk bottle fragment with "POMONA VALLEY CREAMERY" in raised letters (1910s–1920s), clear glass condiment jar with Hazel-Atlas maker's mark (1920–1964). Other artifacts include leather shoe fragments, window glass, and miscellaneous sheet metal fragments. Modern clear glass bottle fragments were also noted.

36-033018

This minimal refuse scatter located in APN 100-631-204 (in San Bernardino County) primarily comprises 4+ all-steel beverage cans and fragments (1935–c.1970) along with 2+ coffee cans, an all-steel 1-quart oil can, can fragments, and miscellaneous debris (see below). The few index artifacts include a clear glass bottle with Owens-Illinois "Duraglas" maker's mark (1953 in year of manufacture position), a brown glass bottle base, also with Owens-Illinois maker's mark (1954 in year of manufacture position). Other artifacts include a metal drum lid clamp, window screen fragments, and miscellaneous galvanized sheet metal fragments. Modern glass fragments and rebar were also noted.

DISCUSSION AND EVALUATION

A segment of former Route 66 (now Foothill Boulevard), which (as a whole) has been determined eligible for listing in the National Register of Historic Places (National Register) and the California Register of Historical Resources (California Register) is adjacent to the project area. In 2010, the

California Department of Transportation (Caltrans) concluded that an approximately 2.1-mile segment between Towne Avenue and the Los Angeles/San Bernardino County line (including the segment adjacent to the project area) lacks the requisite level of integrity to meet National Register and/or California Register criteria. Therefore, it does not contribute to the significance of the resource (Route 66) as a whole, is not a "historical resource" under CEQA, and does not require consideration as part of this study.

The archaeological resources identified within the project area are typical examples of common resource types, i.e., building foundations (19-004863) and minimal refuse scatters (36-033017 and 36-033018). Although the former (19-004863) is associated with what would become a popular/renowned aviation museum (Planes of Fame), the features themselves have no apparent associated artifacts. The building foundations do not represent noteworthy archaeological data, do not have the potential for any, and therefore do not meet any of the criteria for a "historical resource" under CEQA.

As for the refuse scatters, 36-033017 predates 19-004863, both 36-033017 and 36-033018 are too distant from Foothill Boulevard/Route 66 and Monte Vista Avenue to infer any relationship with either road (i.e., they are not a result of roadside dumping), and therefore have no specific historic association. Also, these diminutive refuse scatters are in an almost completely compromised context; not only are they severely impacted and contaminated by chronic dumping, but they are also moderately to severely disturbed by erosion. As such, they have no potential for significant archaeological data and similarly do not meet any of the criteria as "historical resources" under CEQA. The cultural resources value of these marginal late historic period archaeological sites has been realized by their current recordation.

RECOMMENDATIONS

Despite the identification of several previously undocumented archaeological resources, this study did not encounter any "historical resources" as defined by CEQA within the project area and the value of the resources within the project parcels has been realized by the current recordation. The project area has been disturbed by development, chronic dumping and erosion. However, the proximity of a historically renowned archaeological site and location within the former drainage of a major water course indicates the project parcels have some sensitivity for subsurface prehistoric resources. Therefore, archaeological monitoring of earthmoving activities in undisturbed soil is recommended.

In the event undocumented archaeological materials are encountered during construction, all construction work should be halted and a qualified archaeologist consulted to determine the appropriate treatment of the discovery (California Code of Regulations, Title 14, Chapter 3, Section 15064.5(f)).

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the NAHC, which will determine and notify an MLD. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

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APPENDIX A

DEPARTMENT OF PARKS AND RECREATION (DPR) 523 FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # 19-004863
HRI #
Trinomial CA-LAN-004863H
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

 ***Resource Name or #:** LSA-CCT1801-S-1

P1. Other Identifier: The Air Museum (precursor of Planes of Fame Museum)

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** Los Angeles, California

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Ontario* **Date:** 1981 **T** 1S; **R** 8W; SE ¼ **of** SE ¼ **of Sec** 3; M.D. SB**B.M.**

c. Address: East Foothill Boulevard City: Claremont Zip: 91711

d. UTM: Zone: 11 ; Centerpoint: 435356 mE/ 3774307 mN (G.P.S. NAD 83)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN 8307003066; Access to this site from Interstate 210 is via Monte Vista Avenue south and East Foothill Boulevard west. The resource is on the north side of Foothill/Route 66.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries) Remnant raised foundation, slab, apron, wall, steps, and indetermine features of concrete, cinderblock, brick, and tarmac (see Archaeological Site Record for details)

***P3b. Resource Attributes:** (List attributes and codes) AH2 (Foundations)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) View north east from southwest corner of features 10/12/2018; Frame/acc.#1816

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both
1957/Planes of Fame Air Museum 2019

***P7. Owner and Address:**
City of Claremont
207 Harvard Avenue
Claremont, California 91711

***P8. Recorded by:** (Name, affiliation, and address)
Riordan Goodwin
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507

***P9. Date Recorded:**
October 12, 2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Tibbet, Casey and Riordan Goodwin, 2019: Cultural Resources Assessment, Claremont Commons Specific Plan, City of Claremont, Los Angeles County, California.

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ■Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

ARCHAEOLOGICAL SITE RECORD

***A1. Dimensions: a. Length:** ~260 feet E-W × **Width:** ~240 feet N-S
Method of Measurement: ☐ Paced ☐ Taped ☐ Visual estimate ■ Other: Google Earth Pro
Method of Determination (Check any that apply.): ☐ Artifacts ■ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):
Reliability of Determination: ■ High ☐ Medium ☐ Low Explain:
Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined ☐ Disturbances ☐ Vegetation ☐ Other (Explain):

A2. Depth: ☐ None ■ Unknown Method of Determination:

***A3. Human Remains:** ☐ Present ■ Absent ☐ Possible ☐ Unknown (Explain):

***A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.):
Raised foundation, slab, apron, wall, steps, and indeterminate features of concrete, cinderblock, brick, and tarmac.

***A5. Cultural Constituents (**Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
None.

***A6. Were Specimens Collected?** ■ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

***A7. Site Condition:** ☐ Good ■ Fair ☐ Poor (Describe disturbances.):

***A8. Nearest Water** (Type, distance, and direction.)**:** San Antonio Creek is located approximately 1750 east.

***A9. Elevation:** approximately 1,350 feet AMSL

A10. Environmental Setting **(**Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.)**:** The site is on a vacant lot sloping to the south approximately 5 percent with extensive concrete and asphalt debris. Buckwheat, eucalyptus, fiddleneck, mustard, pepper trees, Russian thistle, star thistle, yucca, and xeric grasses were noted.

A11. Historical Information: The buildings that once stood here were constructed to serve a lumber yard, and "The Air Museum" which first occupied them in 1957 moved from this site to Ontario Airport in 1963, from there to Buena Park in 1970, ending up at Chino Airport in 1973 to become the Planes of Fame Air Museum.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☐ 1914-1945 ■ Post 1945 ☐ Undetermined **Describe position in regional prehistoric chronology or factual historic dates if known:**
Buildings constructed in mid-to-late 1940s.

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations):
It is a typical example of a common resource type: remnant building foundation and related features lacking associated artifacts or significant historical association. It is relatively recent in age, (dating to approximately the last decade of the historic period) and lacks any potential for significant archaeological data. Therefore, it is not "historical resource" under CEQA and its cultural resource value has been realized by the current documentation.

A14. Remarks: There were no artifacts identified in associated with these features.

A15. References (Documents, informants, maps, and other references):
Planes of Fame Air Museum, 2019: History & Mission.

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.):
Frames 1815, 1816, 1820, 1829-1836, 1839, 1840

Original Media/Negatives Kept at: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

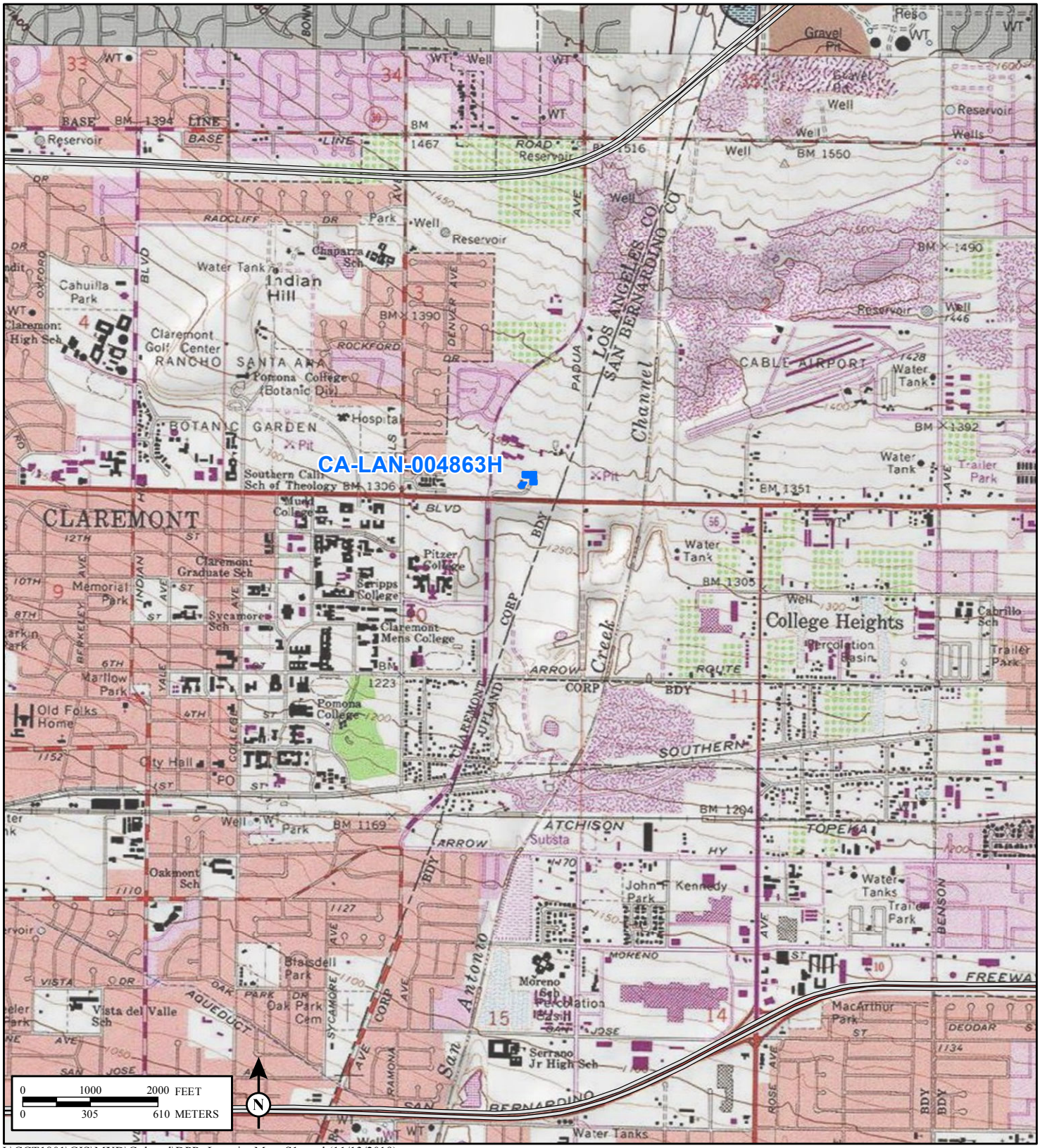
***A17. Form Prepared by:** Riordan Goodwin **Date:** 1/16/18
Affiliation and Address: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 19-004863
HRI #
Trinomial CA-LAN-004863H

*Resource Name or # (Assigned by recorder) LSA-CCT1801-S-1

*Map name: USGS 7.5' Quad, Ontario, California *Scale: 1:24,000 *Date of Map: 1981



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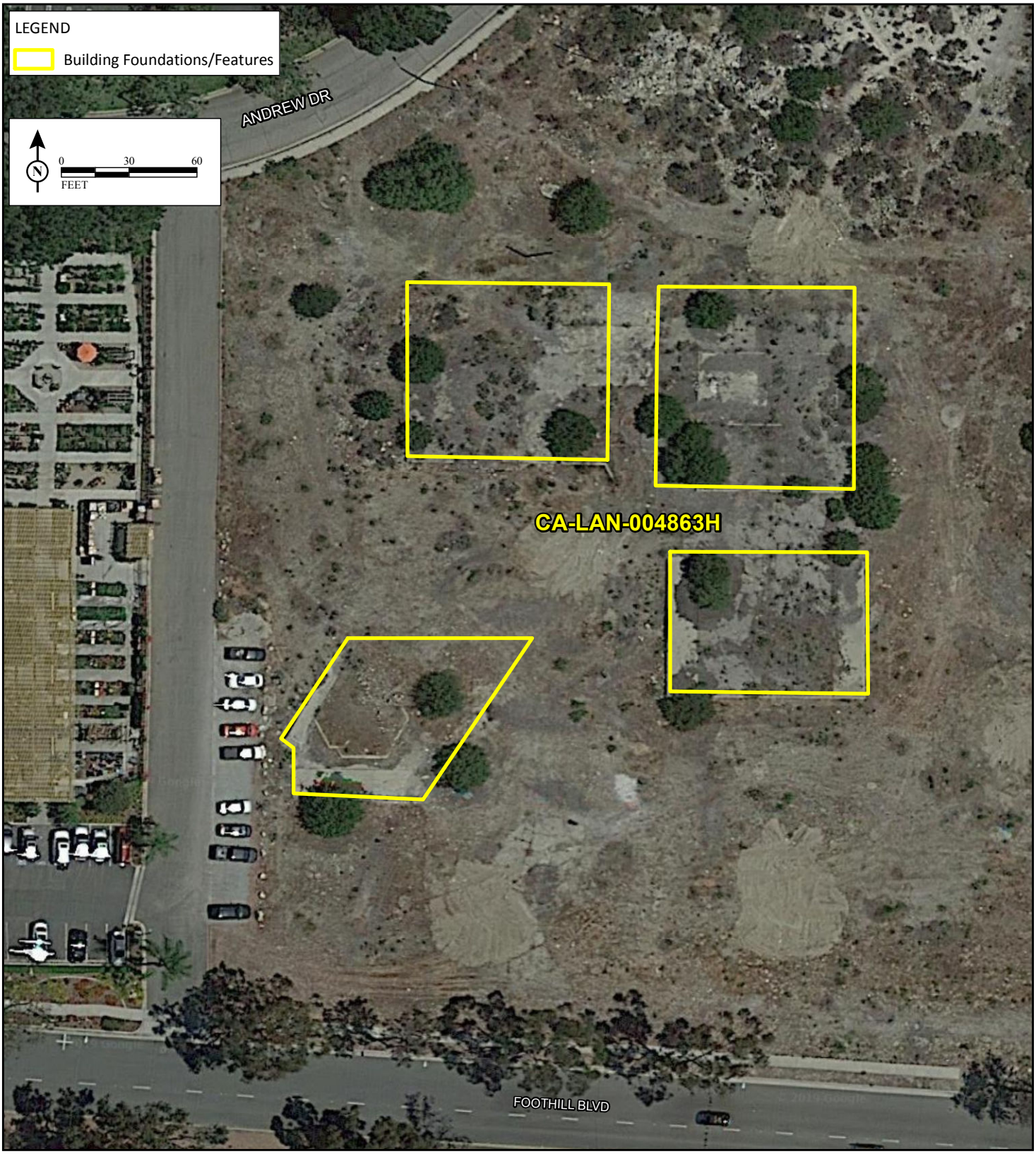
* Required Information

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SITE MAP

Primary # 19-004863
HRI #
Trinomial CA-LAN-004863H

Page 4 of 4 ***Resource Name or** # (Assigned by recorder) LSA-CCT1801-S-1

*Drawn By: R. Goodwin *Date: Oct. 12, 2018



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* Required Information

DPR 523K (1/95)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # 36-033017
HRI #
Trinomial CA-SBR-033017H
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 4 ***Resource Name or #:** LSA-CCT1801-S-2

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** San Bernardnio, California

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Ontario* **Date:** 1981 **T** 1S; **R** 8W; SE ¼ **of** SE ¼ **of Sec** 3; M.D. SB**B.M.**

c. Address: Monte Vista Avenue City: Upland Zip: 91786

d. UTM: Zone: 11 ; 435521 mE/ 3774357 mN (G.P.S. NAD 83)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN 100-631-203;
Access to this site from Interstate 210 is via Monte Vista Avenue south - the resource is approximately 140 feet west of Monte Vista Avenue.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
Refuse deposit dating from the 1920s (see Archaeological Site Record for details)

***P3b. Resource Attributes:** (List attributes and codes) AH4 (Refuse deposit)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) View west 10/12/2018; Frame/acc.#1822

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both
1920s/ Maxwell 1993, Simonis nd, Toulouse 1972.

***P7. Owner and Address:**
Clare Properties LLC
9595 Wilshire Blvd Ste 600
Beverly Hills CA 90212

***P8. Recorded by:** (Name, affiliation, and address)
Riordan Goodwin
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507

***P9. Date Recorded:**
October 12, 2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Tibbet, Casey and Riordan Goodwin, 2019: Claremont Commons Specific Plan, City of Claremont, Los Angeles County, California.

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ■Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

ARCHAEOLOGICAL SITE RECORD

 *Resource Name or #: LSA-CCT1801-S-2

*A1. Dimensions: a. Length: ~30 feet × Width: ~25 feet
Method of Measurement: ■ Paced ☐ Taped ☐ Visual estimate ☐ Other:
Method of Determination (Check any that apply.): ■ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):
Reliability of Determination: ■ High ☐ Medium ☐ Low Explain:
Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined ■ Disturbances ☐ Vegetation ■ Other (Explain): See A7.

A2. Depth: ■ None ☐ Unknown Method of Determination:

*A3. Human Remains: ☐ Present ■ Absent ☐ Possible ☐ Unknown (Explain):

*A4. Features (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.): None.

*A5. Cultural Constituents (Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.):
This small refuse scatter is primarily comprised of 20+ sanitary and condensed milk cans, along with 1-gallon fuel and paint cans, a cone-top beverage or brake fluid (?) can (1930s~1950s), coffee can lids, bottle and jar glass, and miscellaneous debris (see below). With few exceptions, the items are fragmentary. The few index artifacts include a condensed milk can (1917-1929), an amethyst glass milk bottle fragment with "POMONA VALLEY CREAMERY" in raised letters (1910s-1920s), clear glass condiment jar with Hazel-Atlas maker's mark (1920-1964). Other artifacts include leather shoe fragments, window glass, and miscellaneous sheet metal fragments. Modern clear glass bottle fragments were also noted.

*A6. Were Specimens Collected? ■ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

*A7. Site Condition: ☐ Good ☐ Fair ■ Poor (Describe disturbances.): Contaminated by dumping and disrupted by erosion.

*A8. Nearest Water (Type, distance, and direction.): On west bank of unnamed braided, ephemeral drainage.

*A9. Elevation: approximately 1,350 feet AMSL

A10. Environmental Setting (Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.): The site is on a vacant lot sloping to the south approximately 5 percent with extensive concrete and asphalt debris. Buckwheat, eucalyptus, fiddleneck, mustard, pepper trees, Russian thistle, star thistle, yucca, and xeric grasses were noted.

A11. Historical Information: The Pomona Valley Creamery was in business from approximately 1912 to 1945.

*A12. Age: ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ■ 1914-1945 ☐ Post 1945 ☐ Undetermined **Describe position in regional prehistoric chronology or factual historic dates if known:** 1920s

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations):
The deposit appears to have been primarily the result of one incident of domestic discard during the 1920s. It is a typical example of a common resource type: a marginal refuse deposit lacking any specific historical association. It lacks potential for significant data and its integrity and context have been severely compromised by dumping and erosion. Therefore, it is not "historical resource" under CEQA and its cultural resource value has been realized by the current documentation.

A14. Remarks: The site is set back some 500 feet from Foothill Boulevard/Route 66 and 140 feet from Monte Vista Avenue, rendering its association with both roads ambiguous.

A15. References (Documents, informants, maps, and other references):
Maxwell, D.B.S, 1993: Beer Cans: A Guide for the Archaeologist. In Historical Archaeology Vol. 27(1).
Simonis, Don, nd: Condensed/evaporated Milk Cans – Chronology for Dating Historical Sites. Prepared for the Bureau of Land Management, Kingman Resource Area, Arizona.
Toulouse, Julian H., 1971: Bottle Makers and Their Marks.
USGS 1981 Ontario, California 7.5 minute topographic quadrangle map.

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.):
Frames 1821-1824

Original Media/Negatives Kept at: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

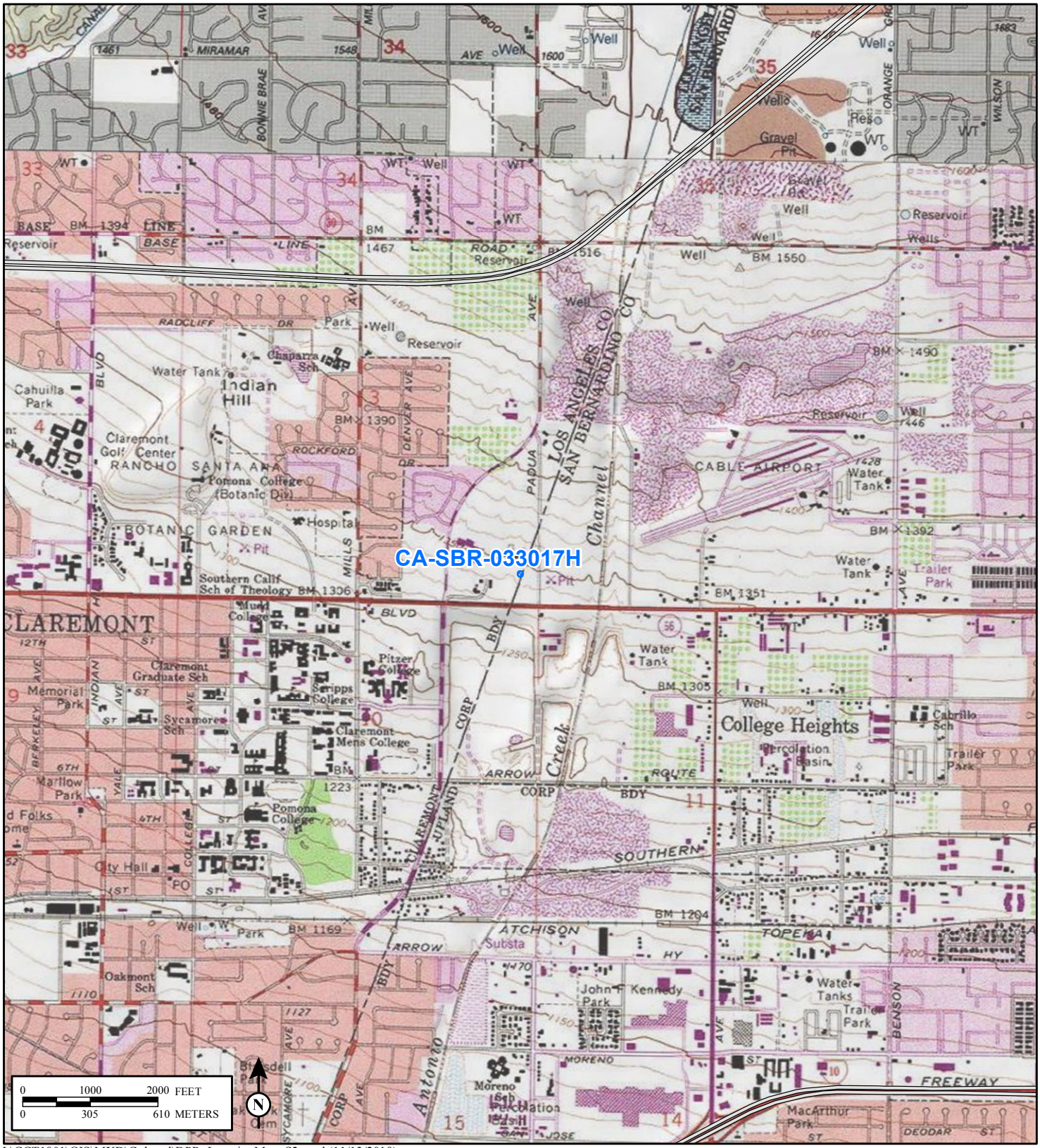
*A17. Form Prepared by: Riordan Goodwin **Date:** 1/17/19
Affiliation and Address: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-033017
HRI #
Trinomial CA-SBR-033017H

*Resource Name or # (Assigned by recorder) LSA-CCT1801-S-2

*Map name: USGS 7.5' Quad, Ontario, California *Scale: 1:24,000 *Date of Map: 1981



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* Required Information

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SITE MAP

Primary # 36-033017
HRI #
Trinomial CA-SBR-033017H

*Resource Name or # (Assigned by recorder) LSA-CCT1801-S-2

*Drawn By: R. Goodwin

*Date: Oct. 12, 2018



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* Required Information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # 36-033018
HRI #
Trinomial CA-SBR-033018H
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

Page 1 **of** 4 ***Resource Name or #:** LSA-CCT1801-S-3

P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted** ***a. County:** San Bernardino, California

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Ontario* **Date:** 1981 **T** 1S; **R** 8W; SE ¼ **of** SE ¼ **of Sec** 3; M.D. SB**B.M.**

c. Address: Monte Vista Avenue City: Upland Zip: 91786

d. UTM: Zone: 11 ; 435557 mE/ 3774393 mN (G.P.S. NAD 83)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN 100-631-204

Access to this site from Interstate 210 is via Monte Vista Avenue south - the resource is approximately 45 feet west of Monte Vista Avenue.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
Minimal refuse deposit dating from the 1950s (see Archaeological Site Record for details)

***P3b. Resource Attributes:** (List attributes and codes) AH4 (Refuse deposit)

***P4. Resources Present:** ☐Building ☐Structure ☐Object ■Site ☐District ☐Element of District ☐Other (Isolates, etc.)



P5b. Description of Photo: (View, date, accession #) View south 10/12/2018; Frame #1827

***P6. Date Constructed/Age and Sources:** ■Historic ☐Prehistoric ☐Both
1950s/Toulouse 1972

***P7. Owner and Address:**
Clare Properties LLC
9595 Wilshire Blvd Ste 600
Beverly Hills CA 90212

***P8. Recorded by:** (Name, affiliation, and address)
Riordan Goodwin
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, California 92507

***P9. Date Recorded:**
October 12, 2018

***P10. Survey Type:** (Describe)
Intensive pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") Tibbet, Casey and Riordan Goodwin, 2019: Claremont Commons Specific Plan, City of Claremont, Los Angeles County, California.

***Attachments:** ☐NONE ■Location Map ■Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ■Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

ARCHAEOLOGICAL SITE RECORD

***A1. Dimensions: a. Length:** ~25 feet × **Width:** ~20 feet
Method of Measurement: ■ Paced ☐ Taped ☐ Visual estimate ☐ Other:
Method of Determination (Check any that apply.): ■ Artifacts ☐ Features ☐ Soil ☐ Vegetation ☐ Topography ☐ Cut bank ☐ Animal burrow ☐ Excavation ☐ Property boundary ☐ Other (Explain):
Reliability of Determination: ■ High ☐ Medium ☐ Low Explain:
Limitations (Check any that apply): ☐ Restricted access ☐ Paved/built over ☐ Site limits incompletely defined ■ Disturbances ☐ Vegetation ■ Other (Explain): Context is ambiguous - artifacts appear to be at least partially mixed in with imported soil containing rubble which has been minimally transported by hydraulic action through the drainage.

A2. Depth: ■ None ☐ Unknown Method of Determination:

***A3. Human Remains:** ☐ Present ■ Absent ☐ Possible ☐ Unknown (Explain):

***A4. Features** (Number, briefly describe, indicate size, list associated cultural constituents, and show location of each feature on sketch map.): None.

***A5. Cultural Constituents (**Describe and quantify artifacts, ecofacts, cultural residues, etc., not associated with features.): This small refuse scatter is primarily comprised of 4+ all-steel beverage cans and fragments (1935~c.1970) along with 2 + coffee cans, an all-steel 1 quart oil can, can fragments, and miscellaneous debris (see below) The few index artifacts include a clear glass bottle with Owens-Illinois "Duraglas" makers mark (1953 in year of manufacture position), a brown glass bottle base, also with Owens-Illinois makers mark (1954 in year of manufacture position). Other artifacts include a metal drum lid clamp, window screen fragments, and miscellaneous galvanized sheet metal fragments. Modern glass fragments and rebar were also noted.

***A6. Were Specimens Collected?** ■ No ☐ Yes (If yes, attach Artifact Record or catalog and identify where specimens are curated.)

***A7. Site Condition:** ☐ Good ☐ Fair ■ Poor (Describe disturbances.): See A1, A8 and A13.

***A8. Nearest Water** (Type, distance, and direction.)**:** Within unnamed braided, ephemeral drainage.

***A9. Elevation:** approximately 1,350 feet AMSL

A10. Environmental Setting **(**Describe culturally relevant variables such as vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.)**:** The site is on a vacant lot sloping to the south approximately 5 percent with extensive concrete and asphalt debris. Buckwheat, eucalyptus, fiddleneck, mustard, pepper trees, Russian thistle, star thistle, yucca, and xeric grasses were noted.

A11. Historical Information: None.

***A12. Age:** ☐ Prehistoric ☐ Protohistoric ☐ 1542-1769 ☐ 1769-1848 ☐ 1848-1880 ☐ 1880-1914 ☐ 1914-1945 ■ Post 1945 ☐ Undetermined **Describe position in regional prehistoric chronology or factual historic dates if known:** Mid - 1950s

A13. Interpretations (Discuss data potential, function[s], ethnic affiliation, and other interpretations): The deposit appears to have been the result of one incident of domestic discard during the mid-1950s. It is a typical example of a common resource type: a relatively recent, minimal refuse deposit lacking any specific historical association. It lacks potential for significant data and its integrity and context have been severely compromised by dumping and erosion - therefore, it is not "historical resource" under CEQA and its cultural resource value has been realized by the current documentation.

A14. Remarks: The site is set back some 600 feet from Foothill Boulevard/Route 66 and 45 feet from Monte Vista Avenue, rendering its association with both roads ambiguous.

A15. References (Documents, informants, maps, and other references):
Toulouse, Julian H., 1971: Bottle Makers and Their Marks.
USGS 1981 Ontario, California 7.5 minute topographic quadrangle map.

A16. Photographs (List subjects, direction of view, and accession numbers or attach a Photograph Record.): Frames 1827 and 1828

Original Media/Negatives Kept at: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

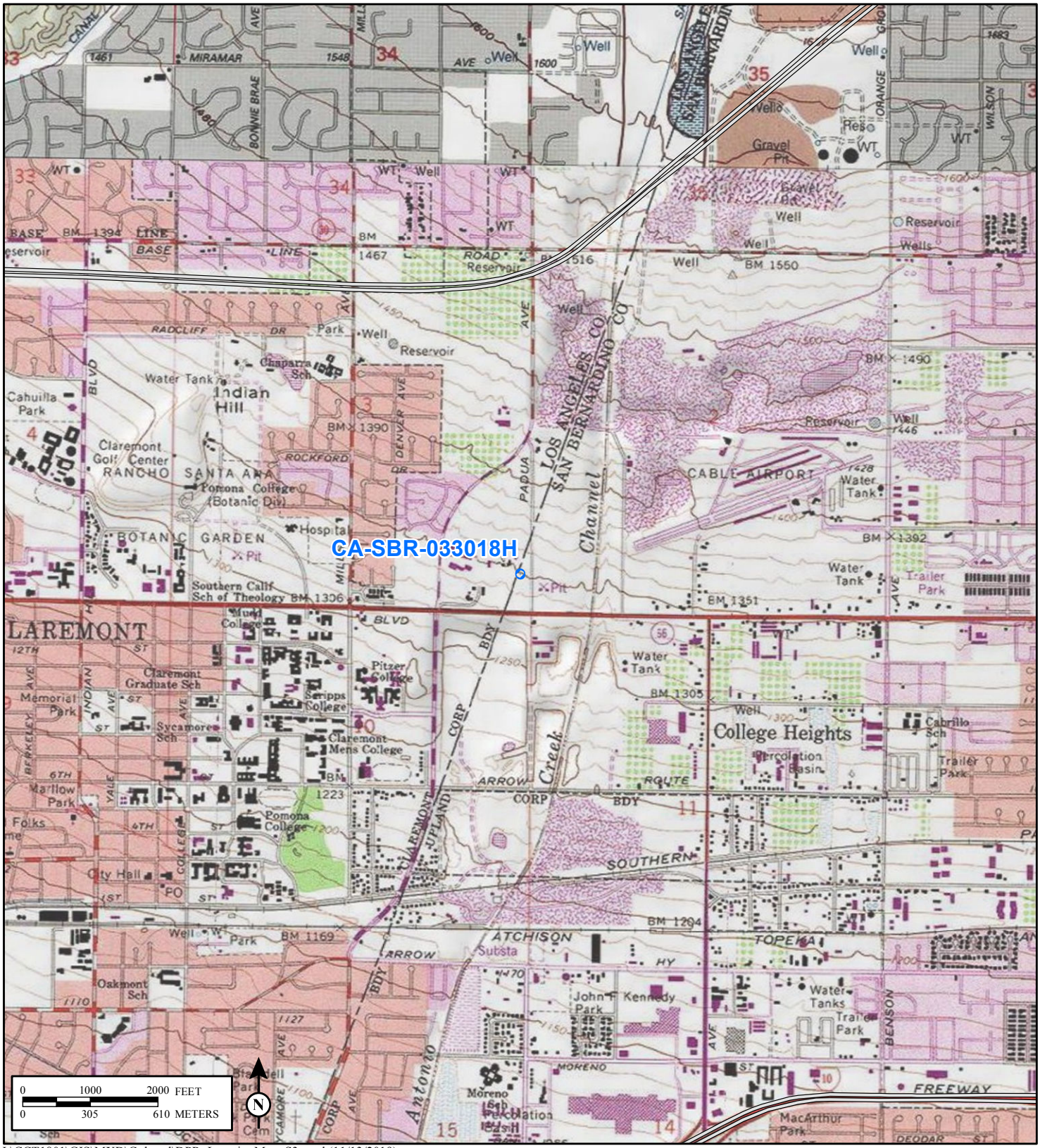
***A17. Form Prepared by:** Riordan Goodwin **Date:** 1/18/19
Affiliation and Address: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # 36-033018
HRI #
Trinomial CA-SBR-033018H

*Resource Name or # (Assigned by recorder) LSA-CCT1801-S-3

*Map name: USGS 7.5' Quad, Ontario, California *Scale: 1:24,000 *Date of Map: 1981



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* Required Information

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
SITE MAP

Primary # 36-033018
HRI #
Trinomial CA-SBR-033018H

Page 4 of 4 ***Resource Name or** # (Assigned by recorder) LSA-CCT1801-S-3

*Drawn By: R. Goodwin *Date: Oct. 12, 2018



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* Required Information

DPR 523K (1/95)

APPENDIX B

RECORDS SEARCH BIBLIOGRAPHY

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-01328		1984	Aycock, Richard D. and Colby, Susan	An Archaeological Resource Survey and Impact Assessment of Road Widening Improvements of Padua Avenue From Claremont Boulevard to 700' North of Baseline Road, City of Claremont, Los Angeles County, California	University of California, Los Angeles Archaeological Survey	
LA-01858		1989	Sutton, Paula A.	Archaeological Survey Report for the Proposed Foothill Freeway Los Angeles and San Bernardino Counties, California	Caltrans	19-000402
LA-02247		1991	Cameron, Constance	An Archaeological Assessment for the Rancho Santa Ana Botanic Garden, Claremont, California	California State University Fullerton	19-000108
LA-02578		1992	Cameron, Constance	An Archaeological Assessment for the School of Theology at Claremont, California	Archaeological Research Facility CSU Fullerton	19-000108
LA-04338		1998	McKenna, Jeanette A.	A Phase I Archaeological Survey for the Claremont Colleges' North Campus Master Plan Project Area and a Phase Ii Archaeological Investigation of Site CA-LAN-108, City of Claremont, Los Angeles Co., California	McKenna et al.	19-000108
LA-04425		1987	Romani, John F.	Negative Archaeological Survey Report: Improvement of Baseline Road (route 30) From Foothill Boulevard in the City of La Verne and Benson Avenue in the City of Claremont	Caltrans	
LA-05150	Cellular -	2000	Lapin, Philippe	Cultural Resource Assessment for Pacific Bell Wireless Facility Cm 222-02, County of Los Angeles, Ca	LSA Associates, Inc.	19-000108
LA-05649		2002	Hintzman, Marc W.	Archaeological Monitoring at the Rancho Santa Ana Botanic Garden, Near the Intersection of Foothill Boulevard and College Avenue Claremont, California	Statistical Research, Inc.	19-000108, 19-000347, 19-002445
LA-06253	Cellular -	2002	Duke, Curt	Cultural Resource Assessment Cingular Wireless Facility No. Cm 236-11 Los Angeles County, California	LSA Associates, Inc.	19-186048
LA-06257		1989	Gualtineri, Kathryn	Historic Property Survey Report (hpsr) for the Proposed Widening of State Route 30 (baseline Road) From Foothill Blvd. in Los Angeles County to Benson Avenue in San Bernardino County	Unknown	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-09033		2005	Wlodarski, Robert J.	Results of Archaeological Monitoring for the Master Plan Proposed Pitzer College Dormitory Expansion Southwest of Claremont and Foothill Boulevard City of Claremont, County of Los Angeles, California	Historical, Environmental, Archaeological, Research, Team	
LA-09047		2004	McKenna, Jeanette A.	A Phase I Cultural Resources Investigation for the Holliday Rock/claremont, Los Angeles County, California	McKenna et al.	
LA-09059	Cellular -	2005	Bonner, Wayne H. and Supernowicz, Dana	Cultural Resources Records Search Results and Site Visit for Sprint Nextel Candidate Ca7738a (Honnold) 450 North College Way, Claremont, Los Angeles County, California / Cultural Resources Study of the Honnold Project - 450 N College Way, Claremont 91711	Michael Brandman Associates; Historic Resource Associates	19-186032
LA-09060	Cellular -	2005	Bonner, Wayne H.	Cultural Resource Records Search Results and Site Visit for Cingular Wireless Site Es-017-01(honnold Mudd Library), 800 North Dartmouth Avenue, Claremont, Los Angeles County, California	Michael Brandman Associates	
LA-09576	Cellular -	2009	Billat, Lorna	New Tower ("NT") Submission Packet, FCC Form 620, Project Name: Caltrans Baseline, Project No. IE25858C	EarthTouch, Inc.	
LA-09577		2008	Chandler, Evelyn N. and Jennifer M. Howard	Cultural Resources Inventory of Two Proposed Pole Replacements in the City of Claremont, Los Angeles County, California (DWO 6026-4800, AI 8-4880)	ECORP Consulting, Inc.	19-000108, 19-185275, 19-186690
LA-09578	Cellular -	2008	Bonner, Wayne H. and Kathleen Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate IE25858C (Caltrans Baseline), Route 210 Route 30 Interchange at Padua Avenue, Claremont, Los Angeles County, California.	Michael Brandman Associates	
LA-10641		2010	Tang, Bai "Tom"	Preliminary Historical/Archaeological Resources Study, San Bernadino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernadino	CRM Tech	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-10896		2004	Greenwood, David	Historic Properties Survey and Effects Report for the Gold Line Phase II Project (Pasadena to Montclair) Los Angeles and San Bernardino Counties, CA	Myra L. Franck/Jones & Stokes, Applied EarthWorks	19-000075, 19-179337, 19-179357, 19-180728, 19-183943, 19-185548, 19-185894, 19-186059, 19-187944, 19-189103, 19-189104, 19-189105, 19-189106, 19-189107, 19-189108, 19-189109, 19-189110, 19-189111, 19-189112, 19-189113, 19-189114, 19-189115, 19-189116, 19-189117, 19-189118, 19-189119, 19-189120, 19-189121, 19-189122, 19-189123, 19-189124, 19-189125, 19-189126, 19-189127, 19-189128, 19-189129, 19-189130, 19-189131, 19-189132, 19-189133, 19-189134, 19-189135, 19-189136, 19-189137, 19-189138, 19-189139, 19-189140, 19-189141, 19-189142, 19-189143, 19-189144, 19-189145, 19-189146, 19-189147, 19-189148, 19-189149, 19-189150, 19-189151, 19-189152, 19-189153, 19-189154, 19-189155, 19-189156, 19-189157, 19-189158, 19-189159, 19-189160, 19-189161, 19-189162, 19-189163, 19-189164, 19-189165, 19-189166, 19-189167, 19-189168, 19-189169, 19-189170, 19-189171, 19-189172, 19-189173, 19-189174, 19-189175, 19-189176, 19-189177, 19-189178, 19-189179, 19-189180, 19-189181, 19-189182, 19-189183, 19-189184, 19-189185, 19-189186, 19-189187, 19-189188, 19-189189, 19-189190, 19-189191, 19-189192, 19-189193, 19-189194, 19-189195, 19-189196, 19-189197, 19-189198, 19-189199, 19-189200, 19-189201, 19-189202, 19-189203, 19-189204, 19-189205, 19-189206, 19-189207, 19-189208, 19-189209, 19-189210, 19-189211
LA-12023		2010	Stewart, Noah	Relinquishment to the City of Claremont state-owned right of way, State Route 66 (Foothill Blvd) between Towne Avenue and the Los Angeles/San Bernardino County Line	CalTrans	19-190111

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-12525		2003	Poka, Ervin	NHPA Section 106 Review; Metro Gold Line Phase II Extension Project	Federal Highway Adminstration, Federal Transit Administration	
LA-12643		2014	Goodwin, Riordan	Archaeological Salvage of Refuse Deposit, Holden Hall Demolition at pitzer College, 955 North Pitzer Road, City of Claremont, Los Angeles County, California (LAS Project No PZR1402)	LSA	19-004450
LA-12742		2014	Wills, Carrie and Bonner, Diane	Cultural Resources Records Search and Site Visit Results for Verizon Wireless Candidate Chattanooga 1580 North Claremont Boulevard, Claremont, Los Angeles County, California EBI Project No 61141369	MBA	
LA-13215		2015	Roland, Jennifer	Phase I Investigation for the Verizon Wireless Salisbury Tower Installation Project, Claremont, Los Angeles County, California	NWB Environmental Services, LLC	

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00525	NADB-R - 1060525; Voided - 77-7.7	1977	HEARN, JOSEPH E.	ARCHAEOLOGICAL - HISTORICAL RESOURCES ASSESSMENT OF TWO PROPOSED WATER-WELL DRILLING SITES	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-02851	NADB-R - 1062851	1993	LANDIS, DANIEL G.	A CULTURAL RESOURCES SURVEY FOR THE CHINO BASIN GROUNDWATER STORAGE PROGRAM, SAN BERNARDINO COUNTY, CA	GREENWOOD & ASSOCIATES	36-006254, 36-006810, 36-006901, 36-007323, 36-007661, 36-007792, 36-007793, 36-007794
SB-04096	NADB-R - 1064096	2004	HARPER, CAPRICE D.	CULTURAL RESOURCE ASSESSMENT: CINGULAR WIRELESS FACILITY NO. SB 279-01, UPLAND, SAN BERNARDINO COUNTY,CA.5PP	LSA	
SB-04467	NADB-R - 1064467	2004	DAHDUL, MIRIAM	IDENTIFICATION & EVALUATION OF HISTORIC PROPERTIES: LAKE ARROWHEAD COMMUNITY SERVICES DISTRICT RECYCLED WATER PIPELINE ALIGNMENT, GRASS VALLEY AREA, SAN BERNARDINO COUNTY, CA. 28PP	CRM TECH	
SB-04503	NADB-R - 1064503	2004	DICE, MICHAEL	AN ARCHAEOLOGICAL RESOURCES EVALUATION & PALEONTOLOGICAL RECORDS SEARCH FOR THE COLLEGE PARK PROJECT, MONTE VISTA AVE & WEST ARROW ROUTE, CITY OF UPLAND, SAN BERNARDINO COUNTY, CA. 37PP	MICHAEL BRANDMAN ASSOCIATES	36-020273
SB-04703	NADB-R - 1064703	2005	MCKENNA, JEANETTE	A PHASE I CULTURAL RESOURCES INVESTIGATION FOR THE UPLAND CROSSING PROJECT AREA, FOOTHILL BLVD. AND MONTE VISTA AVE., CITY OF UPLAND, SAN BERNARDINO COUNTY, CALIFORNIA		
SB-05230	Caltrans - ; NADB-R - 1065230	2006	McKenna, Jeanette A.	Historic Resources Compliance Report: The Upland Crossing Project Area, Foothill Blvd. and Monte Vista Avenue, City of Upland, San Bernardino County, California.	McKenna et al	36-002910
SB-05725	NADB-R - 1065725	2007	DAHDUL, MARIAM, BALLESTER, DANIEL, and TERRI JACQUEMAIN	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT: CLAREMONT UNIVERSITY CONSORTIUM PROJECT, IN THE CITIES OF CLAREMONT AND UPLAND, LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA		

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-06038	Caltrans - ; NADB-R - 1066038	2007	Walters, Andrew	08-SBd-66-PM0.0/4.08 (KP 0.00/6.56) Highway Segment Relinquishment, City of Upland, San Bernardino County EA J500.	Caltrans	36-002910
SB-07048		2012	Padon, Beth	Cultural Resource Assessment Study for Verizon "Hemlock" Site in Rancho Cucamonga, San Bernardino County, California	Discovery Works	36-016454
SB-07084	NADB-R - 1067084	2010	Tang, Bai “Tom”	Preliminary Historical/Archaeological Resources Study, San Bernardino Line Positive Train Control Project, Southern California Regional Rail Authority, Counties of Los Angeles and San Bernardino.	CRM TECH	
SB-07419	NADB-R - 1067419	2004	Frank, Myra L., Jones & Stokes, and Applied Earthworks	(Draft) Historic Property Survey and Effects Report for the Gold Line Phase II Project (Pasadena to Montclair), Los Angeles and San Bernardino Counties, California.	Myra L. Frank/Jones & Stokes	
SB-08139		2015	Fulton, Phil and Casey Tibbet	Cultural Resource Assessment Class I Inventory	LSA Associates, Inc.	
SB-08257		2016	Tang, Bai	Due-Diligence Historical/Archaeological Resources Study Inland Empire Utilities Agency Recharge Basin Maintenance Plan Chino Basin Area, San Bernardino and Riverside Counties, California CRM TECH Contract No. 2989	CRM TECH	

APPENDIX E-1:

Phase I Environmental Site Assessment, Concerning Commercial and Undeveloped Property at 735-911 East Foothill Blvd., Claremont, CA, 91711, PIC Environmental Services, April 10, 2018

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PIC ENVIRONMENTAL SERVICES
A DIVISION OF PETROLEUM INDUSTRY CONSULTANTS, INC.
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Email: picenv@verizon.net

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT

PREPARED FOR

BEN SWENSON
VICTOR LACAGNINA
CLARE PROPERTIES, LLC
9595 WILSHIRE BLVD., SUITE 600
BEVERLY HILLS, CA 90212

CONCERNING COMMERCIAL AND UNDEVELOPED PROPERTY AT

735 – 911 EAST FOOTHILL BLVD.
CLAREMONT, CA 91711
AND
UNDEVELOPED PARCELS (3)
WEST OF MONTE VISTA AVE.
UPLAND, CA 91786

APRIL 10, 2018

PIC ENVIRONMENTAL SERVICES
2619 SIERRA WAY
LA VERNE, CA 91750

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Site Description 2
Site History 2
Survey of Adjacent Properties 3
Historical Aerial Photograph Review 3
Government Records Review 4
Geology and Hydrogeology 9
Conclusions and Recommendations 9

DISPLAYS

Figure 1: Site Location and Topographic Map
Figure 2: Site Map – Current
Figure 2A: Site Map – 1998
Figure 2B: Proposed Site Plan
Figure 3: Groundwater Contour Map
Figure 4: Oil and Gas Map
Figure 5: Asbestos Reference Display
Figure 6: Landfill Map

Appendix A: Title Information
Appendix B: Site Photos
Appendix C: Claremont Building Department Permits
Appendix D: Historic Topographic Maps
Appendix E: Historic Aerial Photographs
Appendix F: City Directory Report
Appendix G: EDR Report
Appendix H: CHJ "Phase I Report" dated February 18, 1998

PIC ENVIRONMENTAL SERVICES

A DIVISION OF PETROLEUM INDUSTRY CONSULTANTS, INC.

2619 Sierra Way, La Verne, CA 91750

909/593-2427 FAX: 909/593-2105

April 10, 2018

INTRODUCTION

PIC Environmental Services (PIC) was contracted by Clare Properties, LLC to perform a Phase I Environmental Site Assessment (PESA) at an undeveloped, former commercial property located in Claremont and Upland, California (see Figure 1). The purpose of this investigation was to determine if environmental impairments existed at the site. This document represents the PESA report prepared in accordance with customary industry practices and current ASTM (2013) Standards. This document also intends to satisfy the "All Appropriate Inquiries" guidelines established by the Federal Environmental Protection Agency (EPA).

The following sources were used to prepare this report:

1. Site Inspection
2. California Regional Water Quality Control Board (RWQCB) records
3. California Department of Toxic Substances Control (DTSC), Site Mitigation Division records
4. United States Environmental Protection Agency (EPA) and Geological Society (USGS) records
5. California Department of Natural Resources (CDNR), Division of Oil, Gas, and Geothermal Resources (DOGGR) records
6. Los Angeles County Waste Discharge Systems records of active and inactive landfills
7. EDR collection of historic aerial photographs
8. City of Claremont permit records
9. Los Angeles County and San Bernardino County UST and Hazardous Materials Permit Records
10. Los Angeles County and San Bernardino County Title Records
11. Historic Telephone Directories
12. Review of a previous Phase I Assessment Report

SCOPE OF INVESTIGATION

The scope of this investigation included: site inspection, survey of adjacent properties, review of the above listed government records, review of historical aerial photographs, and geologic and hydrogeologic information search.

SITE INSPECTION

On March 27, 2018, PIC Project Manager, Ethan Hersch, conducted site inspections at the subject property and adjacent/nearby properties. Ben Swenson assisted PIC with the inspections and provided historical information.

SITE DESCRIPTION

The subject property includes about six (6) acres of undeveloped former commercial property located north of E. Foothill Blvd. and west of Monte Vista Avenue in Claremont and Upland, CA.

Historic addresses used at the property appear to include 735 through 911 E. Foothill Blvd., Claremont, CA 91711. Potential addresses that encompass the three Upland parcels could include 901 – 1101 North Monte Vista Avenue (formerly Padua Avenue) and 2401 – 2501 West Foothill Blvd., Upland CA 91786. The property includes one Los Angeles County parcel and three San Bernardino County Assessor parcels. The San Bernardino County parcel numbers are 1006-312-02, 1006-312-03, and 1006-312-04. The Los Angeles County Assessor Parcel Number is 8307-003-066. The existing Armstrong Nursery facility, located at 735 East Foothill Blvd. is not included in PIC's Phase I Assessment. Additional title information is attached in Appendix A.

Property boundaries are indicated by public streets to the south and east, an adjoining commercial building and Andrew Drive to the west and undeveloped property to the north (see Figure 2).

The subject property no longer contains any structural improvements. Concrete foundations from at least three historic commercial buildings remain evident in the western portion of the property. A previous Phase I Assessment Report dated February 18, 1998 identified the same onsite features (see Appendix H). In addition, the property contains significant amounts of nonhazardous waste (broken asphalt, boulders, concrete, lumber, etc.) Remnants of a former hydraulic lift remain evident at the central building foundation. Hydraulic lifts are not regulated facilities and typically contain nonhazardous oils. Historic commercial occupants included an airplane museum, an auto body repair shop, an automotive parts store, a backpack store, a furniture store, a landscape contractor, and a plant nursery. All historic commercial buildings were demolished in 1984. PIC observed no underground storage tanks, no industrial waste interceptors (clarifiers), and no significant surface staining. Figure 2 and Site Photos in Appendix B identify onsite features.

The former onsite buildings were constructed prior to 1980. As a result, asbestos containing construction materials (ACM) may be present in some waste piles observed onsite. PIC observed no obvious ACM but testing for ACM in suspect building materials was not conducted. A reference diagram of common ACM in older structures is illustrated on Figure 5.

PIC's review of existing site conditions and historic uses did not identify any Recognized Environmental Conditions (RECs).

SITE HISTORY

Based on a review of regulatory permit records, County title records, historic telephone directories, historic topographic maps, and historic aerial photos, it appears the subject property was initially used for residential purposes as early as the 1940s (see Appendices D and E). Prior to 1940, the property was undeveloped and unoccupied. As documented in Figures 2 and 2A and Appendices C, D, and E, at least three commercial buildings were constructed onsite by 1953 (see Appendix E). No structures remain onsite. Historic commercial occupants included an airplane museum, an auto body repair shop, an automotive parts store, a backpack store, a furniture store, a landscape contractor, and a plant nursery. All historic commercial buildings were demolished in 1984.

None of the identified historic tenants were likely to have used or stored significant quantities of hazardous materials onsite.

Based on PIC's review of historic records summarized above, PIC discovered no Recognized Environmental Conditions (RECs).

SURVEY OF ADJACENT PROPERTIES

Commercial developments were observed on adjoining properties. The Armstrong Nursery facility, located west of the subject property, is not a part of PIC's Phase I Assessment.

None of the adjacent properties exhibited obvious evidence of petroleum or hazardous materials contamination problems. However, there is some evidence that nearby public water supply wells have been contaminated by chlorinated degreasing solvents (TCA, TCE, etc.). There is no evidence that historic onsite occupants would have released contaminants that contributed to the groundwater contamination plume.

Surface runoff at all surrounding properties appeared to be southerly.

No evidence of historic or improper waste disposal was observed by PIC in any storm drain at the site.

HISTORICAL AERIAL PHOTOGRAPH REVIEW

Historical aerial photographs provided by EDR were reviewed by PIC (see copies in Appendix E). Available photographs were dated 1928, 1938, 1949, 1953, 1959, 1964, 1966, 1975, 1977, 1981, 1989, 1990, 1994, 2002, 2005, 2010, 2014, and 2017.

The 1928 and 1938 photos indicate the property was undeveloped and unoccupied. Foothill Blvd. and Monte Vista Avenue (formerly Padua Avenue) are evident south and east of the property in all photos.

By 1949, at least two buildings had been constructed onsite.

By 1953, at least three structures appear evident onsite on the western portion of the property. All structures are located on the Claremont parcel.

Similar features are observed in the 1959, 1964, 1966, 1975, 1977, and 1981 photos. Airplane storage is evident outside the largest building in the 1959, 1964, and 1966 photos. By 1989, all of the former onsite buildings had been demolished. The Armstrong Nursery Facility was constructed adjacent to the property by 2002.

Subsequent photos reveal similar features and no significant changes. A recent (2017) photo has been enlarged and reproduced as Figure 2 for reference.

The aerial photo study indicates no obvious environmental impairments on the subject property or from adjacent properties. The aerial photo search did not indicate any historic oil well drilling, rock quarry, or landfill activity on the site.

GOVERNMENT RECORDS REVIEW

The following federal, state, and local public records and associated lists were searched to determine the potential for or existence of onsite and/or offsite unauthorized releases of hazardous materials (i.e., contamination) related to onsite and/or offsite aboveground or underground storage tanks, or any other potential sources:

FEDERAL SOURCES

NPL	National Priority List
PROPOSED NPL	Proposed National Priority List
DELISTED NPL	National Priority List Deletions
NPL LIENS	Federal Superfund Liens
CERCLIS (SEMS)	Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLIS – NFRAP (SEMS)	CERCLIS No Further Remedial Action Planned
CORRACTS	Corrective Action Report
RCRA	Resource Conservation and Recovery Act Information
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
US BROWNFIELDS	A Listing of Brownfield Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records of Decision
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/TSCA Tracking System – FIFRA (Federal Insecticide, Fungicide, and Rodenticide Control Act)
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
DEBRIS REGION 9	Illegal Dumping Sites Listing
MCS	Military Cleanup Sites
RADINFO	Radiation Information Database
MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
LUCIS	Land Use Control Information

STATE OF CALIFORNIA AND LOS ANGELES COUNTY SOURCES

RESPONSE	State DTSC Response Sites
AWP	Annual Work Plan Sites
CALSITES	Calsites Database
CA BOND EXP. PLAN	Bond Expenditure Plan
NFA	No Further Action Determination
NFE	Properties Needing Further Evaluation
REF	Unconfirmed Properties Referred to Another Agency
SCH	School Property Evaluation Program
TOXIC PITS	Toxic Pits Cleanup Act Sites
AO CONCERN	Areas of Concern with Groundwater Contamination
SWF/LF (SWIS)	Solid Waste Information System
CA WDS	Waste Discharge System
WMUDS/SWAT	Waste Management Unit Database
CORTESE	"Cortese" Hazardous Waste & Substances Sites List
SWRCY	Recycler Database
LUST	Leaking Underground Storage Tank Report
CA FID UST	Facility Inventory Database
SLIC	Statewide SLIC Cases
SLIC REG 9	Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
UST	Active UST Facilities
HIST UST	Hazardous Substance Storage Container Database
AST	Aboveground Petroleum Storage Tank Facilities
SWEEPS UST	SWEEPS UST Listing
CHMIRS	California Hazardous Material Incident Report System
NOTIFY 65	Proposition 65 Records
DEED	Deed Restriction Listing
LIENS	Environmental Liens Listing
VCP	Voluntary Cleanup Program Properties
DRYCLEANERS	Cleaner Facilities
LA CO HMS	Los Angeles County Hazardous Materials Sites
SB CO HMS	San Bernardino County Hazardous Materials Sites
WIP	Well Investigation Program Case List
CDL	Clandestine Drug Labs
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
ENVIROSTOR	DTSC Database
NPDES	NPDES Permits Listing

TRIBAL RECORDS

INDIAN RESERV	Indian Reservations
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land
INDIAN UST	Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

MANUFACTURED GAS PLANTS	EDR Proprietary Manufactured Gas Plants
EDR HISTORICAL AUTO STATIONS	Historic Gas Stations
EDR HISTORICAL CLEANERS	EDR Proprietary Historic Drycleaners

All of the above records were examined for up to a one-mile radius by EDR (see Appendix G). The subject property does not appear on any of the lists.

The EDR record search also revealed that 7 sites exist within a one-half mile radius of the subject property which have sustained soil and/or groundwater contamination as a result of an underground storage tank leak. Please refer to the Executive Summary in Appendix G for the Leaking Underground Storage Tanks (LUST) list. PIC has confirmed that all seven LUST sites have received regulatory closure with No Further Action. As a result, it is not likely the property has been impacted by offsite LUST sources. As stated previously, detectable concentrations of some chlorinated degreasing solvents (TCA, TCE, etc.) have been discovered in public water supply wells in proximity to the subject property. However, there is no evidence that historic onsite property uses would have released contaminants contributing to the regional contamination plume. Moreover, the Regional Water Quality Control Board (RWQCB) has not identified the subject property as a potential contributor to subsurface contamination.

Finally, the EDR record search revealed the following concerning properties located within a one-mile radius of the subject site:

GOVERNMENT RECORDS Federal	SEARCH RADIUS (miles)	NUMBER OF SITES
NPL	1	0
PROPOSED NPL	1	0
DELISTED NPL	1	0
NPL LIENS	SITE ONLY	0
CERCLIS (SEMS)	0.5	0
CERCLIS NFRAP (SEMS)	0.5	0
CORRACTS	1	0
RCRA – TSD	0.5	0
RCRA – Lg Gen	0.25	0
RCRA – Sm Gen	0.25	2
ERNS	SITE ONLY	0
HMIRS	SITE ONLY	0
US ENG CONTROLS	0.5	0
US INST CONTROLS	0.5	0
DOD	1	0
FUDS	1	0
US BROWNFIELDS	0.5	0
CONSENT	1	0
ROD	1	0
UMTRA	0.5	0
ODI	0.5	0
DEBRIS REGION 9	0.5	0
MCS	SITE ONLY	0
TRIS	SITE ONLY	0
TSCA	SITE ONLY	0
FTTS	SITE ONLY	0

GOVERNMENT RECORDS Federal	SEARCH RADIUS (miles)	NUMBER OF SITES
SSTS	SITE ONLY	0
ICIS	SITE ONLY	0
PADS	SITE ONLY	0
MLTS	SITE ONLY	0
MINES	0.25	1
FINDS	SITE ONLY	0
RAATS	SITE ONLY	0
RADINFO	SITE ONLY	0
LUCIS	0.5	0

GOVERNMENT RECORDS State and Local	SEARCH RADIUS (miles)	NUMBER OF SITES
RESPONSE	1	0
AWP	1	0
CAL-SITES	1	0
BOND EXP	1	0
NFA	0.25	0
NFE	0.25	0
REF	0.25	0
SCH	0.25	0
TOXIC PITS	1	0
AO CONCERN	1	0
LANDFILLS	0.5	4
WDS	SITE ONLY	0
SWAT	0.5	3
CORTESE	0.5	4
SWRCY	0.5	0
LUST	0.5	7
UST	0.25	2
SLIC	0.5	0
UST	0.25	0
HIST UST	0.25	0
AST	0.25	0
SWEEPS UST	0.25	2
CHMIRS	SITE ONLY	0
NOTIFY 65	1	1
DEED	0.5	0
LIENS	SITE ONLY	0
VCP	0.5	0
DRYCLEANERS	0.25	0
LA CO HMS	SITE ONLY	0
SB CO HMS	0.25	3
WIP	0.25	0
CDL	SITE ONLY	0

GOVERNMENT RECORDS State and Local	SEARCH RADIUS (miles)	NUMBER OF SITES
HAZNET	SITE ONLY	0
EMI	SITE ONLY	0
NPDES	SITE ONLY	0
ENVIROSTOR	1	2

GOVERNMENT RECORDS Tribal	SEARCH RADIUS (miles)	NUMBER OF SITES
INDIAN RESERV	1	0
INDIAN LUST	0.5	0
INDIAN UST	0.25	0

GOVERNMENT RECORDS EDR	SEARCH RADIUS (miles)	NUMBER OF SITES
MAN. GAS PLANTS	1	0
HIST AUTO STATIONS	0.25	0
HIST CLEANERS	0.25	0

Historic Oil and Gas Drilling Activity

Based on a review of State Division of Oil, Gas, and Geothermal Resources (DOGGR) records, it appears that no historic oil production or exploratory oil well drilling activity has ever occurred on or within one mile of the subject site. Figure 4 illustrates a lack of historic oil well drilling activity near the subject property. PIC concludes the property has not been impacted by historic oil well drilling activity.

Solid Waste Disposal Sites

The Los Angeles County Solid Waste Management Department provides a public index of Solid Waste and Liquid Industrial Waste Disposal Sites (see Figure 6). The EDR Report in Appendix G also includes a review of listings concerning landfills. Los Angeles County records and the EDR report both indicate that no landfills have been located on or adjacent to the subject property. A former landfill is located south of Foothill Blvd. and west of Claremont Blvd., down gradient of the subject property.

It appears the subject property has not been impacted historically by landfill or rock quarry activity.

GEOLOGY AND HYDROGEOLOGY

The elevation of the site is approximately 1342 feet above sea level. The surrounding topography generally slopes southerly toward nearby San Antonio Creek (see Figure 1: Topographic Map and Appendix D).

A regional groundwater contour map published by the U.S. Geological Survey indicates that depth to the first groundwater aquifer is complicated by the earthquake fault barriers. PIC's review of data from nearby properties confirms that depth to groundwater exceeds 100 feet below surface (see Figure 3). The regional groundwater flow direction is probably southerly.

CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of this Phase I Environmental Assessment, PIC offers the following:

1. No documented, significant, historic occurrences of petroleum or hazardous materials contamination were discovered at the subject property.

2. No significant existing or historic onsite sources of petroleum or hazardous materials contamination were discovered.

3. PIC concludes the site lacks significant environmental impairments (Recognized Environmental Conditions).

4. PIC recommends no additional investigation.

5. PIC recommends removal and offsite disposal of the former hydraulic lift.

6. PIC recommends removal and offsite disposal of accumulated onsite nonhazardous waste and debris.

This report is proprietary and confidential, to be delivered to, and intended for the exclusive use of, the above named client and the client's assignees only. PIC Environmental Services assumes neither responsibility nor liability for the reliance herein or use hereof by anyone other than the above named client or the client's assignees. In addition, the results of the government record search were prepared and provided by Environmental Data Resources, Inc. (EDR), who is responsible for the accuracy and completeness of the information provided.

Accordingly, we, J. Tim Hersch and Ethan J. Hersch, declare to the best of our knowledge and belief, we meet the definition of Environmental Professional as defined by 40 C.F.R. Section 312.10 and we have the specific qualifications based upon education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Section 312.

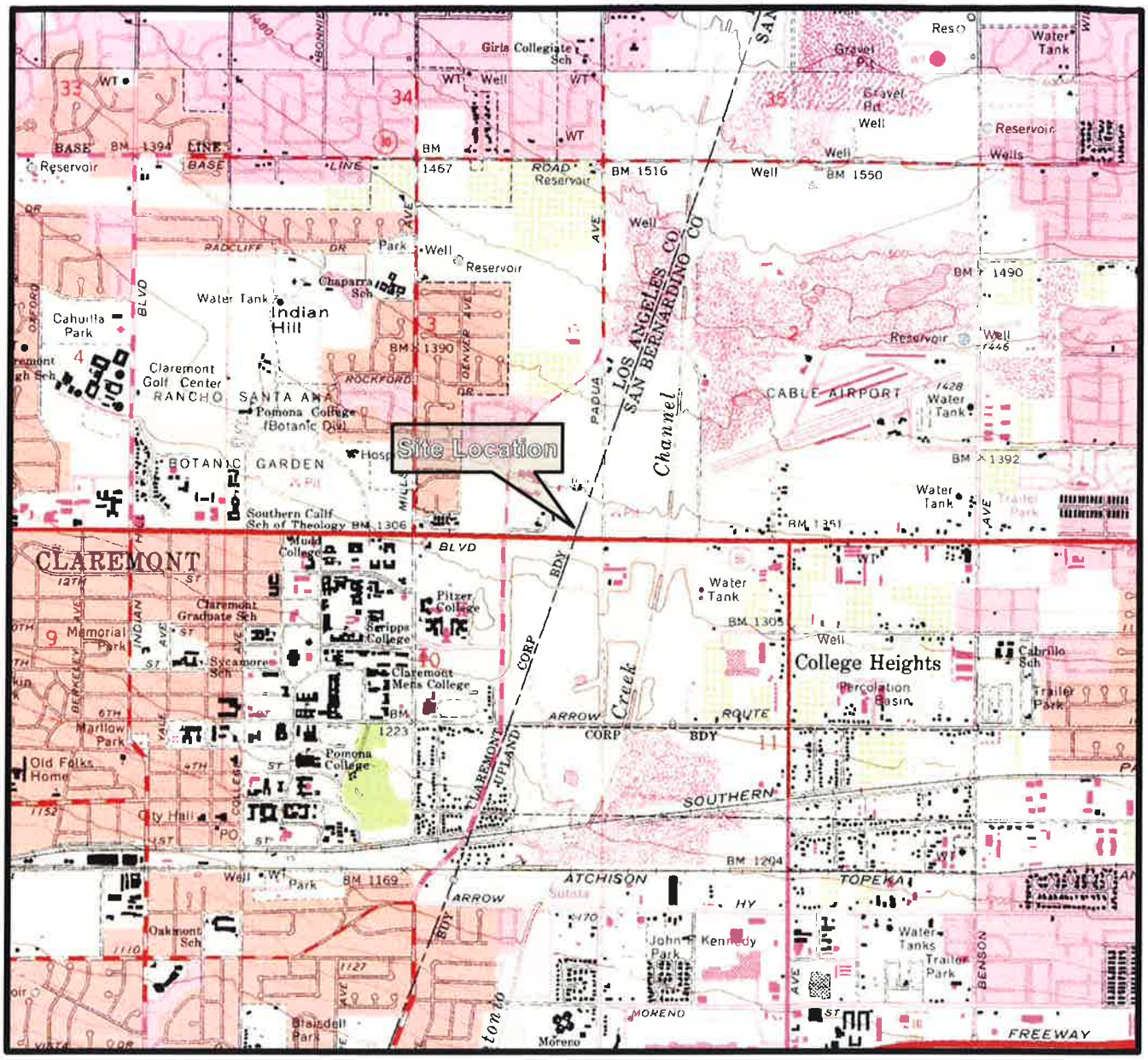
Should you have any questions or comments regarding the procedures outlined in this report, please do not hesitate to call us at 909/593-2427.

Respectfully submitted,

Ethan J. Hersch
Project Manager

J. Tim Hersch
California Professional Geologist #4082
President







Site Latitude: N34.107597
Site Longitude: W117.699235
Site Elevation: 1342 Feet
Source: USGS Topographical Quadrangle

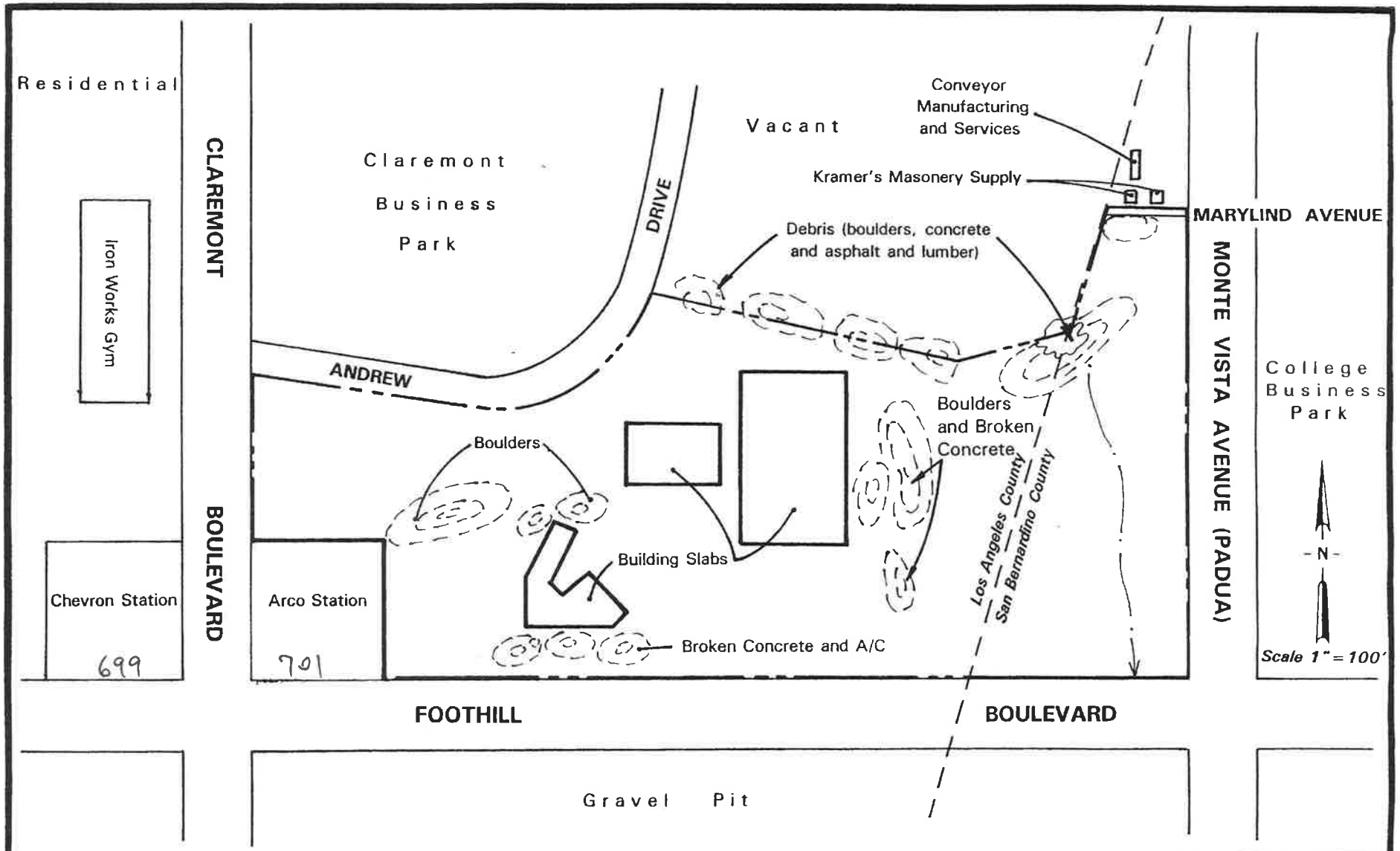
North

PIC Environmental Services	0 2000 Scale In Feet	**Site Location Map Topographic Map**

Client: Clare Properties, LLC	Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E4237
Site Location: Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786		Date: 4 / 2018	Figure: 1



PIC Environmental Services		0 200 Scale In Feet		Site Map Aerial Photo – 12/2017
Client: Clare Properties, LLC		Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E4237
Site Location: Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786			Date: 4 / 2018	Figure: 2



PLAT

FOR: COLUMBIA GROUP	13± ACRES NORTH SIDE OF FOOTHILL BOULEVARD BETWEEN CLAREMONT BOULEVARD AND MONTE VISTA AVENUE CLAREMONT, CALIFORNIA	FIGURE 2A
DATE: FEBRUARY 1998		JOB NUMBER 98044-9

1998

C·M·J· INCORPORATED



SITE SUMMARY

Developable Acres: ±6.4 ac.

Units:

±60'x60' SFD Lots:	±23 units
Custom SFD Lots:	±2 units
±21'x38' Towns:	±61 units
Carriage Town:	±7 unit
Mixed Use:	±10 units
Total:	±103 units

Density: ±16.1 du/ac

Parking:

Garages:	±196 spaces (2 sp/unit)
Driveways:	±29 spaces
On street:	±85 spaces
Total:	±310 (3.0 sp/unit)

Retail Parking: ±43 spaces

VICINITY MAP



FOOTHILL EAST

ILLUSTRATIVE SITE PLAN

Claremont, CA - Upland, CA

KTGY # 2013-0307

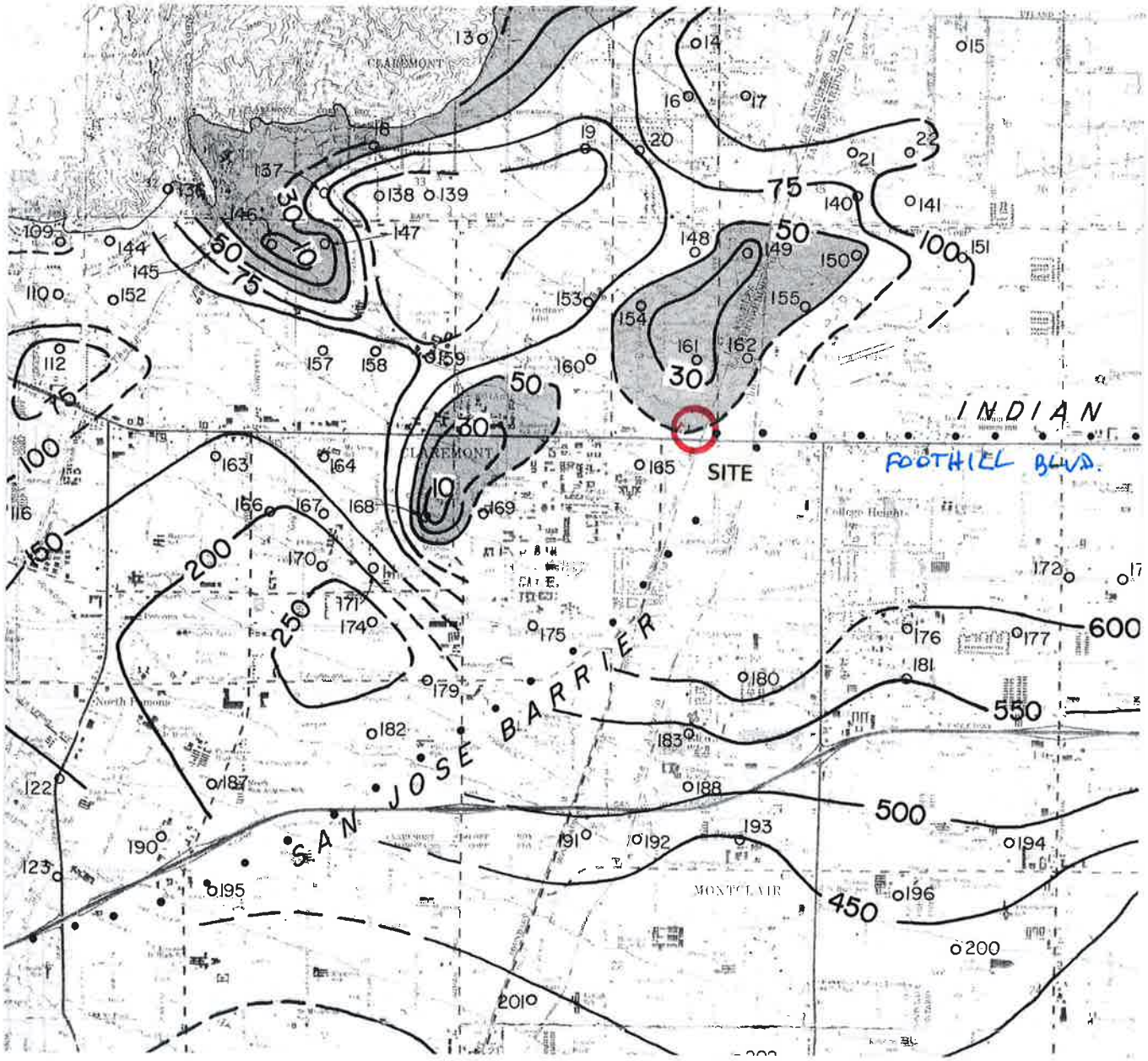
WALBERN DEVELOPMENTS
Walbern Development
29222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walbemdevelopment.com

Americal Management Company, Inc.
9595 Wilshire Blvd.
Suite 600
Beverly Hills, CA 90212
310.860.5409

KTGY Group, Inc.
Architecture+Planning
17922 Fitch
Irvine, CA 92614
949.851.2133
ktgy.com

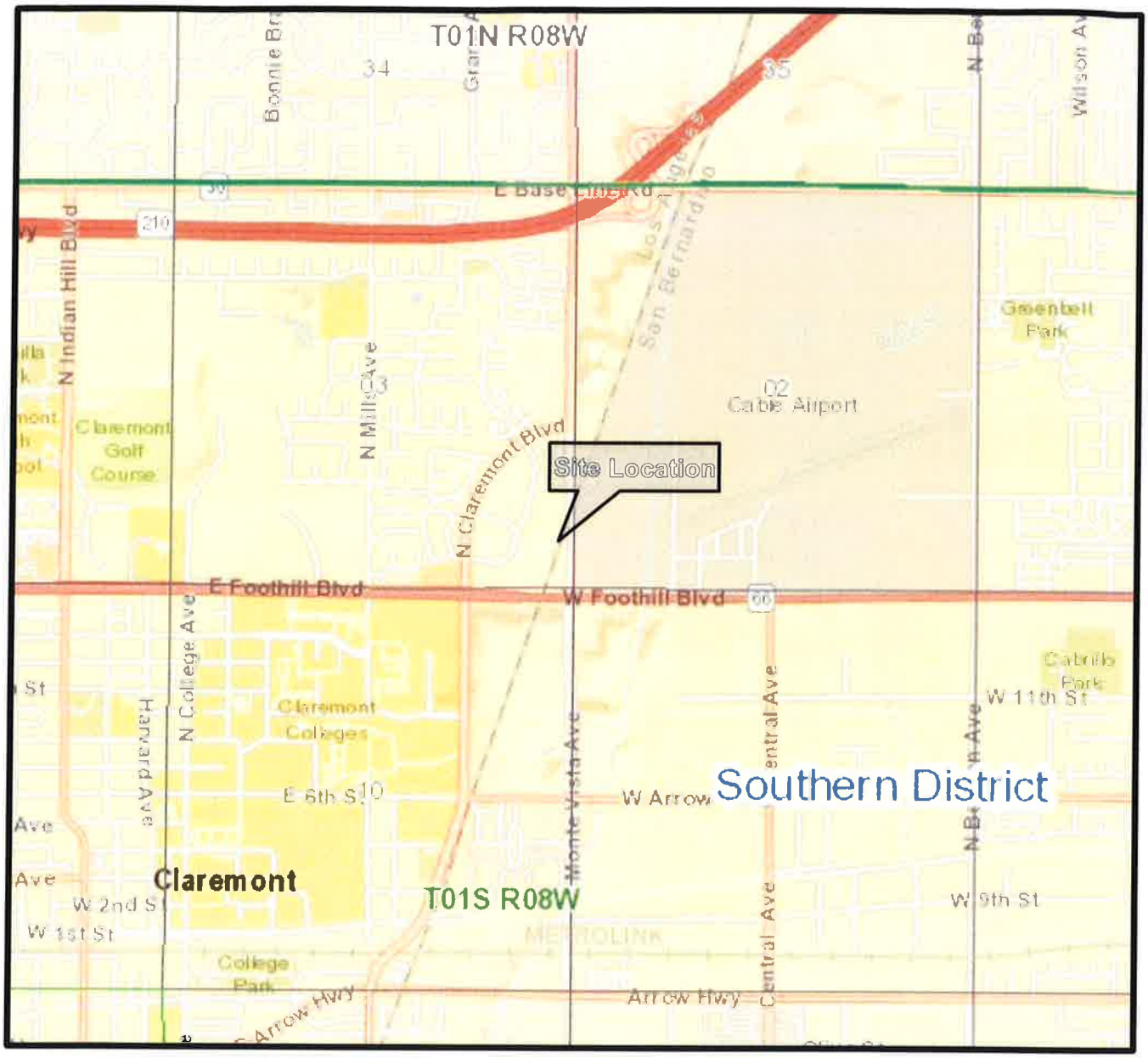
0 30 60 120

FIGURE 2B



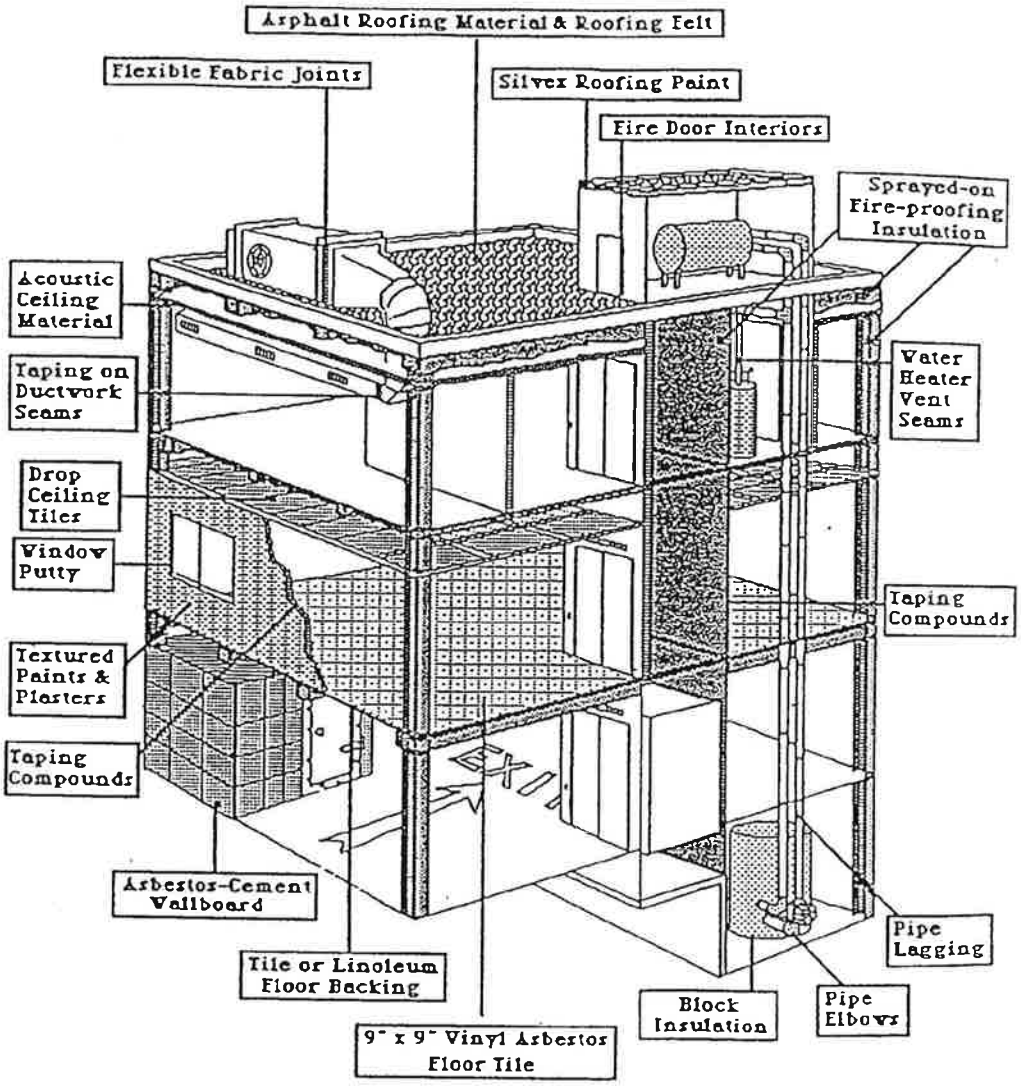
PIC Environmental Services				
Client: Clare Properties, LLC		Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E4237
Site Location: Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786			Date: 4 / 2018	Figure: 3

Groundwater Contour Map



PIC Environmental Services	0 2000 Scale In Feet	**Oil Well Map**	
Client: Clare Properties, LLC	Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E4237
Site Location: Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786		Date: 4 / 2018	Figure: 4

Asbestos Containing Materials in Buildings



PIC Environmental Services	Not to Scale	**Common Asbestos Containing Materials (ASM's)**

Client:	Drafted By:	Project Manger:	Project No:
Clare Properties, LLC	EJH	J. Tim Hersch	E4237
Site Location:		**Date:**	**Figure:**
Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786		4 / 2018	5



1 Claremont Colleges Disposal Site (Closed)

North

PIC Environmental Services	0 2000 Scale In Feet	**Landfill Map**

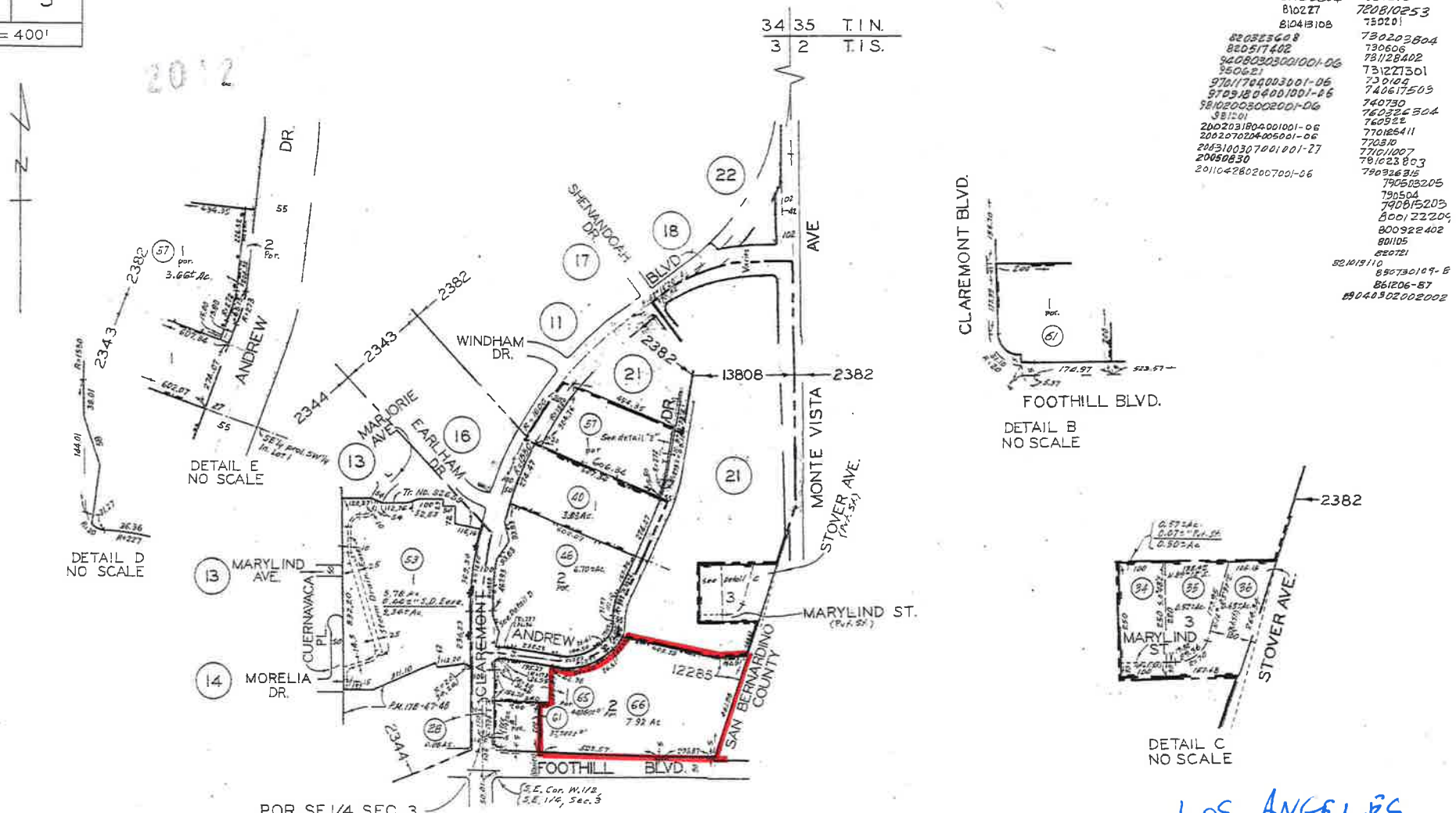
Client: Clare Properties, LLC	Drafted By: EJH	Project Manger: J. Tim Hersch	Project No: E4237
Site Location: Foothill Blvd. and Monte Vista Ave., Claremont/Upland, CA 91711/91786		Date: 4 / 2018	Figure: 6

APPENDIX A:

TITLE INFORMATION

8307	3
SCALE 1" = 400'	

2012



CODE
2343
2344
2382
12285
13808

FOR PREV. ASSM'T. SEE:
8306-12, 14 & 15
8307 - 4

BK. 8308

RECORD OF SURVEY R. S. 60-17
PARCEL MAP P. M. 84-2-3
PARCEL MAP P. M. 97-12-13

PARCEL MAP P.M. 317-98-99
PARCEL MAP P.M. 277-28-29
PARCEL MAP P. M. 129-34
TRACT NO 35517 M. B. 972-90-92

LOS ANGELES COUNTY

ASSESSOR'S MAP
COUNTY OF LOS ANGELES, CALIF.

Parcel Details

- Property records are kept at the East District Office
- How frequently is this site updated? (and other FAQs)

Property Information

Assessor's ID No:	8307-003-066
Address:	735 E FOOTHILL BLVD CLAREMONT CA 91711
Property Type:	Commercial / Industrial
Region / Cluster:	27 / 27609
Tax Rate Area (TRA):	12285

- View Assessor Map
- View Index map

Recent Sales Information

Latest Sale Date:
Indicated Sale Price:

Search for Recent Sales

2017 Roll Values

Recording Date:	02/28/2007
Land:	$1,780,565
Improvements:	$492,902
Personal Property:	$0
Fixtures:	$0
Homeowners' Exemption:	$0
Real Estate Exemption:	$0
Personal Property Exemption:	$0
Fixture Exemptions:	$0

- 2017 Annual taxes
- Property tax payment FAQs
- Estimate supplemental taxes

Property Boundary Description

P.M 317-98-99 EX OF ST LOT 2

Building Description

Building Improvement 1

Square Footage:	4,800
Year Build / Effective Year Built:	1999 / 1999
Bedrooms / Bathrooms	0 / 0



NORTH

LOS ANGELES COUNTY

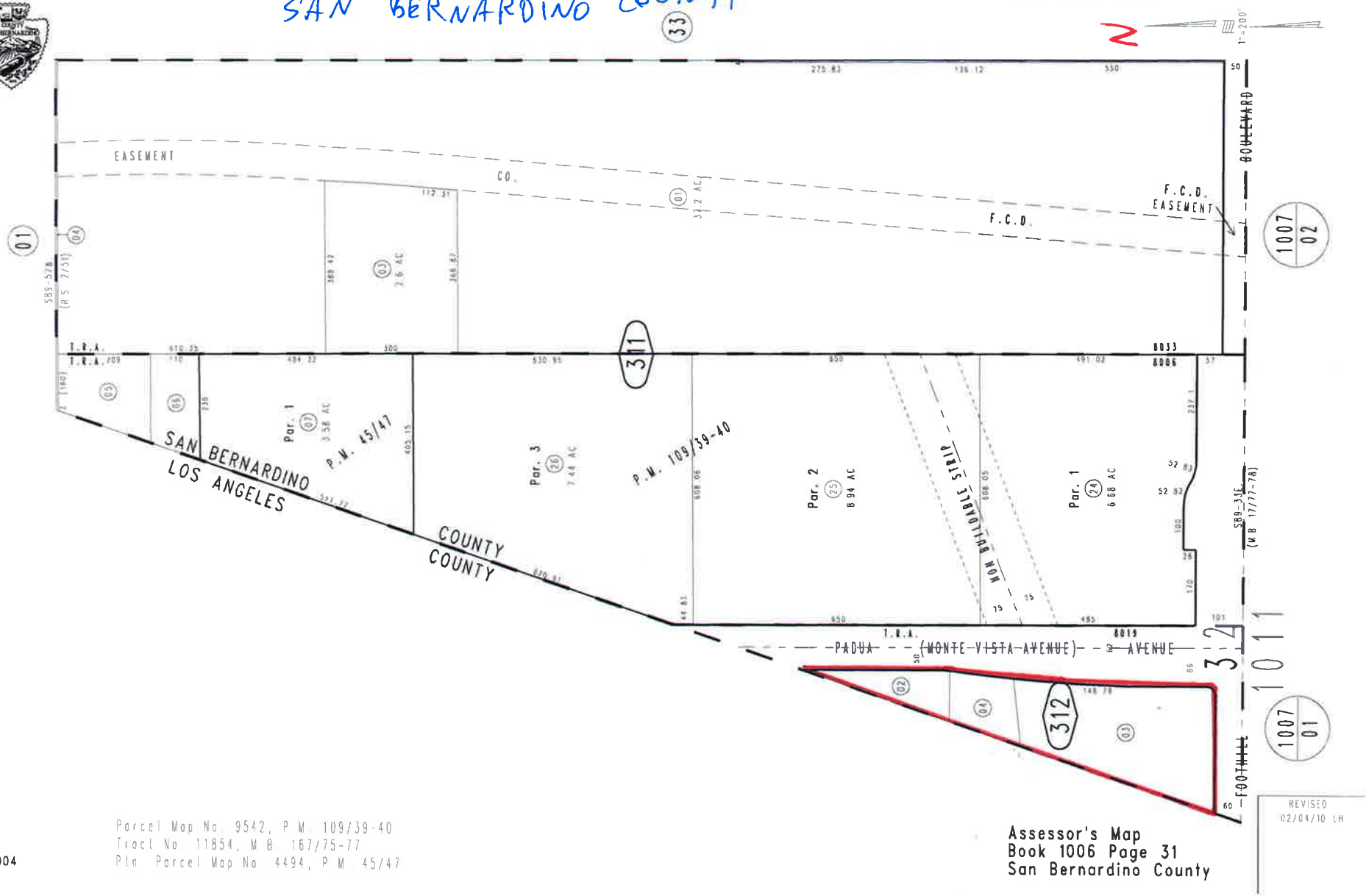
THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY

Ptn. S.1/2 Sec.2&3, T.1S.,R.8W., S.B.B.&M.

SAN BERNARDINO COUNTY

City of Upland
Tax Rate Area
8006 8019 8033

1006 - 31



Parcel Map No. 9542, P.M. 109/39-40
Tract No. 11854, M.B. 167/75-77
Ptn. Parcel Map No. 4494, P.M. 45/47

August 2004

REVISED
02/04/10 LH

Assessor's Map
Book 1006 Page 31
San Bernardino County

Chicago Title Company

Commercial/Industrial Division,
700 South Flower, Suite 800 Los Angeles, CA 90017 (213) 488-4300

Title Department:

Chicago Title Company
Attn: Dave Balassi
Email: Dave.Balassi@CTT.com
Phone: (213) 488-4394
Fax: (213) 488-4360
Order No.: 126743324-X49

Escrow Department:

PRELIMINARY REPORT

Property Address: 735 East Foothill Boulevard, Claremont, CA ← * 91711

Dated as of: March 14, 2014 at 7:30 am

In response to the application for a policy of title insurance referenced herein, Chicago Title Company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said Policy forms.

The printed Exceptions and Exclusion from the coverage and Limitations on Covered Risks of said Policy or Policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Chicago Title Insurance Company

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

SCHEDULE A

1. The estate or interest in the land hereinafter described or referred to covered by this report is:

   A Fee

2. Title to said estate or interest at the date hereof is vested in:

   CLARE PROPERTIES, LLC, a California limited liability company

3. The land referred to in this report is situated in the State of California, County of Los Angeles and County of San Bernardino and is described in the Legal Description, attached hereto:

END OF SCHEDULE A

LEGAL DESCRIPTION

PARCEL A:

PARCEL 2 OF PARCEL MAP NO. 27023-1. IN THE CITY OF CLAREMONT, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, AS SHOWN ON MAP FILED IN BOOK 317, PAGES 98 AND 99 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

PARCEL B:

THE SOUTH ONE-HALF OF THE SOUTHEAST ONE-QUARTER OF SECTION 3, TOWNSHIP 1 SOUTH, RANGE 8 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF UPLAND, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

EXCEPTING THEREFROM THE SOUTH 50 FEET THEREOF, AS CONVEYED TO THE STATE OF CALIFORNIA, BY DEED RECORDED FEBRUARY 4, 1929 IN BOOK 467 PAGE 49, OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THE EAST 30 FEET THEREOF, AS CONVEYED TO THE COUNTY OF SAN BERNARDINO, BY DEED RECORDED MAY 6, 1932 IN BOOK 798 PAGE 343, OFFICIAL RECORDS.

ALSO EXCEPTING THEREFROM THAT PORTION OF PROPERTY INCLUDED IN LOS ANGELES COUNTY.

END OF LEGAL DESCRIPTION

SCHEDULE B

At the date hereof, items to be considered and exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

A. Property taxes, including any assessments collected with taxes, for the fiscal year 2014 - 2015 that are a lien not yet due.

B. Property taxes, for the fiscal year 2013 - 2014 are paid. For proration purposes the amounts are:

1st Installment:	$15,860.04 Paid
2nd Installment:	$15,860.03 Paid
Code Area:	0012285
Assessors Parcel Number:	8307-003-066 ← LA County
Affects:	Parcel A

C. Property taxes, for the fiscal year 2013 - 2014 are paid. For proration purposes the amounts are:

1st Installment:	$438.36 Paid
2nd Installment:	$438.34 Paid
Code Area:	008-019
Assessors Parcel Number:	1006-312-02-0-000 ← SB County
Affects:	A portion of Parcel B

D. Property taxes, for the fiscal year 2013 - 2014 are paid. For proration purposes the amounts are:

1st Installment:	$3,874.94 Paid
2nd Installment:	$3,874.92 Paid
Code Area:	008-019
Assessors Parcel Number:	1006-312-03-0-000 ← SB County
Affects:	A portion of Parcel B

SCHEDULE B
(continued)

E. Property taxes, for the fiscal year 2013 - 2014 are paid. For proration purposes the amounts are:

1st Installment:	$804.28 Paid
2nd Installment:	$804.26 Paid
Code Area:	008-019
Assessors Parcel Number:	1006-312-04-0-000 ← SB County
Affects:	The remainder of Parcel B

F. The lien of supplemental or escaped assessments of property taxes, if any, made pursuant to the provisions of Part 0.5, Chapter 3.5 or Part 2, Chapter 3, Articles 3 and 4 respectively (commencing with Section 75) of the Revenue and Taxation Code of the State of California as a result of the transfer of title to the vestee named in Schedule A; or as a result of changes in ownership or new construction occurring prior to date of policy.

The Following Matters Affect Parcel A:

1. The matters contained in the certified copy of the decree had in an action entitled Mountain View Water Company, a corporation, vs. C. T. Stover, et al., Case No. 61089, Superior Court, San Bernardino County, recorded February 13, 1951, in Book 35641 Page 275, of Official Records.

2. A document subject to all the terms, provisions and conditions therein contained.

Entitled:	Certificate of Conformance
Recorded:	May 26, 1987 as Instrument No. 87-818825, of Official Records

3. An avigation easement referred to below and rights incidental thereto as provided in a documents;

Recorded:	June 19, 1997 as Instrument No. 97-917067, of Official Records

Reference is hereby made to said document for full particulars.

4. Easement(s) for the purpose(s) shown below and rights incidental thereto as delineated or as offered for dedication, on the recorded map shown below:

Map of:	Parcel Map No. 23719
Purpose:	sidewalk and landscaping
Affects:	That portion of said land as shown on said map.

SCHEDULE B
(continued)

5. Matters contained in the dedication statement or elsewhere on the tract or parcel map

Map of:	Parcel Map No. 23719
Provisions:	For so long as the property which is currently used as an airport by Cable Airport is being used as an airport, no building or structure shall be located within 75 feet of the extended centerline of the existing runway of Cable Airport. Nothing in this limitation shall prohibit the use of the property, subject to the limitation, for those purposes associated with the common use areas of a shopping center including, but not limited to, paving, parking areas, driveways, light standards, planters, signs and landscaping.
Affects:	That portion of said land designated as a 150 foot wide non-buildable strip

6. An easement for the purpose shown below and rights incidental thereto as set forth in a document.

Purpose:	nonexclusive easement for ingress and egress, in common with others, with the right, but not the obligation, to grade, pave, and maintain
Recorded:	July 7, 1997 as Instrument No. 97-1006306, of Official Records
Affects:	That portion of said land as described in the document attached hereto.

7. The fact that said land is included within the Claremont Village Redevelopment Project Area, and that proceedings for redevelopment have been instituted.

Recorded:	November 21, 1997 as Instrument No. 97-1852380, of Official Records

8. The fact that said land is included within the Claremont Consolidated Redevelopment Project Area, and that proceedings for redevelopment have been instituted.

Recorded:	December 30, 2009 as Instrument No. 20091983081 and February 4, 2010 as Instrument No. 20100163566, both of Official Records

The Following Matters Affect Parcel B:

9. Various conditions and restrictions as to water and easements, as set forth in the judgment issued out of the Superior Court of the County of San Bernardino, Case No. 61089, a certified copy of which was recorded February 13, 1951 in Book 2716 Page 484, of Official Records.

The effect of a quitclaim deed (Termination of Easement), recorded July 9, 2008 as Instrument No. 2008-0312582, of Official Records.

SCHEDULE B
(continued)

10. Easements for pipe lines and weir box, as shown on the maps of survey of said property, which was recorded in Book 8 Page 49, Records of Survey, and in Book 16 Page 32, Records of Survey.

    The effect of a quitclaim deed (Termination of Easement), recorded July 9, 2008 as Instrument No. 2008-0312582, of Official Records.

11. An easement for the purpose shown below and rights incidental thereto as set forth in a document.

Purpose:	Pole lines
Recorded:	February 6, 1957 in Book 4150 Page 6, of Official Records
Affects:	That portion of said land as described in the document attached hereto.

12. An easement for the purpose shown below and rights incidental thereto as set forth in a document.

Purpose:	Pipe lines with metering, regulating and other equipment
Recorded:	March 12, 1974 in Book 8385 Page 990, of Official Records
Affects:	That portion of said land as described in the document attached hereto.

13. An easement for the purpose shown below and rights incidental thereto as set forth in a document.

Purpose:	Highway and road
Recorded:	February 28, 1992 as Instrument No. 92-089229, of Official Records
Affects:	That portion of said land as described in the document attached hereto.

14. The fact that said land is included within the Upland Redevelopment Project Area, and that proceedings for redevelopment have been instituted.

Recorded:	July 1, 1999 as Instrument No. 1999-0280158, of Official Records

The Following Matters Affect Both Parcels:

15. Water rights, claims or title to water, whether or not disclosed by the public records.

16. Matters which may be disclosed by an inspection and/or by a correct ALTA/ACSM Land Title Survey of said land that is satisfactory to this Company, and/or by inquiry of the parties in possession thereof.

    This office must be notified at least 7 business days prior to the scheduled closing in order to arrange for an inspection of the land; upon completion of this inspection you will be notified of the removal of specific coverage exceptions and/or additional exceptions to coverage.

SCHEDULE B
(continued)

17. Any rights of parties in possession of said land, based on any unrecorded lease, or leases.

    This Company will require a full copy of any unrecorded lease, together with all supplements, assignments, and amendments for review.

END OF SCHEDULE B

INFORMATIONAL NOTES

Note No. 1: Section 12413.1, California Insurance Code became effective January 1, 1990. This legislation regulates the disbursement of funds deposited with any title entity acting in an escrow or sub-escrow capacity. The law requires that all funds be deposited and collected by the title entity's escrow and/or sub-escrow account prior to disbursement of any funds. Some methods of funding may be subject to a holding period, which must expire before any funds may be disbursed. In order to avoid any such delays, all funding should be done via wire transfer. Funds deposited with the Company via wire transfer may be disbursed upon receipt. Funds deposited by cashiers checks, certified checks, and teller's checks is one business day after the day deposited. Other checks may require hold periods from two to five business days after the day deposited, and may delay your closing. The Company may receive benefits from such banks based upon the balances in such accounts. Such benefits will be retained by the Company as part of its compensation for handling such funds.

Note No. 2: The charge where an order is cancelled after the issuance of the report of title, will be that amount which in the opinion of the Company is proper compensation for the services rendered or the purpose for which the report is used, but in no event shall said charge be less that the minimum amount required under Section 12404.1 of the Insurance Code of the State of California. If the report cannot be cancelled "no fee" pursuant to the provisions of said Insurance Code, then the minimum cancellation fee shall be that permitted by law.

Note No. 3: California Revenue and Taxation Code Section 18668, effective January 1, 1991, requires that the buyer in all sales of California Real Estate, withhold 3-1/3% of the total sales price as California State Income Tax, subject to the various provisions of the law as therein contained, and as amended.

Note No. 4: Wire Transfers

In the event your transaction is being escrowed by a Chicago Title office, contact should be made with the office to obtain correct wiring instructions. Failure to do so could result in a delay in the receipt of funds and subsequent closing of your transaction.

Chicago Title will disburse by wire-out only collected funds or funds received by confirmed wire-in.

The Company's wire-in instructions are:

Bank:	Bank of America 275 Valencia Blvd, 2nd Floor Brea, CA 92823
Bank ABA No.:	0260-0959-3
Account Name:	Chicago Title Company, Broadway Plaza Office
Account No.:	12351-50737
For Credit To:	Chicago Title Company 700 South Flower, Suite 800 Los Angeles, CA 90017
Order No.:	126743324-X49

INFORMATIONAL NOTES
(continued)

LENDER NOTE: **On the DATE you fund the Loan and WIRE Funds to Chicago Title and reference the above Order Number, you must send written NOTICE to the Title Officer's Unit by messenger or E-Mail that you sent the Funds.**

Chicago Title will send an E-Mail acknowledging receipt of the funds as soon as practicable.

Chicago Title will NOT be responsible for any delay in Closing and Recording the transaction, nor will Chicago Title be liable for any claim of lost Interest unless such written Notice is sent the day of Funding and Chicago Title has acknowledged receipt of funds.

Note No. 5: Your application for title insurance was placed by reference to a street address or assessor's parcel number. Based upon our records, we believe that the description in this report covers the parcel that you requested.

To prevent errors, we require written confirmation that the legal description contained herein covers the parcel that you requested.

Note No. 6: The plat, (map), which is attached to this report, is to assist you in locating land with reference to streets and other parcels. While this plat is believed to be correct, the Company assumes no liability for any loss occurring by reason of reliance thereon.

Note No. 7: The policy of title insurance will include an arbitration provision. The Company or the insured may demand arbitration. Arbitrable matters may include, but are not limited to, any controversy or claim between the Company and the insured arising out of or relating to this policy, any service of the Company in connection with its issuance or the breach of a policy provision or other obligation. Please ask your escrow or title officer for a sample copy of the policy to be issued if you wish to review the arbitration provisions and any other provisions pertaining to your Title Insurance coverage.

Note No. 8: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the amount, if any, set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.

INFORMATIONAL NOTES
(continued)

Note No. 9: Important notice regarding documents to be recorded in the Los Angeles County. Please review the following CRITICAL MESSAGE from the Los Angeles County Recorder's Office as it will likely impact your closing:

SUBJECT: ACCEPTANCE OF NOTARY ACKNOWLEDGEMENTS

Effective May 1, 2008, the Los Angeles Registrar-Recorder/County Clerk's Office will work diligently to be more efficient in examining notary acknowledgements as our part in minimizing notary fraud. In our efforts, we will strictly adhere to the following requirements for accepting Notary Acknowledgments/Certificates:

- Notaries must comply with the requirements set forth by the state where the oath is administered.
- Notary Acknowledgments/Certificates may not contain white-out, corrective tape, arrows and/or asterisks.
- Notary Acknowledgments/Certificates completed by a California Notary that are destined for recording in the County of Los Angeles must be presented exactly in the form prescribed by Civil Code Section 1189(a)(1).

A Notary Acknowledgment/Certificate that does not meet existing state requirements in addition to the requirements set forth above may not be re-submitted after it has been rejected by the Recorder. A new Notary Acknowledgment/Certificate will be required when re-submitting a rejected document.

If you have any questions, please contact the Registrar-Recorder/County Clerk at (562) 462-2125.

Note No. 10: This Company will require for review the following documents from the following Limited Liability Company: **CLARE PROPERTIES, LLC**

A. A copy of its Operating Agreement and any and all amendments, supplements and/or modifications thereto, certified by the appropriate manager.

B. Confirmation that its Articles of Organization (LLC-1), and Certificate of Amendment (LLC-2), any restated Articles of Organization (LLC-10) and/or any Certificate of Correction (LLC-11) have been filed with the Secretary of State.

C. If the Limited Liability Company is member-managed a full and complete list of members certified by the appropriate manager.

D. If the Limited Liability Company was formed in a foreign jurisdiction, evidence, satisfactory to the Company, that it was validly formed, is in good standing and authorized to do business in the state of origin.

E. If the Limited Liability Company was formed in a foreign jurisdiction, evidence satisfactory to the Company, that it has complied with California "doing business" laws, if applicable.

INFORMATIONAL NOTES
(continued)

ATTACHMENT ONE

PRIVACY STATEMENT

IMPORTANT INFORMATION:

For those of you receiving this report by electronic delivery the Privacy Statement and Attachment One are linked to this report. Please review this information by selecting the link. For those of you who are receiving a hard copy of this report, a copy of this information has been submitted for your review.

INFORMATIONAL NOTES
(continued)

NOTICE

You may be entitled to receive a $20.00 discount on escrow services if you purchased, sold or refinanced residential property in California between May 19, 1995 and November 1, 2002. If you had more than one qualifying transaction, you may be entitled to multiple discounts.

If your previous transaction involved the same property that is the subject of your current transaction, you do not have to do anything; the Company will provide the discount, provided you are paying for escrow or title services in this transaction.

If your previous transaction involved property different from the property that is subject of your current transaction, you must - prior to the close of the current transaction - inform the Company of the earlier transaction, provide the address of the property involved in the previous transaction, and the date or approximate date that the escrow closed to be eligible for the discount.

Unless you inform the Company of the prior transaction on property that is not the subject of this transaction, the Company has no obligation to conduct an investigation to determine if you qualify for a discount. If you provide the Company information concerning a prior transaction, the Company is required to determine if you qualify for a discount which is subject to other terms and conditions.

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 1006-312-02-0000

Property Information

Property Address (Main Situs) Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Owner and Mailing Address CLARE PROPERTIES LLC
C/O COLUMBIA GROUP LTD
Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Effective Date 06/07/2012

Parcel 1006312020000
Parcel Status ACTIVE
Parcel Type REAL PROPERTY
Property ID
Tax Status ASSESSED BY COUNTY
Use Code VACANT
Land Access PUBLIC PAVED
Size 10,500 TO 19,999 SQ. FEET
Land Type COMMERCIAL
District ONTARIO
Resp Group REAL PROPERTY
Resp Unit COMMERCIAL ZONE OR USE

Current Owners

Name CLARE PROPERTIES LLC
R/I SOLE OWNER
% Int 100.0000000
Type BILLED OWNER
Acquisition Date 02/27/2007
Document Date 02/27/2007
Inactive Date NONE

Document Numbers
20070123377

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	1006312020000			

Legal Description

FRACT1ON SE 1/4 1N SAN BDNO CO. SEC 3 TP 1S R 8W EX S 660 FT AND EX E 30 FT FOR CO RD AND EX ST ***** ST 2-28-92 #92-089229 *****

No Legal Reason for Change Found

No Active Homeowner's Exemptions Found

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 1006-312-03-0000

Property Information

Property Address (Main Situs) Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Owner and Mailing Address CLARE PROPERTIES LLC
C/O COLUMBIA GROUP LTD
Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Effective Date 06/07/2012

Parcel 1006312030000
Parcel Status ACTIVE
Parcel Type REAL PROPERTY
Property ID
Tax Status ASSESSED BY COUNTY
Use Code VACANT
Land Access PUBLIC PAVED
Size 3.501 TO 7.000 ACRES
Land Type COMMERCIAL
District ONTARIO
Resp Group REAL PROPERTY
Resp Unit COMMERCIAL ZONE OR USE

Current Owners

Name CLARE PROPERTIES LLC

R/I SOLE OWNER
% Int 100.0000000
Type BILLED OWNER
Acquisition Date 02/27/2007
Document Date 02/27/2007
Inactive Date NONE

Document Numbers
20070123377

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	1006312030000			

Legal Description

PTN SEC 3 TP 1S R 8W COM SE COR SEC 3 N 90 DEG 33 MIN 30 SEC W 390.48 FT ALG A LI SD LI BEING C/L FOOTHILL BLVD TH N 18 DEG 27 MIN 48 SEC E 52.58 FT TO NLY RIGHT OF WAY FOOTHILL BLVD TO TRUE POB THALG ELY BOUNDARY PARCEL MAP 6175 AS SHOWN ON MAP FILED IN BK 84 PG 2 AND 3 IN OFFICE CO REC LOS ANGELES CO N 18 DEG 27 MIN 48 SEC E 472.42 FT TH ELY 190 FT M/L TO WLY RIGHT OF WAY LI PADUA AVE THALG SD RIGHT OF WAY S 0 DEG 32 MIN 05 SEC E 472.42 FT TO NLY RIGHT OF WAY LI OF FOOTHILL BLVD TH ALG SD RIGHT OF WAY LI N 89 DEG 33 MIN 30 SEC W 374.21 FT TO POB AND EX HGWY AND EX CO RD AND ST ***** ST PER 2-28-92 #92-089229 *****

No Legal Reason for Change Found

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 1006-312-04-0000

Property Information

Property Address (Main Situs) Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Owner and Mailing Address CLARE PROPERTIES LLC
C/O COLUMBIA GROUP LTD
Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Effective Date 06/07/2012

Parcel 1006312040000
Parcel Status ACTIVE
Parcel Type REAL PROPERTY
Property ID
Tax Status ASSESSED BY COUNTY
Use Code VACANT
Land Access PUBLIC PAVED
Size 20,000 SQ. FEET TO 1.500 ACRES
Land Type COMMERCIAL
District ONTARIO
Resp Group REAL PROPERTY
Resp Unit COMMERCIAL ZONE OR USE

Current Owners

Name CLARE PROPERTIES LLC

R/I SOLE OWNER
% Int 100.0000000
Type BILLED OWNER
Acquisition Date 02/27/2007
Document Date 02/27/2007
Inactive Date NONE

Document Numbers
20070123377

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	1006312040000			

Legal Description

PTN S 660 FT SE 1/4 SEC 3 TP 1S R 8W LYING NLY OF FOL DES LI BEG INTERSECTION W LI PADUA AVE AND N LI FOOTHILL BLVD TH N ALG SD W LI SD PADUA AVE 472.42 FT TH WLY 190 FT TO PT OF TERMINATION IN SAN BERNARDINO CO LI WHICH IS 472.42 FT NLY ALG SD CO LI FROM N LI SD FOOTHILL BLVD AND EX CO RD AND ST***** ST PER 2-28-92 #92-089229 *****

No Legal Reason for Change Found

APPENDIX B:

SITE PHOTOS

















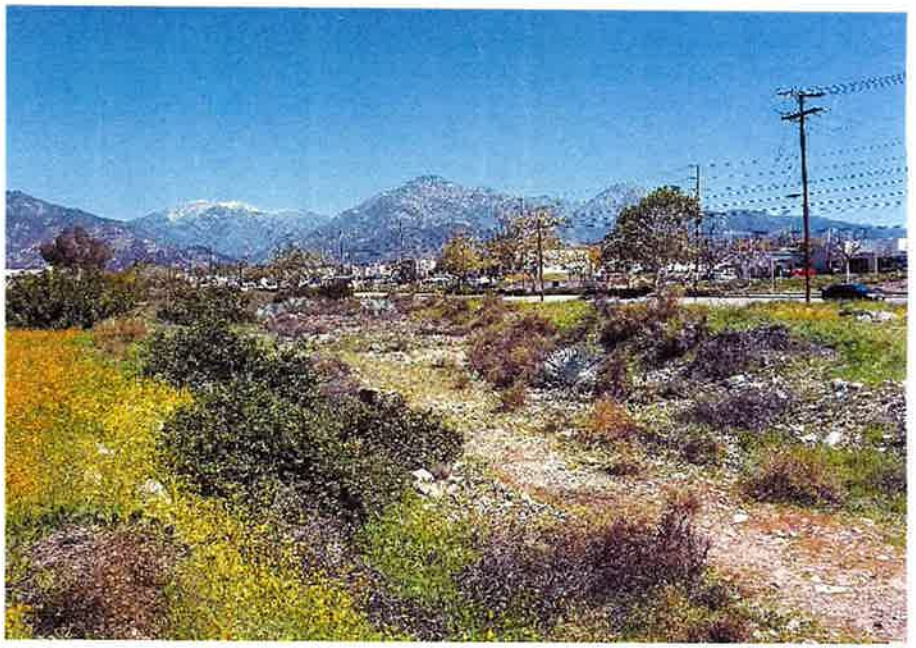










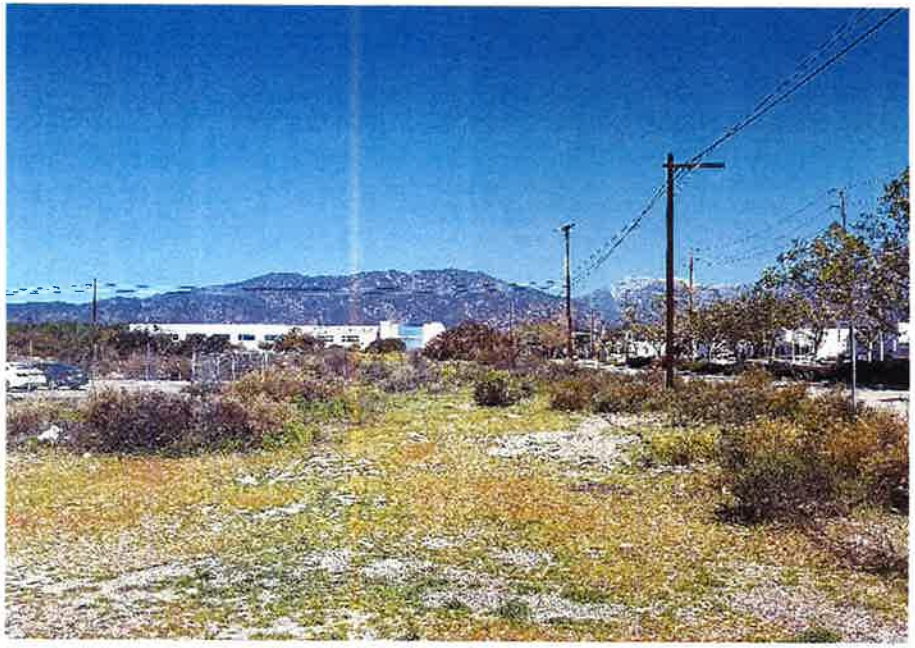






















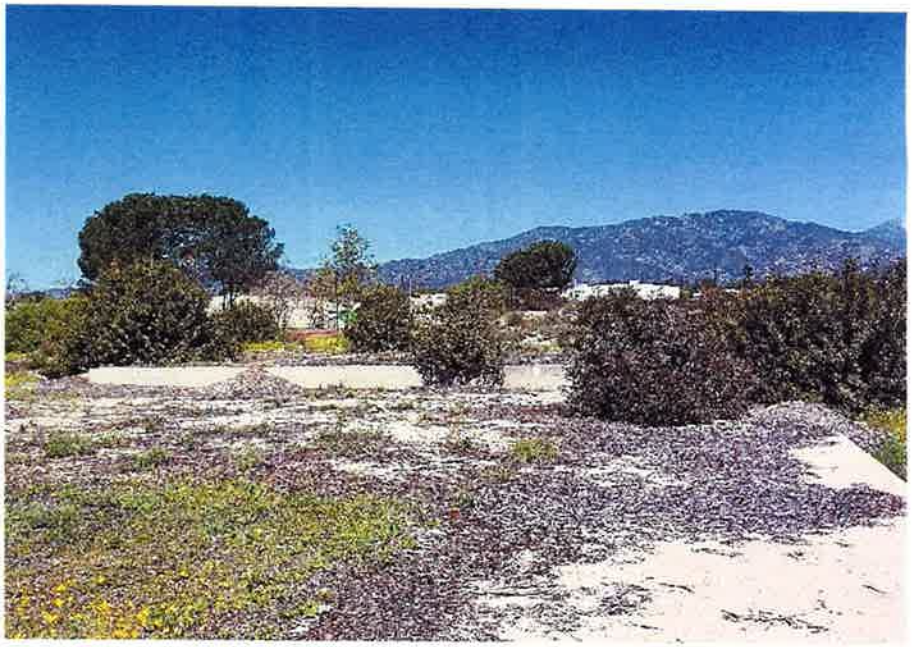












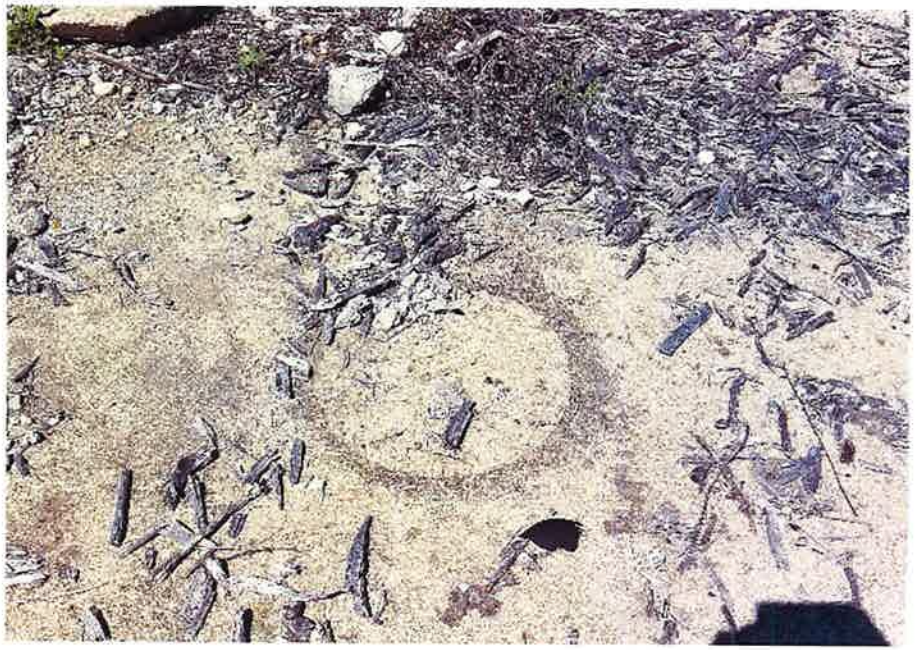






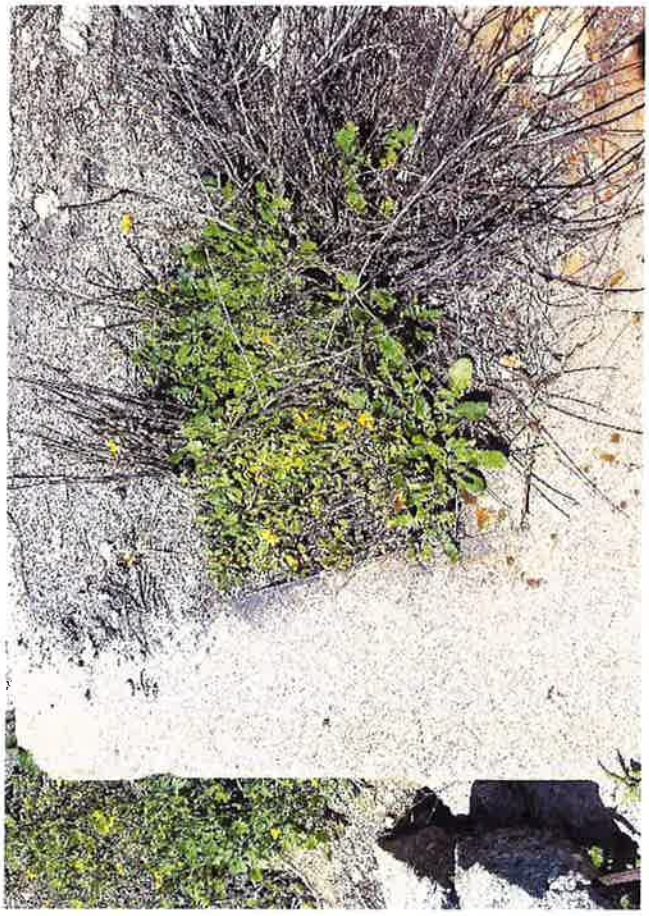














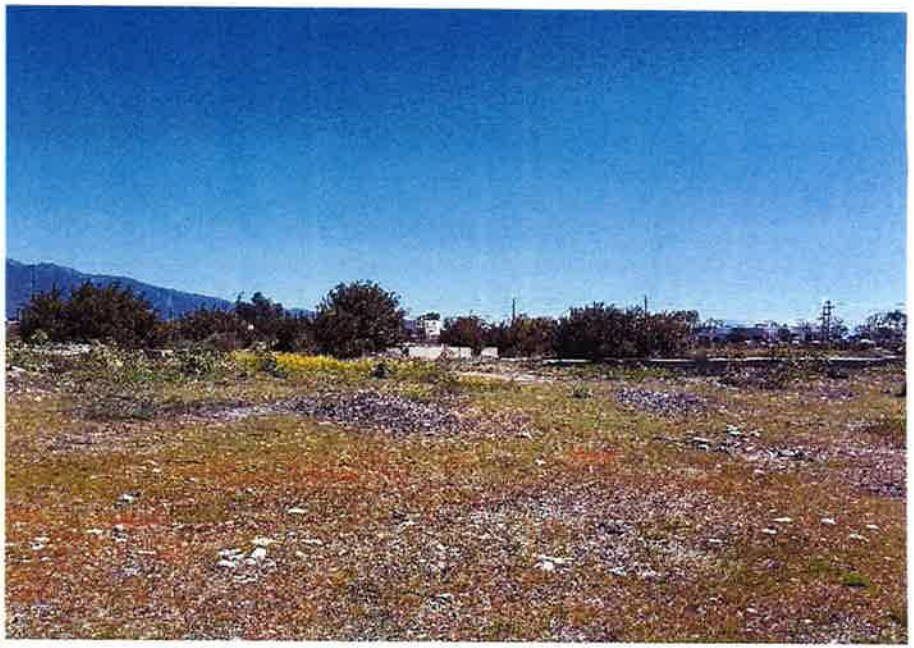








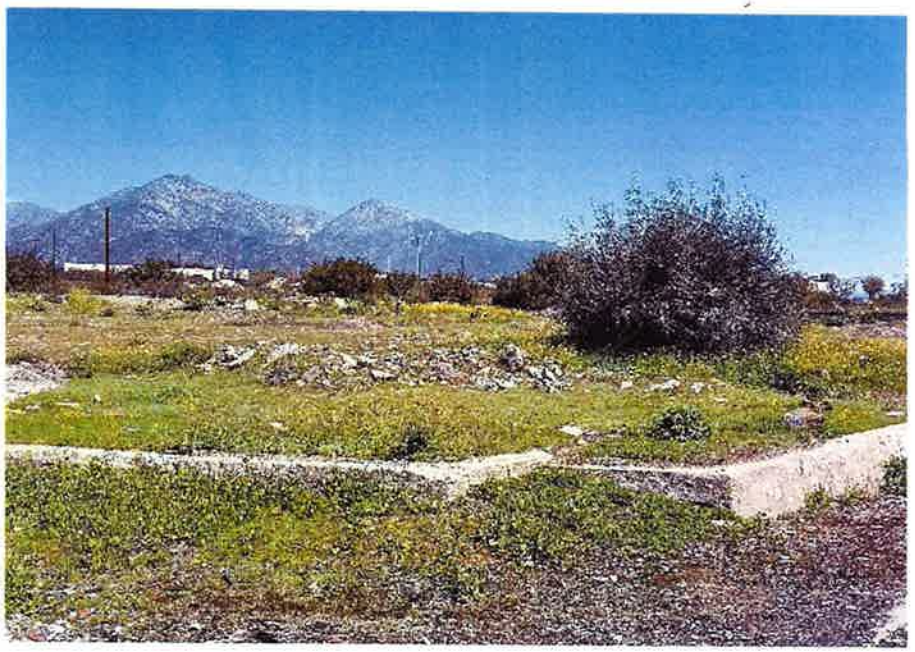




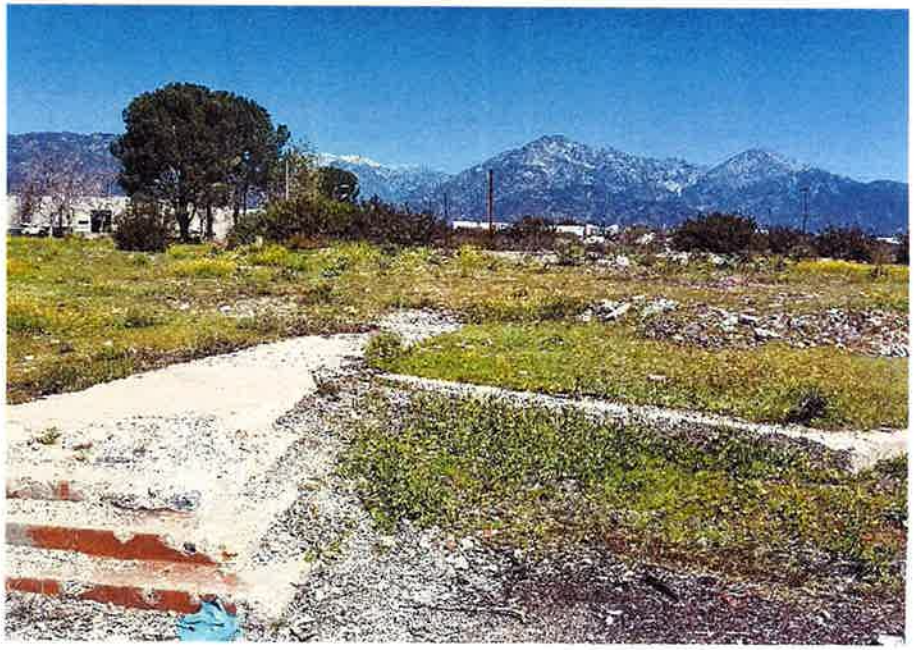


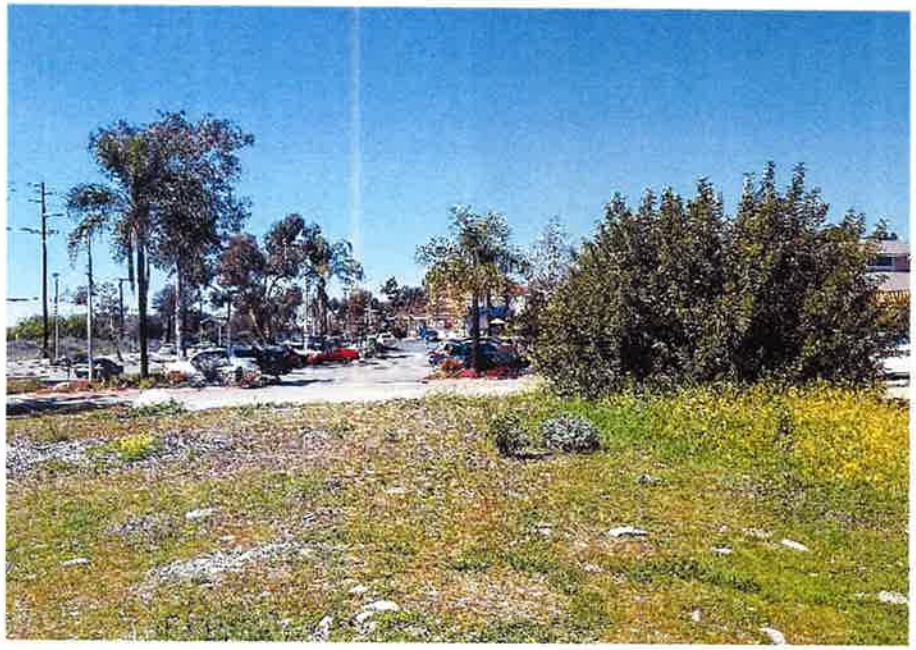


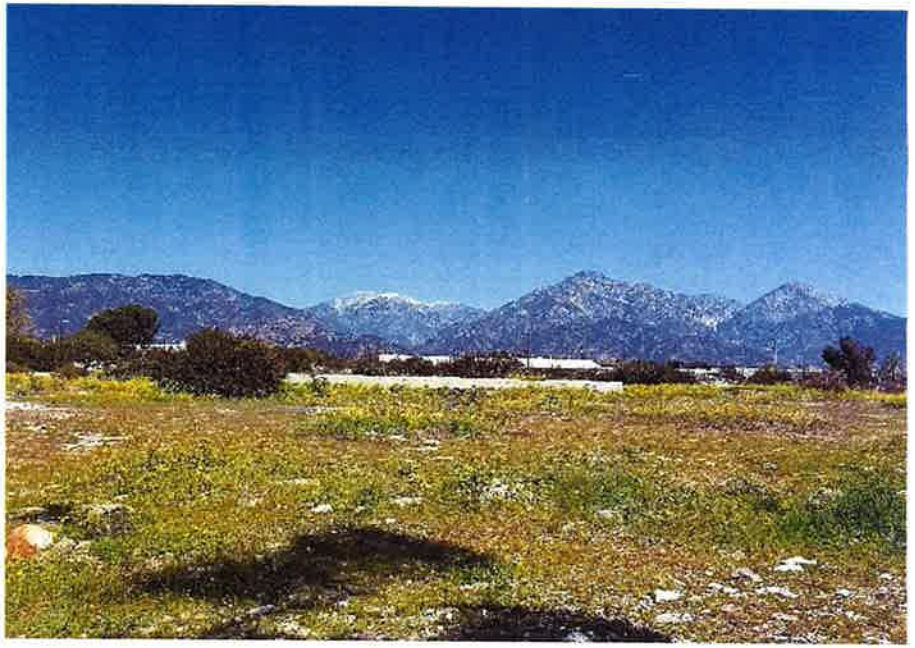














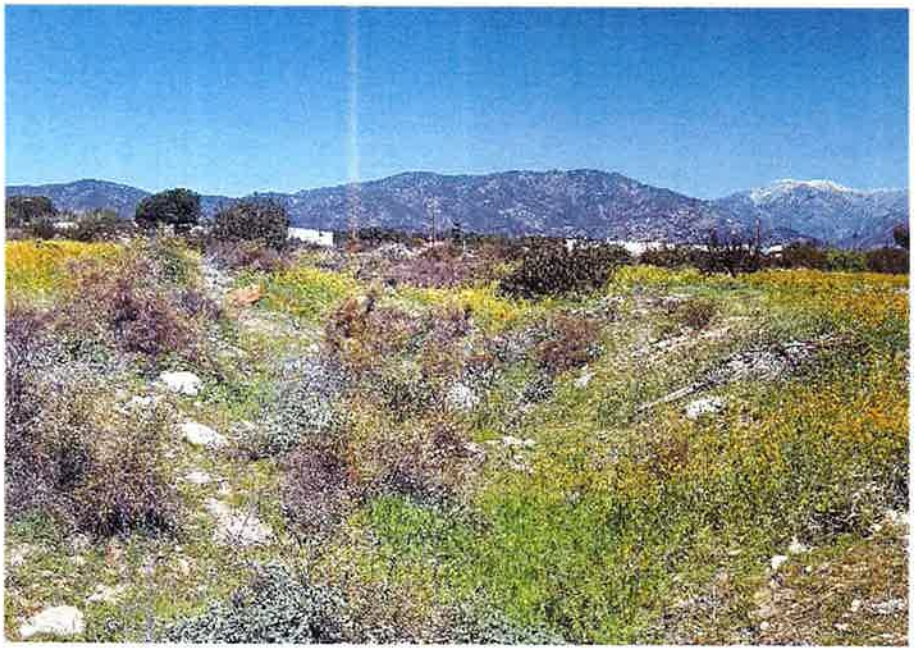












APPENDIX C:

CLAREMONT BUILDING DEPARTMENT RECORDS

C

911 E Foothill Blvd

APPLICATION FOR BUILDING PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION
JOHN A. LEMMON, County Engineer
GOLDMAN W. JENKINS, Chief of Building

FOR APPLICATION TO PLAN

BUILDING ADDRESS 911 E. FOOTHILL BLVD. CLAREMONT
LOT NO. BLOCK
TRACT RS 60-17 NO. OF BLDGS ON LOT 3
SIZE OF LOT
USE OF EXISTING BLDG. RETAIL STORE
OWNER HOMELESS GROUP TEL 624-1981
ADDRESS 115 S. SPRING
CITY CLAREMONT, CAL.
ARCHITECT OR ENGINEER TEL NO.
ADDRESS
CONTRACTOR TEL
ADDRESS LIC NO.
CITY CLASS
CONSTRUCTION LENDER NAME AND BRANCH
ADDRESS

NO. OF STORIES NO. OF FAMILIES USE
TYPE OF CONSTRUCTION
SIGNATURE OF APPLICANT
VALUATION $ 200

PLAN CHECK FEE $ PAID $ 10C

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE INFORMATION IS CORRECT. I AGREE TO COMPLY WITH ALL ORDINANCES AND LAWS REGULATING THE CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION. I ALSO AGREE THAT I WILL NOT EMPLOY ANY PERSON IN VIOLATION OF THE LABOR LAWS OF THE STATE OF CALIFORNIA RELATIVE TO WORKMEN'S COMPENSATION INSURANCE.

SIGNATURE OF PERMITTEE
ADDRESS 115 S. SPRING ST. CLAREMONT

ASSESSOR MAP BOOK PAGE PARCEL
BUILDING ADDRESS 911 E Foothill Blvd
LOCALITY Claremont
NEAREST CROSS ST. Hill
DISTRICT NO. 10 ZONE F LOT NO. VI
CLASS NO. 22 DWELL. UNITS 0 BR BA
USE ZONE M1 VAR NO. 2453 SPECIAL CONDITIONS

SEE REVERSE SIDE FOR SPECIAL APPROVALS

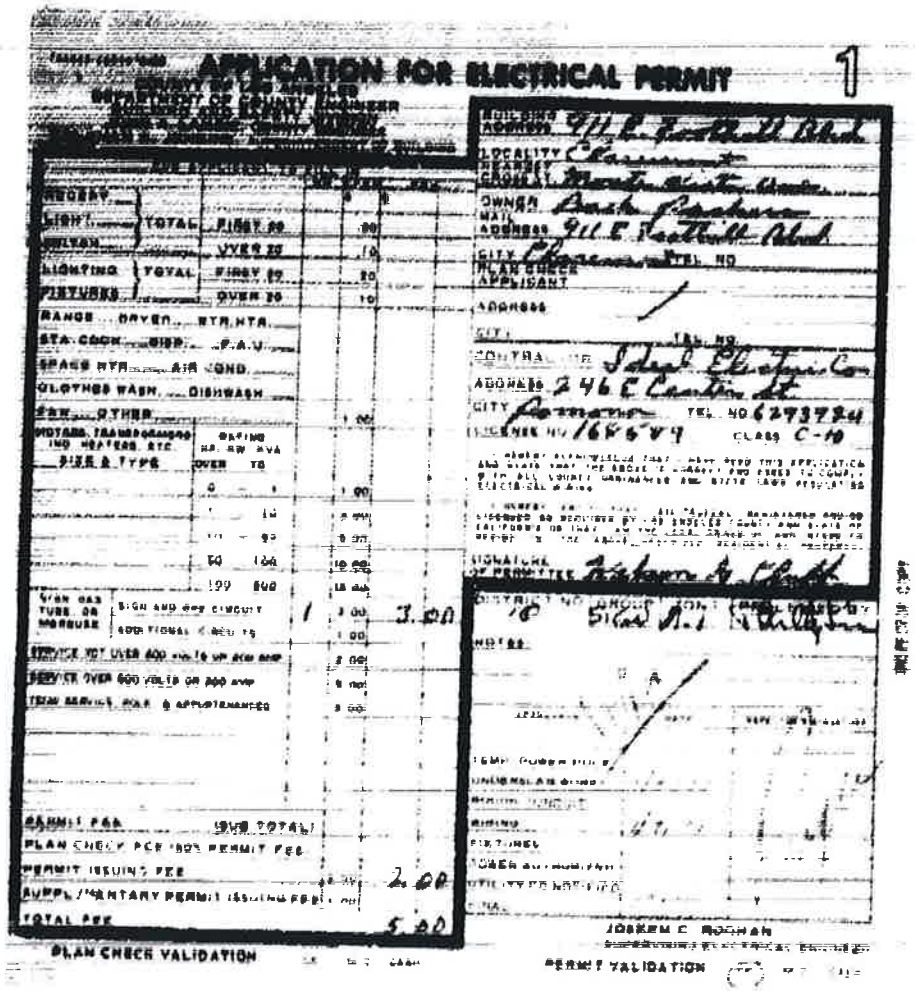
FRANK FIRE STOPS

PLAN CHECK VALIDATION

PERMIT VALIDATION

Retail store

911 E Foothill



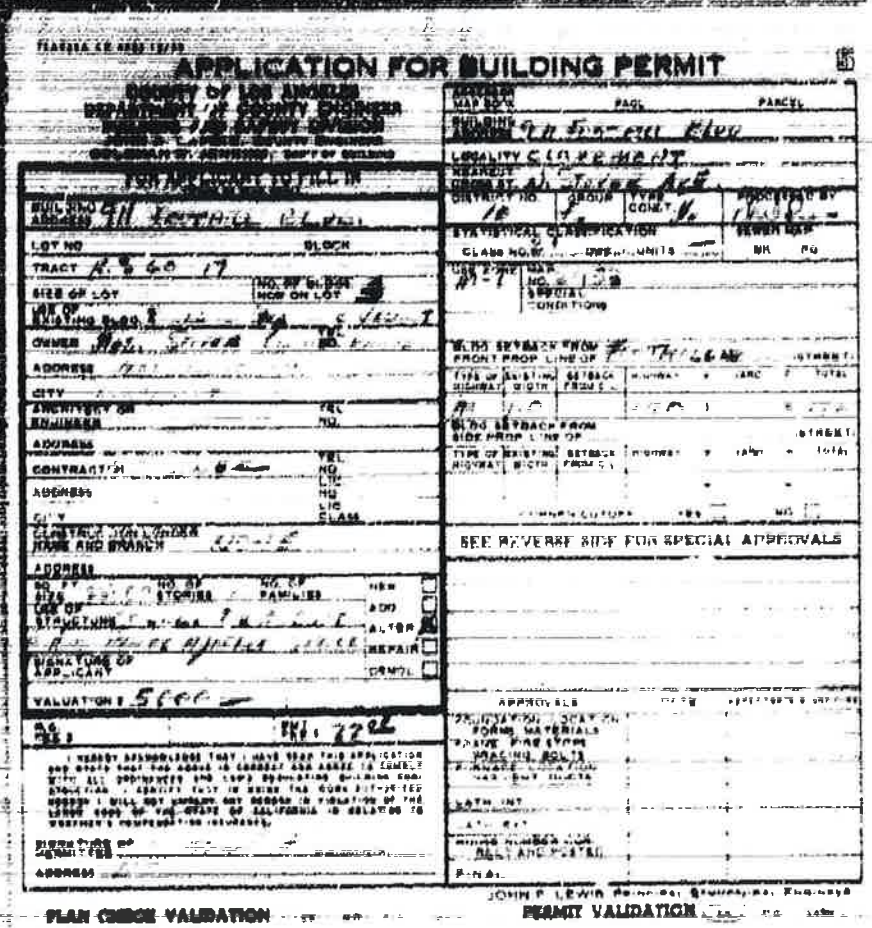
APPLICATION FOR ELECTRICAL PERMIT

1

911 E Foothill

PLAN CHECK VALIDATION

PERMIT VALIDATION



APPLICATION FOR BUILDING PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER

911 E.
Foothill Blvd

date?

SEE REVERSE SIDE FOR SPECIAL APPROVALS

PLAN CHECK VALIDATION

PERMIT VALIDATION

911 E Foothill Blvd.

APPLICATION FOR BUILDING PERMIT

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION
JOHN A. LANGE, COUNTY ENGINEER
COLEMAN R. JENKINS, DEPT. OF BUILDING

FOR APPLICANT TO FILL IN

BUILDING ADDRESS 911 E Foothill - Claremont
LOT NO. R-5-60-17 BLOCK
TRACT
SIZE OF LOT Orange
NO. OF BLDGS. NOW ON LOT 1
USE OF EXISTING BLDG. Backpacker Shop
OWNER The Backpacker Shop
ADDRESS 911 E Foothill
CITY Claremont
ENGINEER Kar Bon Lanny
TEL. NO. 15068
ADDRESS Altadena Calif.
CONTRACTOR Grand Bros Sys Co
TEL. NO. 2[illegible]
ADDRESS 272 So. E St.
LIC. NO. 217[illegible]
CITY San Bernardino
LIC. CLASS
CONSTRUCTION LENDER NAME AND BRANCH None
ADDRESS
SQ. FT. 324 NO. OF STORIES NO. OF FAMILIES
USE OF STRUCTURE Sign
NEW ☒ ADD ☐ ALTER ☐ REPAIR ☐ DEMOL ☐
SIGNATURE OF APPLICANT Carlos Welch
VALUATION $ 50.00
P.C. FEE $ 5.00 PMT FEE $ 6.00

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE ABOVE IS CORRECT AND AGREE TO COMPLY WITH ALL ORDINANCES AND LAWS REGULATING BUILDING CONSTRUCTION. I CERTIFY THAT IN DOING THE WORK AUTHORIZED HEREIN I WILL NOT EMPLOY ANY PERSON IN VIOLATION OF THE LABOR CODE BY THE STATE OF CALIFORNIA IN RELATING TO WORKMEN'S COMPENSATION INSURANCE.

SIGNATURE OF PERMITTEE Carlos Welch
ADDRESS 272 So. E St. San Bernardino

ASSESSOR MAP BOOK PAGE PARCEL
BUILDING ADDRESS 911 E Foothill Blvd
LOCALITY Claremont
CROSS ST. Mills - Stover
DISTRICT NO. 10 GROUP 1 TYPE CONST. [illegible]
STATISTICAL CLASSIFICATION CLASS NO. 20 DWELL. UNITS
SEWER MAP DH - PG
USE ZONE M-1 MAP NO. 2952
SPECIAL CONDITIONS 50' Buffer Zone
Clark City Boundary
BLDG. SETBACK FROM FRONT PROP. LINE OF (STREET)
TYPE OF HIGHWAY | EXISTING WIDTH | SETBACK FROM C.L. | HIGHWAY | YARD | TOTAL
BLDG. SETBACK FROM SIDE PROP. LINE OF (STREET)
TYPE OF HIGHWAY | EXISTING WIDTH | SETBACK FROM C.L. | HIGHWAY | YARD | TOTAL
CORNER CUTOFF YES ☐ NO ☐

SEE REVERSE SIDE FOR SPECIAL APPROVALS

APPROVALS | DATE | INSPECTOR'S SIGNATURE
FOUNDATION LOCATION FORMS, MATERIALS
FRAME, FIRE STOPS, BRACING, BOLTS
FURNACE LOCATION, GAS VENT, BOLTS
LATH
LATH
HOUSE NUMBER FOR BELT AND PLATED
FINAL

JOHN F. LEWIS PRINCIPAL STRUCTURAL ENGINEER

PLAN CHECK VALIDATION

PERMIT VALIDATION

date?

INSPECTOR DOWN

Building Record

911

E. Rooth hill

MISCELLANEOUS APPLICATION 1

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

FOR APPLICANT TO FILL IN

SIGNED ADDRESS: 911 E. Foothill Blvd.
LOCALITY: Claremont
NEAREST CROSS ST: N. Stover Ave.
LEGAL DESCRIPTION: LOT NO. 1 BLOCK
TRACT: MS. 60 17
NO. OF BLDGS. NOR. OF LOT: 4
SIZE OF LOT: USE OF EXISTING BLDG.
OWNER: MRC Stover
MAIL ADDRESS:
CITY: TEL. NO.

APPLICATION FOR

OCCUPANCY INSPECTION: X
SAFETY PERMIT:
FOR SIGN USE:

USE OF STRUCTURES OR DEVICES

Convert existing bldg. to Auto Body Garage
Paul Medrano E.G.
Agents

SIGNATURE OF
ADDRESS: 108 Elm, Claremont

FEES 15.00

SIGNED ADDRESS: 911 E. Foothill Blvd
LOCALITY: Claremont
NEAREST CROSS ST: N. Stover Ave.
DISTRICT NO: 10 GROUP: E-4 TYPE CONST: V PROCESSED BY: [illegible]
MAP NO: 2963 SIGNAL (SIZE): STATE MAJOR SECOND LOCAL
USE ZONE: M-1 SPECIAL CONDITIONS: LE-149
REQUIRED SETBACK: FRONT P.L. / TOP P.L. / TANG / UP / STREET NAME / EXIST WIDTH

Inspection with inspector Knuckel of Fire Dept. Refer to attached list of inspection and requirements for Est. [illegible]
[illegible]
[illegible] Paul Lend [illegible]

LIMITED TIME USE

FROM / TO / DATE

APPROVALS / DATE / INSPECTOR'S SIGNATURE

FINAL APPROVAL

APPLICATION VALIDATION (NOT A PERMIT)

JOHN F. LEWIS [illegible] ENGINEER
PERMIT VALIDATION

911 E. Foothill

date?

Convert existing bldg to Auto Body Garage

APPLICATION FOR OCCUPANCY INSPECTION

1

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION
JOHN A. LAMBIE, COUNTY ENGINEER
COLEMAN W. JENKINS, SUP'T OF BUILDING

FOR APPLICANT TO FILL IN

BUILDING ADDRESS: 911 FOOTHILL BLVD CLAREMONT
LOT NO.
TRACT: R.S. 60 17
OWNER: MRS. STOVER
ADDRESS
CITY
SIZE OF PRINTING BLDG: 50'-50'
PRESENT USE OF BUILDING: VACANT
NO. PARKING SPACES PROVIDED
PROPOSED USE OF BUILDING: STORAGE FOR AIRCRAFT AND AUTO PARTS WITH OFFICE SPACE
SIGNATURE OF APPLICANT: [signature]
ADDRESS: N. P. WHITMAN
CLAREMONT CALIF
Date: 9/7/11
Phone: 62-3-24

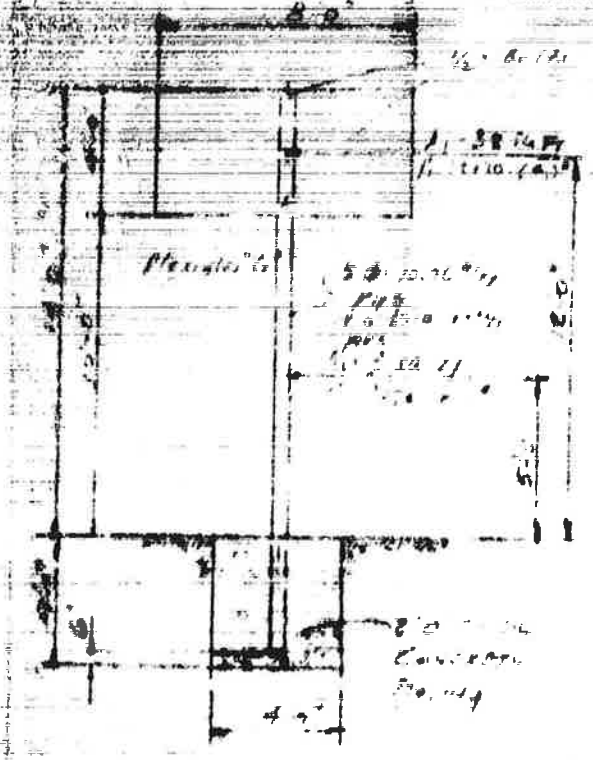
BUILDING ADDRESS: 911 FOOTHILL BLVD
LOCALITY: CLAREMONT
CORRECT PROJECT: N STOVER AVE
DISTRICT NO.: 10
PROCESSED BY
M-1
2153
LE 199
FOOTHILL
M
EXIT DIAGRAMS
No Sheet Filed
Port Devices

APPLICATION VALIDATION

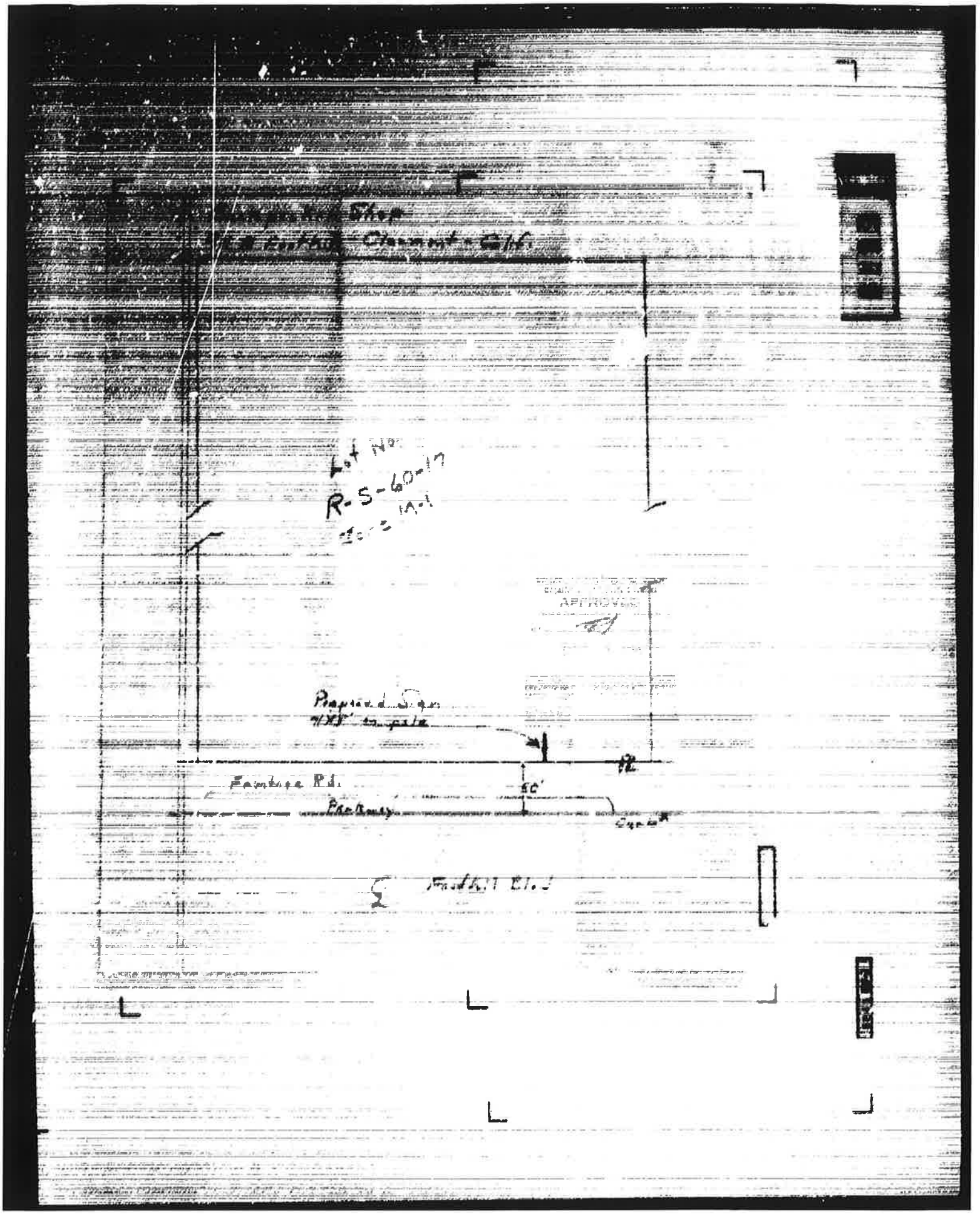
date ?

911 E. Foothill

Storage for Aircraft and Auto Parts



REGISTERED PROFESSIONAL ENGINEER
KAM BAN LEUNG
No. 19068
CIVIL
STATE OF CALIFORNIA


Lot No.
R-S-60-17
APPROVED
Proposed Sign
Frontage Rd.
50'
Parkway
Foothill Blvd

AVERAGE PHYSICAL PROPERTIES OF PLEXIGLAS SHEET[1]

PROPERTY	ASTM METHOD[2]	UNITS	PLEXIGLAS G	PLEXIGLAS 70
Thickness		inches	0.1[illegible]	0.1[illegible]
Light Transmittance and Haze	D 1003-61			
Total		%	92	92
Haze, 73°F		%	1	2.6
Tensile Strength	D 638-64T			
Maximum		psi	10,600	6,600
Elongation, maximum		%	5	143
Modulus of Elasticity		psi	400,000	265,000
Flexural Strength (Span Depth Ratio 16, 0.1"/minute)	D 790-66			
Maximum		psi	16,000	6,600
Modulus of Elasticity		psi	450,000	300,000
Impact Strength	D 256-56			
Izod Milled Notch, 73°F	(1961)	ft-lbs/in. notch	0.4	1.4
Tensile Impact Strength	D 1822-66	ft-lbs/sq. in.	27	80
Rockwell Hardness	R&H P 20		M 90	M 61
Distortion Temperature Under Load 3.6°F/min, 264 psi	D 648-56 (1961)	°F	200	172
Flammability (burning rate)	D 635-68	in/min	1.3	1.2

Notes:

[1] Data given are average values and should not be used for specification purposes. The values given are for the thickness noted in the column heading. Some values will change with thickness.

[2] Samples are conditioned per ASTM D 618-61, Procedure B, except where noted.

PLEXIGLAS is a trademark, Reg. U.S. Pat. Off. and other principal countries in Western Hemisphere.

Total suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them as a commercial scale.

Suggestions for use of our products or the inclusion of descriptive material from patents and the utilization of specific patents in this publication should not be understood as recommending the use of our products in violation of any patent or as permission or license to use any patents of the Rohm and Haas Company.

September, 1970 Printed in U.S.A.

PL-907

date? 1969?

September 19, 1969

Mr. S. S. Medrano
Mr. Paul Amara
108 Olive Street
Claremont, California

Auto Body Repair Garage

911 E Foothill

Dear Sirs:

OCCUPANCY INSPECTION
PROPOSED AUTO BODY REPAIR GARAGE
911 E. Foothill Blvd., Claremont

At your request an inspection was made at the above address to determine alterations required for the proposed use.

1. The building, including toilet area, to be enclosed in fire zone.

2. Fire Prevention Bureau approval is required. Existing fuel tank to be brought up to Fire Code Standards, or disposal should be per Fire Department Standards.

3. Industrial waste approval required.

4. Submit plans for proposed alterations, including plot plan showing dimensioned location of lease or property lines applicable to this building, and legal access. Provide legal description.

5. A. Electrical alterations, additions and corrective work will require Electric Permit.

B. Provide repairs necessary to make toilet facility operational. Show method of sewage disposal.

C. Provide approved nonabsorbent wall finish to a minimum of 4 ft. in toilet.

6. Provide light and ventilation by means of windows equal to 1/8 of the floor area, 1/2 of which shall be openable, or provide artificial light and mechanically operated ventilating system supplying a minimum of 1/2 CFM outside air with a total circulation of 2/3 CFM. Provide exhaust ventilation at or near floor level.

7. A. Provide legal (3'x6'-8") exit door, openable from inside without key, special knowledge or effort.

   B. Guard rails to be 3'-6" high, and to comply with Code and State Law. Provide stair rail 30 to 34 inches above nosing.

8. Roofing to comply as Fire retardant and is to be verified in field.

9. For any painting, a paint spray booth shall comply with Code and will require Fire Department approval.

10. Provide a concrete slab, minimum 3-1/2 inches thick WITHIN BUILDING.

11. A. Mud sills to be pressure treated and a minimum of 6 inches clear above adjacent grade.

    B. Replace existing damaged and nonconforming framing. (North wall, and as required) and repair large doors or close openings by means of wall framing.

    C. Stud spacing to be 16" o.c., with 3x4 or 2x6 studs for height over 14 feet.

    D. Weather boarding shall have an average thickness in place of 5/8 inches. Provide 15# asphalt felt backing.

    E. Provide wall bracing and wall to roof blocking and diaphragm ties adequate to resist lateral wind load.

Should you have any questions regarding the above items, please contact us at [illegible].

Very truly yours,

G. Ernest Selkee
Associate Civil Engineer
Division of Building & Safety

OES:mm
cc: Fire Prevention

April 9, 1970.

4/1970

office + storage for Airplane + Auto Parts

Mr. David D. Krauss
1181 Whitman Avenue
Claremont, California

Dear Mr. Krauss:

OCCUPANCY INSPECTION
PROPOSED OFFICE AND STORAGE
AUTO AND AIRCRAFT PARTS
911 E. Foothill Blvd., Claremont

911 E Foothill

At your request an inspection was made at the above address to determine alterations required for the proposed use.

1. Obtain approval of Los Angeles County Regional Planning Department for use and parking.

2. Obtain approval of Los Angeles County Fire Prevention Bureau.

3. Submit plot plan showing all property lines, location of all buildings, access, area of lease, and parking areas.

4. Submit plans for proposed alterations including but not limited to the following items.

   A. Mudsills to be approved type and 6 inches above exterior grade.

   B. Stud size and spacing.

   C. Exterior wall finish.

   D. Wall bracing and wall to roof blocking and diaphram ties adequate to resist lateral wind load.

   E. How will damaged and nonconforming framing be made to comply with Code?

[illegible]
[illegible]

April 9, 1970
page 2

F. Show how legal light and ventilation will be provided.

G. Arrangement and size of exits.

H. Toilet room wall finish to comply with Section 1711 of the Building Code.

I. Floor plan.

5. The roofing is to comply as Fire retardant.

6. Completely rewire this building to comply with the Electric Code. Have your licensed electrical contractor obtain an Electrical Permit.

7. What is the method of sewage disposal?

Should you have any questions regarding the above items, please contact me at 599-1286.

Very truly yours,

Preston B. Harrell, Jr.

Preston B. Harrell, Jr.
Assistant District Engineer
Division of Building & Safety

PBH:ms
cc: [illegible]
[illegible]

department of planning
and community development



207 HARVARD AVENUE (714) 626-4831 CLAREMONT 91711 DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

March 23, 1976

3/1976

743 E Foothill
Green House

Jack Foye, Building Inspector

The Director of Community Development has approved a Special Use and Development Permit to allow the installation, maintenance and use of a temporary structure (greenhouse) for the purpose of storing plants for a period of time not to exceed six (6) months from the date of the granting of an occupancy permit. This structure will be located on the north side of Foothill Boulevard between Claremont Boulevard and Padua Avenue, immediately north of the existing Woodworks Furniture Store. This approval is granted subject to the following conditions:

1. That all appropriate permits be obtained from the Building Department.
2. That the use of the building shall be for storage purposes only; there shall be no retailing of products within this structure.
3. That there be no outdoor storage areas on the south and west sides of said structure.
4. That the structure and surrounding area be properly maintained.
5. The period of approval may be extended by the Director of Community Development upon a finding that all conditions have been met and that the subject use and structure are not a detriment to the immediate area.

If you wish to appeal this decision, such appeal must be made within 5 days from the date of this letter. The Special Use and Development Permit will become effective on March 3[illegible], 1976.

Very truly yours,

DONALD G. KIMEL
Director
Department of Community Development

DGK:deo

743
E. Foothill

743 FOOTHILL
DAVID SUGGS

1. Provide grounding bushing on 3½" pipe to Edison feeder w/jumper - or use hub.
2. SERVICE NEUTRAL TO TERM on neutral bus
3. tighten jumper screws from tag in [illegible].

743
Foothill

7/5/76 [signature]

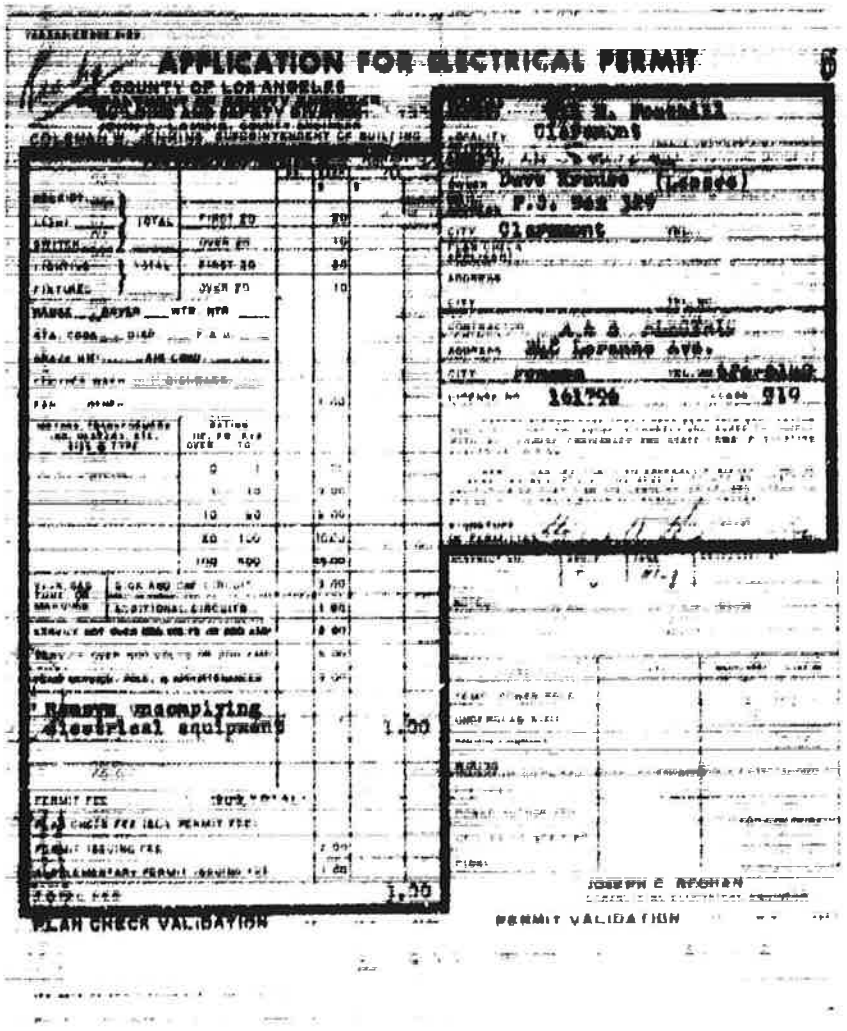
7/ 1976

CITY OF CLAREMONT

APPLICATION FOR BUILDING PERMIT

743 E. Foothill Blvd.

1975?



APPLICATION FOR ELECTRICAL PERMIT

COUNTY OF LOS ANGELES

COLEMAN W. [illegible], SUPERINTENDENT OF BUILDING

RECEIPT				
LIGHT	TOTAL	FIRST 20	20	
SWITCH		OVER 20	10	
LIGHTING	TOTAL	FIRST 20	20	
FIXTURES		OVER 20	10	
HAUSE DRYER WTR HTR				
STA. COOK DISP F.A.U.				
GRAVE HTR AIR COND.				
[illegible]				
FAN [illegible]			1.00	
METERS, TRANSFORMERS, [illegible]	RATING OVER	TO		
	0	1		
	1	10	2.00	
	10	50	5.00	
	50	100	10.00	
	100	500	25.00	
[illegible]	SIGN AND OUT CIRCUIT		3.00	
	ADDITIONAL CIRCUITS		1.00	
[illegible]			2.00	
[illegible]			5.00	
[illegible]			7.00	
Remove uncomplying electrical equipment				1.00
PERMIT FEE				
PLAN CHECK FEE (SEE PERMIT FEE)				
PERMIT ISSUING FEE			2.00	
SUPPLEMENTARY PERMIT ISSUING FEE			1.00	
TOTAL FEE				1.00

PLAN CHECK VALIDATION

[illegible] H. [illegible]

LOCALITY Claremont

[illegible]

OWNER Dave Krause (Lessee)

[illegible] P.O. Box 329

CITY Claremont TEL.

PLAN CHECK APPLICANT

ADDRESS

CITY TEL.

CONTRACTOR A.A.S. ELECTRIC

ADDRESS [illegible] Lorenzo Ave.

CITY Pomona TEL. [illegible]

LICENSE NO. 161796 CLASS 919

SIGNATURE OF PERMITTEE

DISTRICT NO. | SCALE | TOTAL

NOTES

TEMP. POWER POLE

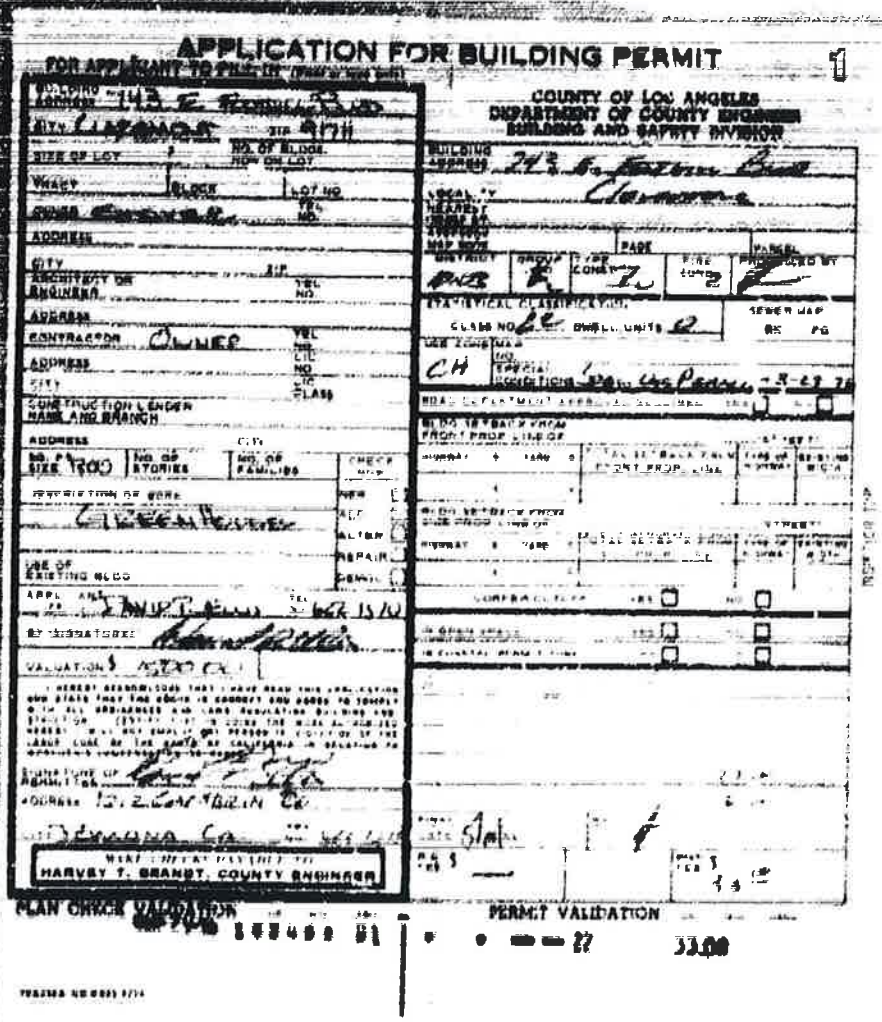
UNDERGROUND WIRE

BUILDING

PHONE

JOSEPH C. REGHAN

PERMIT VALIDATION



APPLICATION FOR BUILDING PERMIT

FOR APPLICANT TO FILE IN (Print or type only)

COUNTY OF LOS ANGELES
DEPARTMENT OF COUNTY ENGINEER
BUILDING AND SAFETY DIVISION

BUILDING ADDRESS 743 E. Foothill Blvd.
CITY Claremont ZIP 91711
SIZE OF LOT
NO. OF BLDGS. NOW ON LOT
TRACT BLOCK LOT NO.
OWNER TEL. NO.
ADDRESS
CITY ZIP
ARCHITECT OR ENGINEER TEL. NO.
ADDRESS
CONTRACTOR OWNER TEL. NO.
ADDRESS LIC. NO.
CITY LIC. CLASS
CONSTRUCTION LENDER NAME AND BRANCH
ADDRESS CITY
SQ. FT. SIZE 1200 NO. OF STORIES NO. OF FAMILIES CHECK HERE
DESCRIPTION OF WORK Green House
NEW ADD ALTER REPAIR DEMOL
USE OF EXISTING BLDG
APPLICANT TEL. 662 1510
BY SIGNATURE
VALUATION $ 1500.00

I HEREBY RESPONSIBLE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE WORK IS CORRECT AND AGREE TO COMPLY WITH ALL ORDINANCES AND LAWS REGULATING BUILDING CONSTRUCTION. (EXCEPT THAT IS BEING THE WORK AS ADVISED HEREBY WILL NOT EMPLOY OR PERSON IN CONTROL OF THE LABOR CODE OF THE STATE OF CALIFORNIA IN RELATION TO WORKMEN'S COMPENSATION TO WORK.)

SIGNATURE OF REMITTER
ADDRESS 1212 Cambrian Ct.
CITY Diamond Ca. TEL. 662 1510

MAKE CHECK PAYABLE TO
HARVEY T. BRANDT, COUNTY ENGINEER

BUILDING ADDRESS 743 E. Foothill Blvd.
LOCALITY Claremont
NEAREST CROSS ST.
ASSESSOR MAP NO. PAGE PARCEL
DISTRICT PWB GROUP E TYPE CONST. 2 FIRE ZONE 2 PROCESSED BY
STATISTICAL CLASSIFICATION
CLASS NO. 22 DWELL UNITS 2
SEWER MAP BK PG
USE ZONE CH MAP NO.
SPECIAL CONDITIONS Dan Use Permit 3-23-76
BOAD DEPARTMENT APPROVAL REQUIRED YES NO
BLDG SETBACK FROM FRONT PROP. LINE OF
STREET
HIGHWAY YARD
TOTAL SETBACK FROM FRONT PROP. LINE
TYPE OF HIGHWAY
EXISTING WIDTH
BLDG SETBACK FROM SIDE PROP. LINE OF
STREET
HIGHWAY YARD
TOTAL SETBACK FROM SIDE PROP. LINE
TYPE OF HIGHWAY
EXISTING WIDTH
CORNER CUTOFF YES NO
IN GREEN SPACE YES NO
IN COASTAL PERMIT ZONE NO
FINAL DATE Stab
P.A. FEE $ —
PERMIT FEE $ 33.00

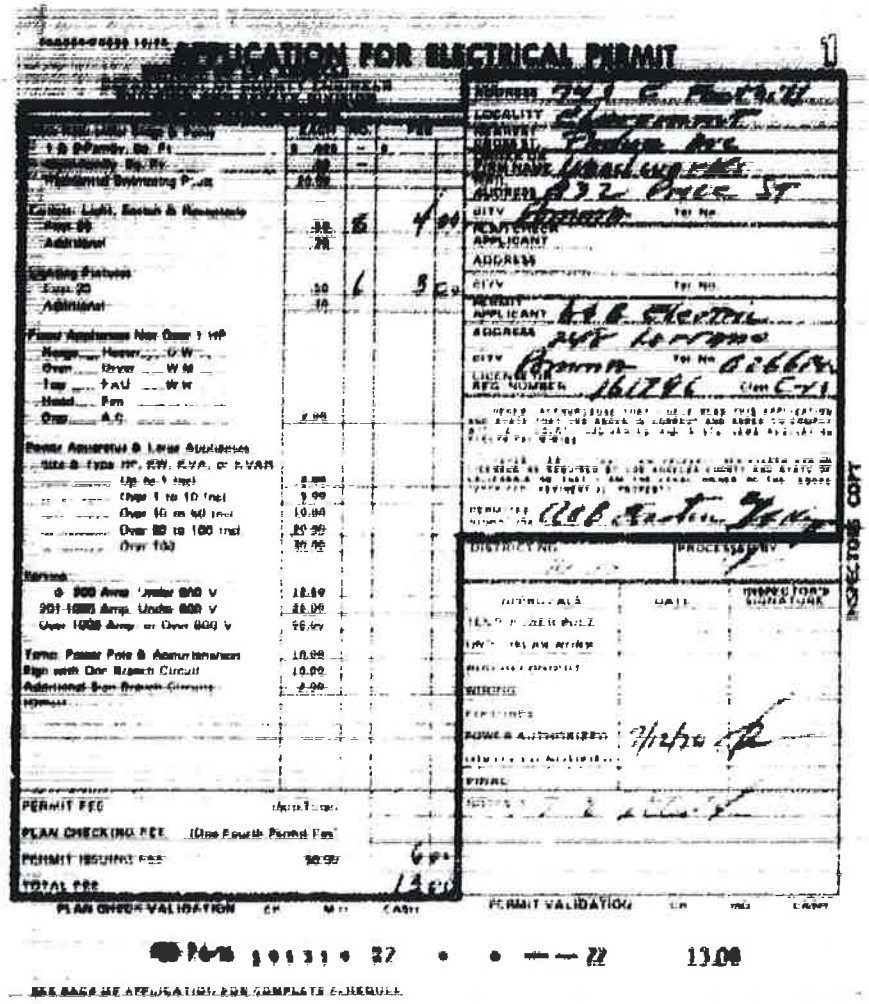
PLAN CHECK VALIDATION

PERMIT VALIDATION

743 E
Foothill Blvd

1976?

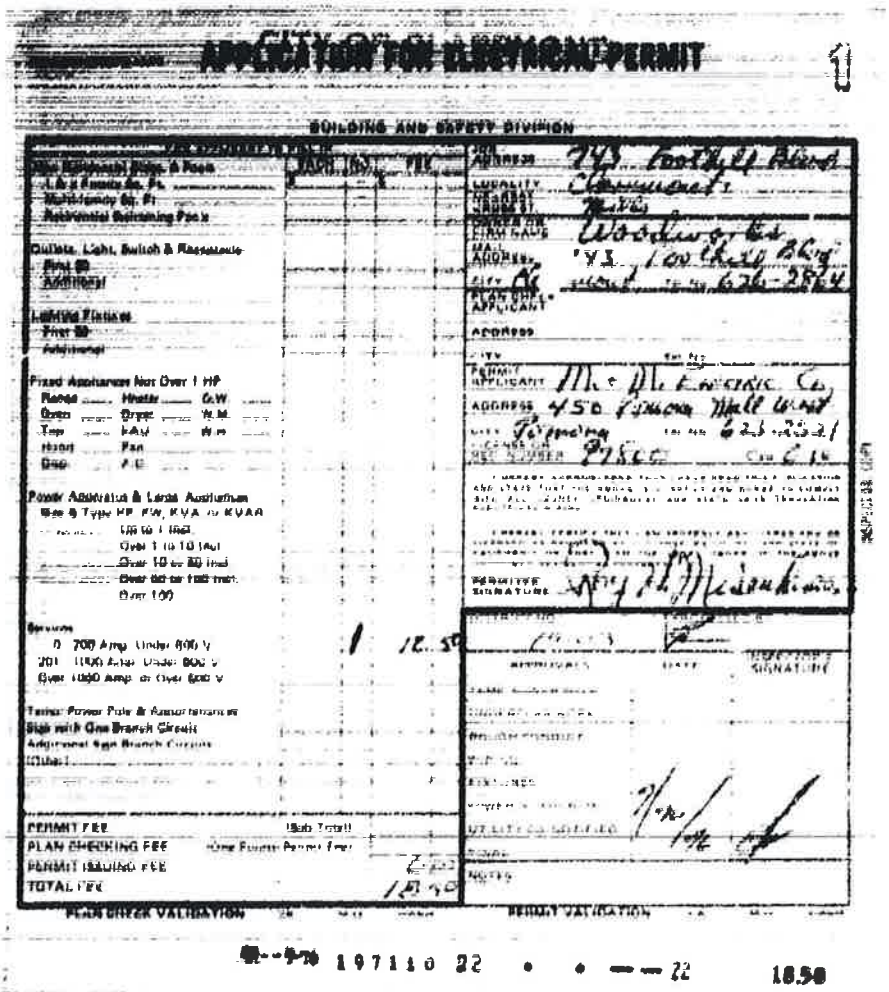
Green House



APPLICATION FOR ELECTRICAL PERMIT

743 E. Foothill

1976



APPLICATION FOR ELECTRICAL PERMIT

1

BUILDING AND SAFETY DIVISION

	EACH	NO.	FEE
New Residential Bldgs. & Pools			
L & S Family Sq. Ft.			
Multi-family Sq. Ft.			
Residential Swimming Pools			
Outlets, Light, Switch & Receptacle			
First 50			
Additional			
Lighting Fixtures			
First 50			
Additional			
Fixed Appliances Not Over 1 HP			
Range ___ Heater ___ G.W. ___			
Oven ___ Dryer ___ W.M. ___			
Top ___ FAU ___ W.H. ___			
Hood ___ Fan			
Disp. ___ P.D. ___			
Power Apparatus & Large Appliances			
Size & Type HP, KW, KVA or KVAR			
Up to 1 incl.			
Over 1 to 10 incl.			
Over 10 to 50 incl.			
Over 50 to 100 incl.			
Over 100			
Services			
0 - 200 Amp. Under 600 V		1	12.50
201 - 1000 Amp. Under 600 V			
Over 1000 Amp. or Over 600 V			
Temp. Power Pole & Appurtenances			
Sign with One Branch Circuit			
Additional Sign Branch Circuits			
(Other)			
PERMIT FEE	Sub Total		
PLAN CHECKING FEE	(One Fourth Permit Fee)		
PERMIT ISSUING FEE			2.00
TOTAL FEE			18.50

JOB ADDRESS: 743 Foothill Blvd
LOCALITY: Claremont
NEAREST CROSS ST.: Mills
OWNER OR FIRM NAME: Woodworks
MAIL ADDRESS: 743 Foothill Blvd
CITY: Ck Mont. TEL. NO. 626-2864
PLAN CHECK APPLICANT:
ADDRESS:
CITY: TEL. NO.
PERMIT APPLICANT: M & M Electric Co.
ADDRESS: 450 Pomona Mall West
CITY: Pomona TEL. NO. 623-2321
LICENSE OR REG. NUMBER: 97800 CAN 2 14

PERMITTEE SIGNATURE: [signature]

INSPECTOR'S SIGNATURE

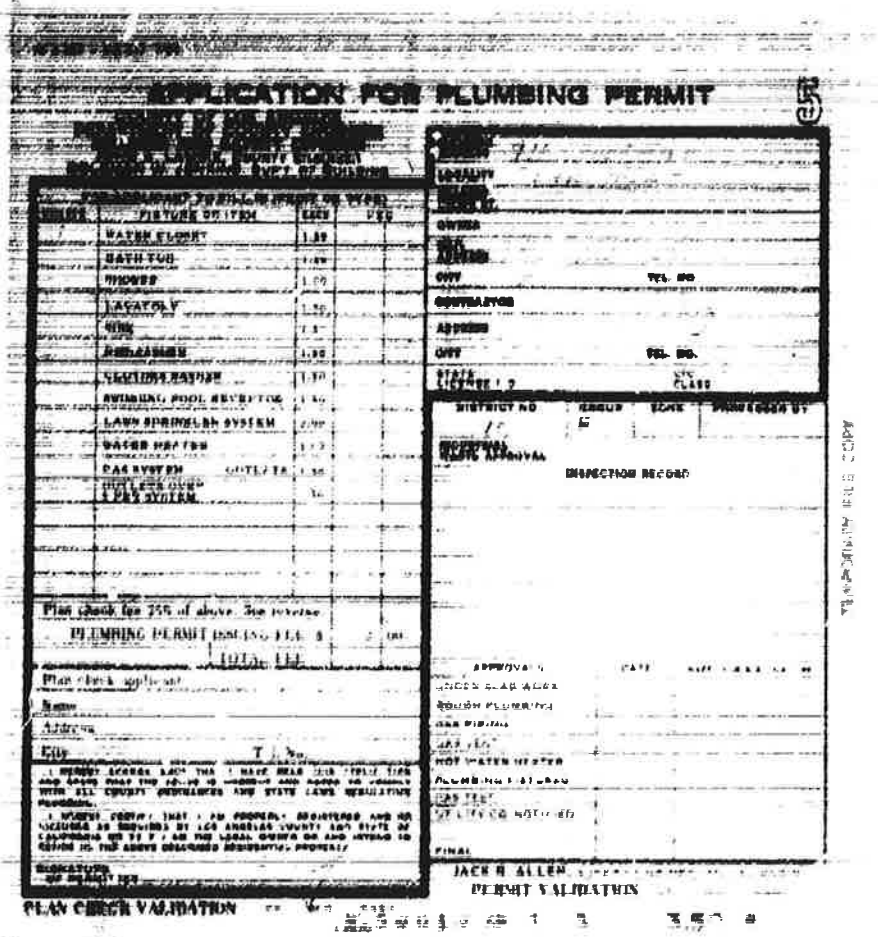
APPROVALS | DATE | INSPECTOR'S SIGNATURE

TAMP. SUPPORT
UNDERFLOOR
ROUGH CONDUIT
FIXTURES
UTILITY CONDITIONED
FINAL
NOTES

PLAN CHECK VALIDATION | PERMIT VALIDATION

197110 22 • • — — 22 18.50

743 E. Foothill



APPLICATION FOR PLUMBING PERMIT

	FIXTURE OR ITEM	EACH	FEE
	WATER CLOSET	1.50	
	BATH TUB	1.50	
	SHOWER	1.00	
	LAVATORY	1.50	
	SINK	1.50	
	DISHWASHER	1.50	
	CLOTHES WASHER	1.50	
	SWIMMING POOL RECEPTOR	1.50	
	LAWN SPRINKLER SYSTEM	2.00	
	WATER HEATER	1.50	
	GAS SYSTEM OUTLETS	1.50	
	BOILERS OVER 1 PER SYSTEM	1.50	

Plan check fee 25% of above. See reverse

PLUMBING PERMIT ISSUING FEE $ 2.00

TOTAL FEE

Plan check applicant

Name

Address

City T. No.

I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND AGREE THAT THE WORK IS HEREBY AND AGREE TO COMPLY WITH ALL COUNTY ORDINANCES AND STATE LAWS REGULATING PLUMBING.

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND OR LICENSED AS REQUIRED BY LOS ANGELES COUNTY AND STATE OF CALIFORNIA OR IF I AM THE LEGAL OWNER OR AND INTEND TO RETURN TO THE ABOVE DESCRIBED RESIDENTIAL PROPERTY.

SIGNATURE OF PERMIT ISSUER

PLAN CHECK VALIDATION

LOCALITY

OWNER

CITY TEL. NO.

CONTRACTOR

ADDRESS

CITY TEL. NO.

STATE LICENSE NO. CLASS

DISTRICT NO	GROUP	ZONE	PROCESSED BY
15	E		

INDUSTRIAL WASTE APPROVAL

INSPECTION RECORD

APPROVALS	DATE	SIGNATURE
UNDER SLAB WORK		
ROUGH PLUMBING		
GAS PIPING		
GAS TEST		
HOT WATER HEATER		
PLUMBING FIXTURES		
GAS TEST		
SOUTHERN CO. NOTIFIED		
FINAL		

JACK R. ALLEN

PERMIT VALIDATION

CITY of CLAREMONT
COMMUNITY DEVELOPMENT DEPARTMENT
BUILDING DIVISION
207 Harvard • Phone 624-4531, ext 263

ELECTRICAL PERMIT

JOB ADDRESS 743 - E FOOTHILL
OWNER [illegible] Phone [illegible]
Address 2131 ESPADA PL. D.B.
CONTRACTOR VIENNA ELECTRIC Phone
Address 9512 SAN BERNARDINO RD COCA
STATE LICENSE NUMBER 352237 CITY LICENSE NUMBER 8-03821-L

DESCRIPTION OF WORK	FEES
RESIDENTIAL (Single or Multi-Family) — New: AREA IN SQUARE FEET	
GARAGES NEW (Residential or Multi-Family) — AREA IN SQUARE FEET	
METERS 100 AMP	10.00
SWITCHES	
[illegible]	1.50
[illegible]	2.00
[illegible]	2.00
[illegible]	
[illegible]	
PERMIT ISSUANCE	7.00
TOTAL FEE	22.50

[illegible] DATE [illegible]

[illegible]

SIGNATURE OF PERMITTEE [signature]

INSPECTION RECORD

ELECTRICAL	DATE	INSPECTOR
SERVICE		
[illegible]		
CONDUIT		
WIRING		
FIXTURES		
FINAL	[illegible]	[signature]

QUALITY

743 E. Foothill

MICROSEAL

CITY of CLAREMONT
COMMUNITY DEVELOPMENT DEPARTMENT
BUILDING DIVISION
207 Harvard • Phone 624-4631, ext 263

ELECTRICAL PERMIT

JOB ADDRESS 743 E. ROOTHILL
OWNER J. S. BLOCK 621-7172
ADDRESS 2317 ESPADA PL., D.B.
CONTRACTOR OWNER
ADDRESS
STATE LICENSE NUMBER | CITY LICENSE NUMBER

DESCRIPTION OF WORK	FEES
RESIDENTIAL (Single or Multi-Family) NEW AREA IN SQUARE FEET	
DUPLEXES NEW (Residential or Multi-Family)	
SIDE AREA IN SQUARE FEET	
METERS	
SWITCH SIZE	
CHRISTMAS LIGHTS	25.00
OUTLETS NO. OF	
FIXTURES NO. OF	
(Specifications Required of Method)	
PERM. CONSTANCE	7.00
TOTAL FEE	32.00

743 E. Roothill
Christmas Lights

SIGNATURE OF PERMITTEE

INSPECTION RECORD

ELECTRICAL	DATE	Inspector
SERVICE		
Permit Office Work Off Plan		
CONDUIT		
WIRING		
FIXTURES		
FINAL		

CHAIR

743 E Foothill

city of CLAREMONT

207 Harvard Ave., Claremont, Ca. 91711

ELEC./MECH./PLMBG. PERMIT

department of COMMUNITY DEVELOPMENT

Building Address 743 E. FOOTHILL
Owner Jo Black 684 Riverplat Wsg
Mailing Address 743 E Foothill
City Claremont Zip 91711 Tel 621-2822
Contractor OWNER Agent
Address
City Zip Tel
State Lic. & Class#

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason:

- [ ] I am the owner of the property, and the work will not be offered for sale within one year of completion.
- [ ] I am the owner of the property and am building or improving a single-family residence for myself.
- [ ] I am exempt under Sec.

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certificate of exemption, as provided by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

Policy No.
- [ ] Copy is filed with the city
- [ ] Approved copy is being furnished

I certify that I have read this application and state that the above information is correct. I agree to comply with all city ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter upon the above-mentioned property for inspection purposes.

Signature Date
Address

ELECTRICAL SYSTEM

No.	Description (Addition, Commercial, Industrial)	Fee
1	Service Size RE-CONNECT EXISTING	10.00
	Outlets (receptacles, lights, switches)	
	Fixtures	
	Motors	
	HP or	
	Other	
	Heat Pump	
	Sq. Ft. Area New Residential Bldg.	or
	Sq. Ft. Area New Accessory Bldg.	or
	Plan Chk.	Issuance Fee
	Fee	
	TOTAL FEE ELECTRICAL FEES	7.00

MECHANICAL SYSTEM

No.	Description	Fee	No.	Description	Fee
	Furnace to & including 100,000 BTU			Boiler, Compr. to & including 3 HP	
	Furnace over 100,000 BTU			Boiler, Compr. over 3 HP to 15 HP	
	Floor Furn.			Air Handling to & including 10,000 cfm	
	Wall Furn.			Air Handler over 10,000 cfm	
	Space Heater			Other	
	Vent Fan				
	Ventilating Duct				
	Other				
	Plan Chk.	Issuance Fee			
	Fee				
	TOTAL MECHANICAL FEES				

PLUMBING SYSTEM

No.	Description	Fee	No.	Description	Fee
	Water Heaters			Soil System (Incl. Outlets)	
	Lawn Sprinklers			Water Heaters	
	Building Sewer			Fuel Gas Line	
	Water Piping			Other	
	Plan Chk.	Issuance Fee			
	Fee				
	TOTAL PLUMBING FEES				

TOTAL ELEC., MECH., PLMBG. FEES 17.00

Permit No 19813 VALIDATION 17.00 22

Bldg Chrgs
Add'l 17.00

INSPECTOR COPY

1980

Building Record

Inspection Request Line
(909) 399-5372

735 E. Foothill

Application for Building Permit

912980 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: TEMPORARY POWER POLE 100 AMP SERVICE

Type of Const.	Occ.Group	Use Zone	Fire Zone 3
Tract No.	Lot No.	APN	
Setback F S L R	Review #	Date 12/14/98	

Building Address: 735 E. FOOTHILL BLVD
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ACOSTA AVE. #200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: XXXX PERFORMANCE POWER SYSTEMS INC.
Address: 2055 BAKER
City: ONTARIO | Zip: 91761 | Tel.: 923-6133
State Lic. & Classif.: 693087 C-10 EXP. 07/31/00 | City Lic. # 12544
Arch. Engr., Designer
Address | Tel.
City | Zip | State Lic.#

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

SIGNATURE 12-14-98 DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale.* If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)*

☐ I am exempt under Sec. _____ B.&P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. *(Sec. 3800, Labor Code)*

Policy No. ON FILE W.STATE Company TILL 07/31/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. *(Sec. 3097, Civil Code)*

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant _____ Date 12-14-98

Mailing Address _____

City, State, Zip _____

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @		$
2ND FL.	SQ. FT. @		
POR.	SQ. FT. @		
GAR.	SQ. FT. @		
CAR P.	SQ. FT. @		
WALL	L.F. @		
A/C	SQ. FT. @		
ROOF	SQ. FT. @		
POOL	SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION			$

NOTE: Not to be used as property tax valuation

ISSUANCE	$	20 00
CONST. FEE	$	
TOTAL CONST. FEE	$	

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD		
APPLIANCE			DRYER		
AIR CONDITIONER			B.T.U.		
HEATING SYSTEM			B.T.U.		
MECH. PLAN CHECK FEE					
ISSUANCE FEE				$	20 00
			TOTAL MECH. FEE	$	

NO.	ELECTRICAL FEES		NO.	PLUMBING FEES	
UNITS				SQ.FT. @ .05	
	TIMER			YARD SPKLR SYSTEM	
	MOBILEHOME SVC.			GAS PIPING	
	POWER OUTLET			HOUSE SEWER	
	MOTOR HP			DRAINAGE PIPING	
	POOL/SPA			DRINKING FOUNTAIN	
	FIXTURES			URINAL	
	OUTLETS			WATER PIPING	
	SWITCHES			FLOOR DRAIN	
				POOL/SPA	
	SIGN			WASHER (AUTO) (DISH)	
				GARBAGE DISPOSAL	
1	SUB PANEL	10 50		LAUNDRY TRAY	
	TEMP. USE SERV.			KITCHEN SINK	
1	POLE TEMP/PERM	21 00		WATER CLOSET	
	SUB-POLES			LAVATORY	
	AMP. SERVICE			SHOWER	
	SQ. FT. @ C			BATH TUB	
	SQ. FT. @ C			WATER HEATER	
	SQ. FT. RESID @ .05			SEWAGE DISPOSAL	
	SQ. FT. GAR. @ .01			PLAN CHECK	
	PLAN CHECK				
	ISSUANCE FEE	$ 20 00		ISSUANCE FEE	$ 20 00
	TOTAL ELEC. FEE	$ 51 50		TOTAL PLUMB. FEE	$

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ANT FEE	SUB-TOTAL
		51.50			51.50

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	DSD UTILITY FEE

SMI	MICRO FEE	TRANSPORTATION FEE	TOTAL DUE
	2.00		$53.50

Bldg. A. Peterson Date 12/14/98
Engr. _____ Date _____
Plan _____ Date _____

The issuance of the permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co. _____ Elect. Co. _____

1995

Claremont California 1907

Engineering Division
714/399-5465

No. 2245 -G

Application for
GRADING/ON-SITE IMPROVEMENT PERMIT
CITY OF CLAREMONT
207 Harvard Avenue
Claremont, California 91711

701 East Foothill Blvd.

JOB LOCATION ARCO STATION - NORTHEAST CORNER, FOOTHILL & CLAREMONT BLVD.

LOT NUMBER(S) ONE TRACT/PARCEL NUMBER 23719

OWNER ARCO PRODUCTS CO. CONTRACTOR

ADDRESS 4 CENTERPOINTE DR. ADDRESS

CITY LA PALMA, CA 90623 CITY

PHONE (714) 670-5300 PHONE

REFUND DEPOSIT TO: NAME: ADDRESS: CITY:

VALIDATION
04/25/97 8:33AM 000#1675
PUBLIC WORK P21165 0

DESCRIPTION OF WORK

GRADING AND ON-SITE IMPROVEMENTS PER APPROVED GRADING PLAN, G-9702; INCLUDES A.C. BASE, CURB, GUTTER & SIDEWALK (ON-SITE), AND SEWER & STORM DRAIN FACILITIES

CUBIC YARDS HANDLED 9,000 C.Y. CHECK IF SUPERVISED GRADING ☑

I hereby acknowledge that I have read this application and state that this is correct and agree to comply with the requirements of this permit, all city ordinances, standards, specifications, state laws, the **Standard Specifications for Public Works Construction,** latest edition, and the **Uniform Building Code,** latest edition.

X Signature Company COMBS/MARR ARCHITECTS

Authorized By Fatin Mustafa Date 4-25-97

1997

This permit becomes a grading/on-site improvement permit when properly filled out, signed, approved, and validated. This permit becomes null and void one (1) year from date of issuance.

INSPECTION IS REQUIRED - 24 Hour notice must be given to the Engineering Division.

COMMENTS: * Note: With payment of this permit prior to April 25, 1997 no transportation impact fee is required. jm

No work shall be commenced prior to puting the deposit of $34,550.00 * Prior to start of any construction, Contractor shall pull a "double permit" (no fee) providing State License No. and Workers Comp.

State Lic. & Classif.	City Lic #

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reasons: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code.)

Policy No. _____ Company _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less).

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Sign. _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Workers Compensation provision of the Labor Code, you must forthwith comply with such provision or this permit shall be deemed revoked.

DWG. NO.	FILE NO.	
Fee	**Account No.**	**Amount**
Grading Permit	110-306-0-4235	$3,156.00
Grading Plan Check	110-306-0-4602	$2,460.00
Sewer Connection Fee	311-306-0-4616	$500.00
Drainage Fee	123-306-0-4640	$13,274.00
Resurfacing Fee	110-306-0-4605	$1,775.00
	Subtotal	$21,165.00
Refundable Deposits		
CASH DEPOSIT (guaranteeing improvements)	110-231	~~$34,550.00~~
	Total	~~$55,715.00~~
Non-Cash Deposits		**Amount**
Bond No. jm	$21,165.00	
C.D. No.		
Letter of Credit No.		

APPLICANT - White FINANCE - Blue FILE - Pink INSPECTOR - Card

3258

Application for
PUBLIC WORKS CONSTRUCTION PERMIT

CITY OF CLAREMONT
207 Harvard Avenue
Claremont, California 91711

Engineering Division
(909) 399-5465

REFUND DEPOSIT TO:	VALIDATION
NAME:	
ADDRESS:	
CITY:	

JOB LOCATION PM 23719
OWNER [illegible] CONTRACTOR
ADDRESS [illegible] ADDRESS
CITY [illegible] CITY
PHONE [illegible] PHONE

DESCRIPTION OF WORK

Parcel Map 23719 - Remainder of Drainage Fees

I hereby acknowledge that I have read this application and state that this is correct and agree to comply with the requirements of this permit, all city ordinances, standards, specifications, state laws, and the **Standard Specifications for Public Works Construction,** latest edition.

Signature Company

Authorized By Craig L. Bradshaw Date 6-30-97

1997

This permit becomes a public works construction permit when properly filled out, signed, approved, and validated. This permit becomes null and void ninety (90) days from date of issuance.

INSPECTION IS REQUIRED—24-Hour notice must be given to the Engineering Division (909) [illegible] A

COMMENTS:

H0000000000003258
PUBLIC WORK PERM $99000.0
CHECK $99000.00
06/30/97 9:04AM 00003765 A

PUBLIC WORK PERM $30375.0
CHECK $30375.00

State Lic. & Classif.	City Lic. #

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reasons: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code.)

Policy No. _____ Company _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less).

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Sign. _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Workers Compensation provision of the Labor Code, you must forthwith comply with such provision or this permit shall be deemed revoked.

DWG. NO.	FILE NO.	
Fee	Account No.	Amount
DRAINAGE	123-306-0-4640	$129,375.00
	Subtotal	$129,375.00
Refundable Deposits		
Public Works Deposit		
	Total	$129,375.00
Non-Cash Deposits		Amount
Bond No.		
C.D. No.		
Letter of Credit No.		

WHITE - Applicant BLUE - Engineer PINK - File CARD - Inspector

CAN BUSINESS FORMS

277/28

BOOK 277 PAGE 28

SHEET 1 OF 2 SHEETS

PARCEL MAP NO. 23719

IN THE CITY OF CLAREMONT
COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

BEING A SUBDIVISION OF PARCEL 1 OF PARCEL MAP NO. 6175, AS PER MAP FILED IN BOOK 84, PAGES 2 AND 3 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY AND STATE.

97- 990613

ANDREASEN ENGINEERING, INC.

FILED
AT REQUEST OF OWNER
JUL 0 2 1997
01 MIN PAST 3 PM
IN BOOK 277
AT PAGE 28
OF PARCEL MAPS
LOS ANGELES COUNTY, CA.
Registrar-Recorder/County Clerk
BY _____ Deputy
FEE $ 11.00
D.A. 9 2.00

RE THE OWNERS OF THE LAND
SION SHOWN ON THIS MAP WITHIN
S, AND WE CONSENT TO THE
SAID MAP AND SUBDIVISION. WE

ENGINEER'S STATEMENT:

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS BASED UPON A FIELD SURVEY IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF COLUMBIA GROUP LTD. ON JANUARY 8, 1997. I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED

RESOLUTION NO. 98-19

(REVISED CONDITION #6.D BY PLANNING COMMISSION ACTION OF 10/6/98)

A RESOLUTION OF THE PLANNING COMMISSIONER OF THE CITY OF CLAREMONT ADOPTING THE MITIGATED NEGATIVE DECLARATION AND APPROVING CONDITIONAL USE PERMIT #98-C06 FOR ARMSTRONG GARDEN CENTER TO BE LOCATED ON THE NORTH SIDE OF FOOTHILL BOULEVARD, 300 EAST OF CLAREMONT BOULEVARD. APPLICANT – TIMOTHY WHITE, AIA

WHEREAS, Timothy White, on behalf of Armstrong Garden Center, submitted a proposal on April 29, 1998 to allow a retail garden center on the north side of Foothill Boulevard, 300 feet of Claremont Boulevard; and

WHEREAS, in 1991, the Redevelopment Agency Board adopted the Foothill East Redevelopment Strategy, which encourages development that would produce the highest amount of new revenues to the City; and,

WHEREAS, the site is presently vacant and zoned CH (Highway Commercial) which allows for retail use; and

WHEREAS, a copy of the Initial Study and draft Mitigated Negative Declaration were released for public review on July 1, 1998; and

WHEREAS, the Initial Study concludes that the project will not result in any significant adverse environmental impacts with the implementation of mitigation measures in the areas of Water, Air Quality, Transportation/Circulation, and Aesthetics; and

WHEREAS, the Traffic and Transportation Commission reviewed the proposal at its meeting of June 18, 1998, and supported the internal parking and circulation layout for the project; and

WHEREAS, notice of public hearing was duly given and published; and

WHEREAS, the Planning Commission held a public hearing on July 21, 1998, at which time all persons wishing to testify in connection with said proposal were heard and said proposal was fully studied.

NOW, THEREFORE, BE IT RESOLVED, by the Planning Commission of the City of Claremont as follows:

Section A. The Planning Commission finds:

1. The site for the intended use is adequate in size and shape to accommodate the proposed retail garden center, required parking, landscaping, and access.

1998

2. The site for the proposed use relates to streets and highways properly designed to carry the type and quantity of traffic generated by the proposed use, in that the new use is estimated to generate less than 300 average daily vehicle trips. Customers and employees of the subject use will have three points available for ingress and egress; two on Foothill Boulevard and one on Andrew Drive. Furthermore, the site is located along a major arterial highway (Foothill Boulevard), which has the capacity to handle the amount of traffic reasonably expected to be generated by the proposed use.

3. The proposed use will not impair the integrity and character of the zone in which it is located or otherwise have an adverse effect on adjacent property, in that the proposed use is conditionally permitted in the CH (Highway Commercial) zoning district, and is located on a site that is intended to be developed with other commercial uses. Further, the subject site is located along a major arterial highway and proximate to other commercial uses, including two gasoline stations and a neighborhood retail development (College Center). Noise generated by the proposed garden center is expected to be minimal and will not exceed the maximum noise levels outlined in the City's Environmental Protective Standards, as measured from adjacent properties.

4. The proposed garden center use is not contrary to the General Plan, in that it will enhance the mix of non-polluting retail uses in the City, further development of the commercial site, broaden the local tax base, create employment, and benefit the citizens of Claremont by providing a new location to purchase garden supplies and equipment.

5. The proposed new uses will not endanger or otherwise constitute a menace to the public health, safety, or general welfare due to the imposition of specific conditions to minimize their impact on the surrounding community. Further, development of the property will include the addition of exterior lighting which will contribute to increased safety and visibility in the immediate area.

Section B. The Planning Commission hereby adopts the Mitigated Negative Declaration and approves Conditional Use Permit #98-C06 to allow the construction of a retail garden center, based on the findings of Section 624 of the Land Use and Development Code and subject to the following conditions:

1. This approval is valid for two years from the date of Planning Commission action. If building permits are not issued within this time frame nor a time extension granted, this approval shall expire.

2. This conditional use permit shall apply to the 1.19-acre portion of the parcel as shown on the approved site plan attached to the resolution and located within the City of Claremont, on the north side of Foothill Boulevard, east of Claremont Boulevard. The current assessor's parcel number for the entire property is 8307-003-037.

3. The retail garden center and associated improvements shall occupy approximately 1.19 acres of the subject parcel as shown on the approved site plan.

4. Prior to the issuance of grading and/or public works permits:

   a. The applicant shall submit and receive approval from the city engineer for a comprehensive grading and drainage plan prepared by a registered civil engineer in conformance with Chapter 70 of the Uniform Building Code. A preliminary soils report shall also be submitted that addresses the geology, stability of the site, and grading requirements. A grading permit shall be obtained from the City's Engineering Division. Compaction tests will be required to be submitted following grading construction.

   b. The applicant shall submit and receive approval from the city engineer for a 50-year hydrology study prepared in conformance with the standards and requirements of the Los Angeles County Flood Control District. The study shall address potential grading, drainage conveyance systems, and the alteration of existing drainage patterns. All drainage structures shall be per Los Angeles County and/or City standards. The applicant shall be responsible for implementing any requirements determined to be necessary as a result of this study.

   c. The applicant or property owner shall provide to the City a bond or cash deposit in the amount of $27,500 for street median improvements, and a bond or cash deposit in the amount of $50,000 for the installation of a traffic signal on Foothill Boulevard approximately 650 feet east of Claremont Boulevard. The improvements shall consist of modification of the existing landscaped median to provide a left-turn pocket allowing eastbound motorists to turn left into the commercial center, or make a U-turn to access the Armstrong site. If the City has not encumbered the funds for the median improvements within 24 months of the date of this approval, the City shall release the security for said improvements.

   d. The applicant shall pay all Engineering Division fees, including drainage fees, sewer connection fees, and all fees and deposits associated with permit issuance.

5. During the course of all grading and construction activity, the applicant shall employ adequate dust control measures in accordance with the Uniform Building Code, South Coast Air Quality Management District (SCAQMD), and City requirements to minimize fugitive dust.

6. Prior to the issuance of building permits:

   a. Pay all fees established by City ordinances and resolutions including, but not limited to, those set forth in the Land Use and Development Code and the Claremont Municipal Code. These fees shall include, but are not

limited to, grading, public works permit, transportation impact, public art, and fire facility fees.

b. The applicant shall submit plans and receive approval from the Architectural Commission for the architectural design of the project. The development shall be substantially consistent with, and include design elements from the ARCO/am-pm facility at 701 E. Foothill Boulevard in order for the commercial center to achieve a cohesive, coordinated appearance.

c. The applicant shall submit and receive approval from the Architectural Commission for all permanent signage. Any future sign changes, such as new signage to identify a new or additional business on the site, shall be submitted to the Architectural Commission for approval.

d. The applicant shall submit and receive approval from the Architectural Commission for a detailed landscape plan for the area to be occupied by the garden center. A minimum landscape setback of 10 feet along Foothill Boulevard and a 12-foot landscape strip on the south side of the structure shall be incorporated into the plans.

e. The applicant shall revise the site plan for review and approval by staff showing that the southeasterly corner of the outdoor sales area perimeter fence does not encroach into the Cable Airport clear zone.

f. The applicant shall ascertain and comply with all requirements of the Building and Engineering Divisions, the Los Angeles County Fire Department, and the South Coast Air Quality Management District (SCAQMD).

7. No temporary signage or advertising, such as portable, "A-frame", or inflatable signs shall be permitted, except those allowed by code. The area covered by signs attached to the inside of display windows shall not exceed 15 percent of the total display window area.

8. The site design shall include vehicular circulation access to any future development on the remainder of the parcel to the east. Temporary, asphaltic concrete (A.C.) berms, six (6) inches in height, shall be installed along the edge of the easterly north-south drive aisle to prevent vehicular traffic onto the undeveloped portion of the parcel.

9. No structures shall be constructed within the 150-foot-wide runway extension zone of Cable Airport.

10. Prior to commencement of construction within the public right-of-way adjacent to Foothill Boulevard, the applicant shall obtain an encroachment permit from the State of California Department of Transportation (Caltrans) for construction along Foothill Boulevard.

11. Any public right-of-way improvements along Foothill Boulevard, such as installation of sidewalk, curb and gutter, drive approaches, or pavement improvements shall be ascertained from Caltrans and satisfied.

12. Prior to connection to the sewer, the parcel must be annexed into Los Angeles County Sanitation District No. 21, and all applicable fees paid.

13. All existing street trees along Foothill Boulevard shall be protected and retained to the satisfaction of the Department of Community Services. If any existing street trees are damaged during construction, they shall be replaced with a species satisfactory to the Department of Community Services in a minimum 24-inch box size. The City reserves the right to require the installation of additional street trees as part of the project.

14. Prior to the issuance of a certificate of occupancy:

    a. The easterly north-south drive aisle shall be posted "Right Turn Only" at Foothill Boulevard.

    b. The applicant shall install three (3) Pinus pinea (Italian Stone Pine) street trees along the Andrew Drive frontage of the portion of the parcel to be developed at this time.

15. Prior to approval of the final site design for the remainder of the commercial center, a Foothill Boulevard access driveway shall align with the future driveway for westbound traffic to the proposed waste transfer station on the south side of Foothill Boulevard in order to allow for safe left-turn movements for both eastbound and westbound traffic.

16. To ensure compliance with the conditions of this conditional use permit, a final inspection is required from the Planning Division when work has been completed. The applicant shall inform the Planning Division and schedule an appointment for such an inspection.

17. The applicant/owner, by utilizing the benefits of this approval, shall thereby agree to defend at its sole expense any action against the City, its agents, officers and employees because of the issues of such approval. In addition, the applicant/owner shall reimburse the City et al for any court costs and attorney fees that the City et al may be required to pay as a result of such action. The City may, at its sole discretion, participate at its own expense in the defense of any such action, but such participation shall not relieve the applicant/owner of its obligation hereunder.

Section C. The Chairman shall sign this Resolution and the Secretary shall attest to the adoption thereof.

Passed, approved, and adopted this 21st day of July, 1998.

MIKI BRATT
Planning Commission Chairman

ATTEST:

RANDALL PROUT
Planning Commission Secretary

3. The retail garden center and associated improvements shall occupy approximately 1.19 acres of the subject parcel as shown on the approved site plan.

4. Prior to the issuance of grading and/or [illegible]

a. The appli[illegible] ngineer for a compre[illegible] stered civil engineer i[illegible] g Code. A preliminar[illegible] esses the geology, s[illegible] ling permit shall be o[illegible] ction tests will be required to be submitted following grading construction.

Post-it® Fax Note 7671	Date 11-18-98	# of pages ▶ 1
To Jason Keller	From Mark Vukojevic	
Co./Dept.	Co. Claremont	
Phone #	Phone # 399-5478	
Fax # 736-5292	Fax #	

b. The applicant shall submit and receive approval from the city engineer for a 50-year hydrology study prepared in conformance with the standards and requirements of the Los Angeles County Flood Control District. The study shall address potential grading, drainage conveyance systems, and the alteration of existing drainage patterns. All drainage structures shall be per Los Angeles County and/or City standards. The applicant shall be responsible for implementing any requirements determined to be necessary as a result of this study.

c. The applicant or property owner shall provide to the City a bond or cash deposit in the amount of $27,500 for street median improvements, and a bond or cash deposit in the amount of $50,000 for the installation of a traffic signal on Foothill Boulevard approximately 650 feet east of Claremont Boulevard. The improvements shall consist of modification of the existing landscaped median to provide a left-turn pocket allowing eastbound motorists to turn left into the commercial center, or make a U-turn to access the Armstrong site. If the City has not encumbered the funds for the median improvements within 24 months of the date of this approval, the City shall release the security for said improvements.

d. The applicant shall pay all Engineering Division fees, including drainage fees, sewer connection fees, and all fees and deposits associated with permit issuance.

5. During the course of all grading and construction activity, the applicant shall employ adequate dust control measures in accordance with the Uniform Building Code, South Coast Air Quality Management District (SCAQMD), and City requirements to minimize fugitive dust.

6. Prior to the issuance of building permits:

a. Pay all fees established by City ordinances and resolutions including, but not limited to, those set forth in the Land Use and Development Code and the Claremont Municipal Code. These fees shall include, but are not

Fees 735 E. Foothill Blvd.

3660
192
3852

P.W. permit $178

P.W Deposit $4450

P.W. Plan check $111

Grading $420 + 30\left(\frac{2852}{1000}\right) + ~~3081~~ 4346 = ~~$3586~~ $4851.

Deposit = 3852 x $3 = $11,556

Grading plan check

~~1926~~ 2716 + 700 = ~~$2626~~ 3416

Sewer. 4800 SF = $500 min.

Drainage. CH 3.36. 1.19 Acres.

x 4341 = $17,357

Transportation Impact. 4800 + 8960 = 13,760 X 1.14 =

$15,686

Resurfacing

Andrew - 17 x 158 = 2686 X .006 X 1.2" x $46

= $773

909 - 466 - 4369. - 466-4379

Tim White

OP - Art

Tim White -
pls. also fax
him a copy of
L.A. Co. Sanitation
District application
2:35 11/24

Exhibit "B"

The improvements shall consist of the modification of the existing landscaped median on Foothill boulevard to provide a left-turn pocket allowing eastbound motorists to turn left into the commercial center or make a U-turn to access the Armstrong site.

Included with this median modification will be the installation of a new traffic signal system to provide protective and permissive left turns into or out of the commercial center.

RECEIVED
OCT 22 1998

Columbia Group, Ltd.
9595 Wilshire Boulevard, Suite 300 · Beverly Hills, California 90212 · (310) 550-8777 · Fax (310) 550-1767

October 21, 1998

Mr. Michael Kunce
President & CEO
Armstrong Garden Centers
2200 E. Alosta, Suite 200
Glendora, CA 91740-4673

Re: Claremont, California

Dear Mike:

We wish to reconfirm the intent of our lease with you for the Garden Center at the subject location is that the driveway on the West side of your facility is to blend with the driveway into the ARCO Mini Mart, and therefore, you may remove the existing asphalt and concrete swale and to replace those removals to accomplish the blending of the access.

The lease also contemplated that you would be constructing the 30 ft. wide driveway along the East side of your facility extending from Foothill Blvd. to Andrew Drive. We confirm our consent to your grading and paving of this driveway.

All of the construction is to be done in accordance with the terms and specifications set forth in the lease.

Very truly yours,

COLUMBIA GROUP, LTD.
a California limited partnership

By: Jaywin, Inc.,
a California corporation
its General Partner

By: _____
Richard N. Newbre
its Executive Vice President

cc: Tim White
Jason Keller

K:\WP\300\RNN\CLARMCON

Mark -
Your copy.

CITY OF CLAREMONT

PUBLIC IMPROVEMENT SECURITY AGRE

1. Parties and Date.

This Agreement is made and entered into on the ____ day of _____, 1998, ("Effective Date") by and between the City of Claremont ("City") and Columbia Group, Ltd. ("Developer"). The City and Developer are sometimes individually referred to as "Party" and collectively as "Parties."

2. Recitals.

2.1 On July 21, 1998, ("Approval Date") Developer received the necessary development and land use approval, including a conditional use permit, ("Land Use Approval") from the City for the development of certain real property located within the City, a legal description of which is attached hereto as Exhibit "A" ("Property").

2.2 The laws of the State of California, the Code of the City of Claremont, and certain ordinances, resolutions, or policies of the City require Developer to make certain public improvements as a condition precedent to Developer's use of the Property as entitled under the Land Use Approval.

2.3 The City has agreed to construct the public improvements required by the Land Use Approval.

2.4 Developer has agreed to pay the sum of Seventy-Seven Thousand Five Hundred Dollars ($77,500) ("Developer's Constribution") as a contribution to the City's estimated costs associated with the construction of the public improvements required by the Land Use Approval, provided the City commences construction of such public improvements within twenty-four (24) months of the Approval Date.

2.5 Developer and City desire to enter into this Agreement to provide for the furnishing of security by Developer for the cost of construction of the public improvements.

2.6 Developer's execution of this Agreement and the provision of the security are made in consideration of the City's approval of the Land Use Approval. Developer's fulfillment of all obligations under this Agreement is a condition precedent to the effectiveness of the Land Use Approval and Developer's right to any entitlements related thereto.

1998

3. **Terms**.

3.1 **Term**. The term of this Agreement shall commence on the Effective Date and shall terminate upon the earliest to occur of the follow:

(i) Commencement of construction of the Public Improvements (defined below) by the City; or

(ii) Twenty-four (24) months from the Approval Date.

For purposes of this Agreement, the City's execution of a contract for any substantial portion of the construction of the Public Improvements shall constitute commencement of construction of the Public Improvements.

3.2 **Public Improvements**. The City shall construct, in its discretion, certain improvements required as part of the approval of the Land Use Approval, including, but not limited to, all grading, paving, medians, pathways, traffic controls, and street lights as more particularly described in Exhibit "B," attached hereto and incorporated herein by this reference ("Public Improvements"). Construction of the Public Improvements shall include any transitions and/or other incidental work deemed necessary for drainage or public safety. Developer's sole remedy for the City's failure to construct the Public Improvements within twenty-four (24) months from the Approval Date shall be termination of this Agreement.

3.3 **Payment of Public Improvements**. Developer shall pay Developer's Contribution provided the City commences construction of such Public Improvements within twenty-four (24) months of the Approval Date.

3.4 **Security for Cost of Public Improvements**. To ensure Developer's payment of Developer's Contribution , Developer shall purchase a Special Purpose Certificate of Deposit ("CD") from Wells Fargo Bank in the amount of Seventy-Seven Thousand Five Hundred Dollars ($77,500.00) ("Purchase Price") issued in the name of the City. Developer shall be designated the "depositor" on the CD and the City shall be designated the "payee." The CD shall give the City the right to redeem, collect and withdraw the full amount of the CD Purchase Price at any time to pay the Developer's Contribution . Any earnings or interest received on the CD Purchase Price shall be payable directly to Developer.

3.5 **Effect of Termination**. In the event this Agreement is terminated pursuant to Section 3.1(i), the City shall withdraw the entire CD Purchase Price in order to pay Developer's Contribution . Developer acknowledges and understands that the City shall be entitled to withdraw the entire CD Purchase Price, regardless of the actual costs of constructing and installing the Public Improvements. Nothing in this Agreement shall be construed to require the City to justify or document for the Developer the costs of constructing and installing the Public Improvements. In the event this Agreement is terminated pursuant to Section 3.1(ii), the City

shall endorse the CD and make it payable to Developer within ten (10) days of termination of this Agreement.

3.6 Authority to Enter Agreement. Each party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and bind each respective party.

3.7 Cooperation; Further Acts. The parties shall fully cooperate with one another, and shall take any additional acts or sign any additional documents as may be necessary, appropriate, or convenient to attain the purposes of this Agreement.

3.8 Amendment; Modification. No supplement, modification, or amendment of this Agreement shall be binding unless executed in writing and signed by both Parties.

3.9 Assignment or Transfer of Agreement. Developer shall not assign, hypothecate, or transfer, either directly or by operation of law, this Agreement or any interest herein without prior written consent of City.

3.10 No Third Party Beneficiaries. There are no intended third party beneficiaries of any right or obligation assumed by the Parties.

3.11 Governing Law. This Agreement shall be construed in accordance with and governed by the laws of the State of California.

3.12 Attorneys' Fees and Costs. If any legal action or other proceeding is brought in connection with this Agreement, the successful or prevailing party shall be entitled to recover reasonable attorneys' fees and other related costs, in addition to any other relief to which the party is entitled.

[Signatures on the following pages]

CITY OF CLAREMONT

By: _____
(Signature)

_____
(Print Name)

_____
(Title)

ATTEST:

By: _____
(Signature)

_____
(Print Name)
City Clerk
City of Claremont

APPROVED AS TO FORM:

By: _____
(Signature)

_____
(Print Name)
for Best Best & Krieger LLP
City Attorney
City of Claremont

DEVELOPER

COLUMBIA GROUP, LTD.
a California limited partnership

By: Jaywin, Inc.,
a California corporation
its General Partner

By: _____
Richard N. Newbre
its Executive Vice President

EXHIBIT "A"

LEGAL DESCRIPTION OF THE PROPERTY

Parcel 2 of Parcel Map No. 23719, in the City of Claremont, County of Los Angeles, State of California, as per map recorded in Book 277, Pages 28 and 29 of Maps, in the office of the County Recorder of said County.

EXHIBIT "B"

PUBLIC IMPROVEMENTS

1. Modification of the existing landscaped median on Foothill Boulevard to provide left turn pockets allowing eastbound motorists to turn left into the commercial center or execute a U-turn to access the Armstrong Garden Center site, and westbound motorists to turn left into the future development along the south side of Foothill Boulevard.

2. Installation of a new traffic signal system to provide protective and permissive left turns into and out of the commercial center and the future development on the south side of Foothill Boulevard.

WELLS FARGO BANK

Special Purpose Certificate of Deposit

Acct. No. [redacted]

Office BEVERLY HILLS MAIN Date 12/2/98 Amount $ 77,500.00

Payable to CITY OF CULVER CITY

Received from COLUMBIA GROUP, LTD.

Renewal term 6 MONTHS Maturity date 6/2/99 Interest rate 4.13 % Annual percentage yield 4.1

Interest will be computed on a 360 day year basis. Interest will be paid MONTHLY and ☒ credited to account number 4154-35-251 or ☐ paid by check.

This certificate is non-transferable. Presentation of the original certificate, signed by the payee, is required to withdraw funds. If the deposit is withdrawn before maturity, there may be an early withdrawal fee. At maturity, this deposit will automatically renew. The terms of the certificate, including the interest rate and annual percentage yield, are subject to change on the maturity date. Please refer to the Disclosure Statement for additional information about your account.

Bank Representative's Signature _____ PAYEE COPY

Member FDIC

CD IS MAINTAINED IN FINANCE VAULT

(GIVEN TO CARRIE CORDER ON 12-7-98)

CITY OF CLAREMONT

MEMORANDUM

7-21 2000

TO Loretta FROM CRAIG

SUBJECT ARMSTRONG CUP.

We need to reimburse the $77,500 that was collected as part of the Armstrong C.U.P. Steve has address if needed. Believe you worked on this one.

THX.

CITY OF CLAREMONT

Memo

To: Carrie Corder, Finance Manager

From: Mark Vukojevic, Assistant Civil Engineer MV.

CC: Steve Lustro, Senior Planner, Craig Bradshaw, City Engineer

Date: 07/25/00

Re: Release of security deposit for public improvements on Foothill Blvd for the Armstrong Nursery Center at 735 E. Foothill. 2000

Per the conditions of approval and Public Improvement Security Agreement, the developer of the Armstrong Nursery at 735 E. Foothill Blvd, the Columbia Group, Ltd. has deposited a Special Purpose Certificate of Deposit in the amount of $77,500 issued to the City of Claremont.

Per the project conditions, this CD was to be released back to the owner if the construction of the improvements had not begun 24 months after the Approval Date, July 21, 1998.

Since, no construction or improvements have been planned or constructed, the Certificate of Deposit should be released back to the owner.

Please release the CD and let me know if there is anything you need me to do.

Thanks!

No. 2119 -G

Application for
GRADING/ON-SITE IMPROVEMENT PERMIT
CITY OF CLAREMONT
207 Harvard Avenue
Claremont, California 91711

Engineering Division
714/399-5465

REFUND DEPOSIT TO:	VALIDATION
NAME:	
ADDRESS:	
CITY:	

JOB LOCATION 735 E. Foothill Armstrong Garden

LOT NUMBER(S) _____ TRACT/PARCEL NUMBER _____

OWNER CROWE/BEERS ASSOC. CONTRACTOR _____

ADDRESS 1700 HAMNER STE/04 ADDRESS _____

CITY NORCO CITY _____

PHONE 909-736-2040 PHONE _____

DESCRIPTION OF WORK

GRADING PLAN CHECK DEPOSIT

CUBIC YARDS HANDLED	CHECK IF SUPERVISED GRADING ☐

I hereby acknowledge that I have read this application and state that this is correct and agree to comply with the requirements of this permit, all city ordinances, standards, specifications, state laws, the **Standard Specifications for Public Works Construction,** latest edition, and the **Uniform Building Code,** latest edition.

Signature _____ Company _____

Authorized By Mark Vukojevic Date 10-22-98

This permit becomes a grading/on-site improvement permit when properly filled out, signed, approved, and validated. This permit becomes null and void one (1) year from date of issuance.

INSPECTION IS REQUIRED - 24 Hour notice must be given to the Engineering Division.

10/ 1998

COMMENTS:

10/22/98 12:33PM 000#6555 A

State Lic. & Classif.	City Lic #

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE _____ DATE _____

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reasons: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code.)

Policy No. _____ Company _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less).

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Sign _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Workers Compensation provision of the Labor Code, you must forthwith comply with such provision or this permit shall be deemed revoked.

DWG. NO.	FILE NO. 30002119	
Fee	Account No.	Amount
PUBLIC WORK PERM		$100.00
CHECK CHANGE		$100.00
Plancheck	110-3000-4602	$100.00
	Subtotal	$100.00
Refundable Deposits		
CASH DEPOSIT (guaranteeing improvements)		
	Total	$100.00
Non-Cash Deposits		Amount
Bond No.		
C.D. No.		
Letter of Credit No.		

APPLICANT - White FINANCE - Blue FILE - Pink INSPECTOR - Card

PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT
ARMSTRONG GARDEN CENTER
735 EAST FOOTHILL BOULEVARD
CLAREMONT, LOS ANGELES COUNTY, CALIFORNIA

FOR:
Armstrong Garden Center, Inc.
c/o Crouse/Beers and Associates, Inc.
1700 Hamner Avenue, Suite 104
Norco, California 91760

BY:
CONSOLIDATED GEOSCIENCE, INC.
PROJECT NO. 98-154-14-01
NOVEMBER 1998

11/1998

Project No: 98-154-14-01
November 3, 1998

Armstrong Garden Center, Inc.
c/o Crouse/Beers and Associates
1700 Hamner Avenue, Suite 104
Norco, California 91760

ATTENTION: Mr. Jason Keller

SUBJECT: PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT
Armstrong Garden Center
735 East Foothill Boulevard
Claremont, California

REFERENCES: See Appendix A

Dear Mr. Keller:

1. INTRODUCTION

1.1 Purpose

a. In accordance with your request, we are presenting this report of our preliminary geotechnical investigation for the proposed Armstrong Garden Center at the above subject location.

b. The purpose of this geotechnical investigation was to obtain information on the subsurface conditions at the subject site and to develop preliminary geotechnical criteria and recommendations for the design and construction of the proposed development.

1.2 Proposed Development

a. It is our understanding that the proposed development will consist of the construction of a single story commercial building measuring approximately 60 x 80 feet in plan area, an approximately 3.5 to 5 feet high retaining wall, asphaltic concrete paved parking area, exterior concrete flatwork, wooden trellis structures, and associated peripheral improvements. The proposed structure is anticipated to consist of wood-framed wall construction on a conventional foundation consisting of continuous and spread footings and a concrete slab-on-grade floor.

b. No information is available regarding the structural loading for the proposed development. It is assumed that maximum structural loads will not exceed 3000 pounds per linear foot for continuous walls and 30 kips for isolated column footings.

c. For purposes of this investigation, we have assumed that the planned structure will be constructed at or near existing site grades and will not require any major grade cuts or new fill placement.

1.3 Scope of Services

The scope of services provided during the course of our investigation included:

a. Review of pertinent published and unpublished geologic literature, maps, and previous geotechnical/geologic reports pertinent to the site, available in our existing files and those provided by you.

b. Field exploration consisting of:

   i. Excavating 6 trenches to a maximum depth of 17 ± feet in the proposed development area.

   ii. Geologic reconnaissance on the subject property. The reconnaissance utilized existing topographic base maps of the property, which included the 7.5-minute quadrangle.

c. Logging and sampling of the borings including the collection of bulk soil samples for laboratory testing.

d. Laboratory testing on selected soil samples, consisting of direct shear, consolidation, soluble sulfate, R-Value, and in-situ moisture content tests.

e. Geotechnical/geologic analyses of field and laboratory data.

f. Preparation of this report presenting our findings, conclusions, and recommendations.

1.4 Authorization

This investigation was performed in accordance with our Proposal dated October 8, 1998 and your written authorization of October 8, 1998.

2. FIELD EXPLORATION PROGRAM

A description of the field exploration procedures, the Key to Logs, and the Log of Trenches T-1 through T-6 are presented in Appendix B. The trench locations are shown on the Trench Location Plan, Figure B-7.

3. LABORATORY TESTING

Laboratory testing was performed on bulk samples considered representative of the subsurface conditions. Details of the laboratory testing program and test results are presented in Appendix C.

4. SITE DESCRIPTION

4.1 Location

The subject property is located at 735 East Foothill Boulevard in the City of Claremont, Los Angeles County, California. The site location is shown on Figure 1, Location Map.

4.2 Surface Conditions

a. Topographic map coverage of the site and vicinity can be found on the United States Geological Survey (USGS) 7.5 minute, Ontario, California Quadrangle, 1967 photorevised in 1981. The site location can be described as a portion of the SE 1/4 of the SE 1/4 of Section 3, Township 1 South, Range 8 West. According to the map coverage, the elevation of the subject property is approximately 1340 feet above Mean Sea Level, (MSL).

b. Local topography consists of an alluvial fan which descends from the southern flanks of the San Gabriel Mountains.

c. Surface drainage on the subject lot consists of sheetflow over an unimproved ground surface. Surface drainage is generally directed from the north end of the subject lot toward Foothill Boulevard to the south.

d. The subject property consists of an undeveloped, vacant lot bounded by Andrew Drive on the north, Foothill Boulevard on the south, an existing Arco gas station on the west, and vacant property to the east.

e. Vegetation in the site area consists of weeds, low shrubs and bushes.

Crouse/Beers & Associates, Inc.
Engineering • Surveying • Planning • Construction Management

HYDROLOGY STUDY
ARMSTRONG GARDEN CENTER
735 E. FOOTHILL BLVD.
CLAREMONT, CA

November 24, 1998

CLIENT:
ARMSTRONG GARDEN CENTER
2200 EAST ALOSTA AVENUE, SUITE #200
GLENDORA, CA 91740

PREPARED BY:
CROUSE/BEERS AND ASSOCIATES
1700 HAMNER AVENUE, SUITE #104
NORCO, CA 91760

Robert M. Beers 11-24-98
ROBERT M. BEERS RCE 39405 EXP. 12/31/01 DATE

REGISTERED PROFESSIONAL ENGINEER
ROBERT M. BEERS
No. C-39405
Exp. 12/31/01
CIVIL
STATE OF CALIFORNIA

1700 Hamner Ave., Suite 104
Norco, CA 91760-2957
(909) 736-2040
FAX: (909) 736-5292

11/1998

HYDROLOGY STUDY 11-24-98

PROJECT: ARMSTRONG GARDEN CENTER 735 E. FOOTHILL CLAREMONT, CA

SUBJECT: SMALL DEVELOPED AREA METHOD
(PER LOS ANGELES COUNTY DEPT. PUBLIC WORKS HYDROLOGY MAN.)

CALCULATED BY: JEK

A = 1.4 ACRES
SOIL TYPE: #15
RAINFALL ZONE: K
RAINFALL FREQUENCY: 50 YEARS
} (SEE ATTACHED LACDPW HYDROLOGIC MAP)

RUNOFF COEFFICIENT GROUP: B (FROM ATTACHED RUNOFF COEF. GROUP TABLE)

PEAK CAPITAL FLOOD Q AT POINT A ON ATTACHED MAP

FOR 1.0 ACRES, Q_{CAP} = 4.0 CFS
FOR 1.5 ACRES, Q_{CAP} = 5.8 CFS
INTERPOLATING TO 1.4 ACRES:

$$Q_{CAP} = 4.0 + \frac{(1.4-1.0)}{(1.5-1.0)}(5.8-4.0)$$

$$Q_{CAP} = 5.4 \text{ CFS}$$

PEAK URBAN FLOOD Q AT POINT A:

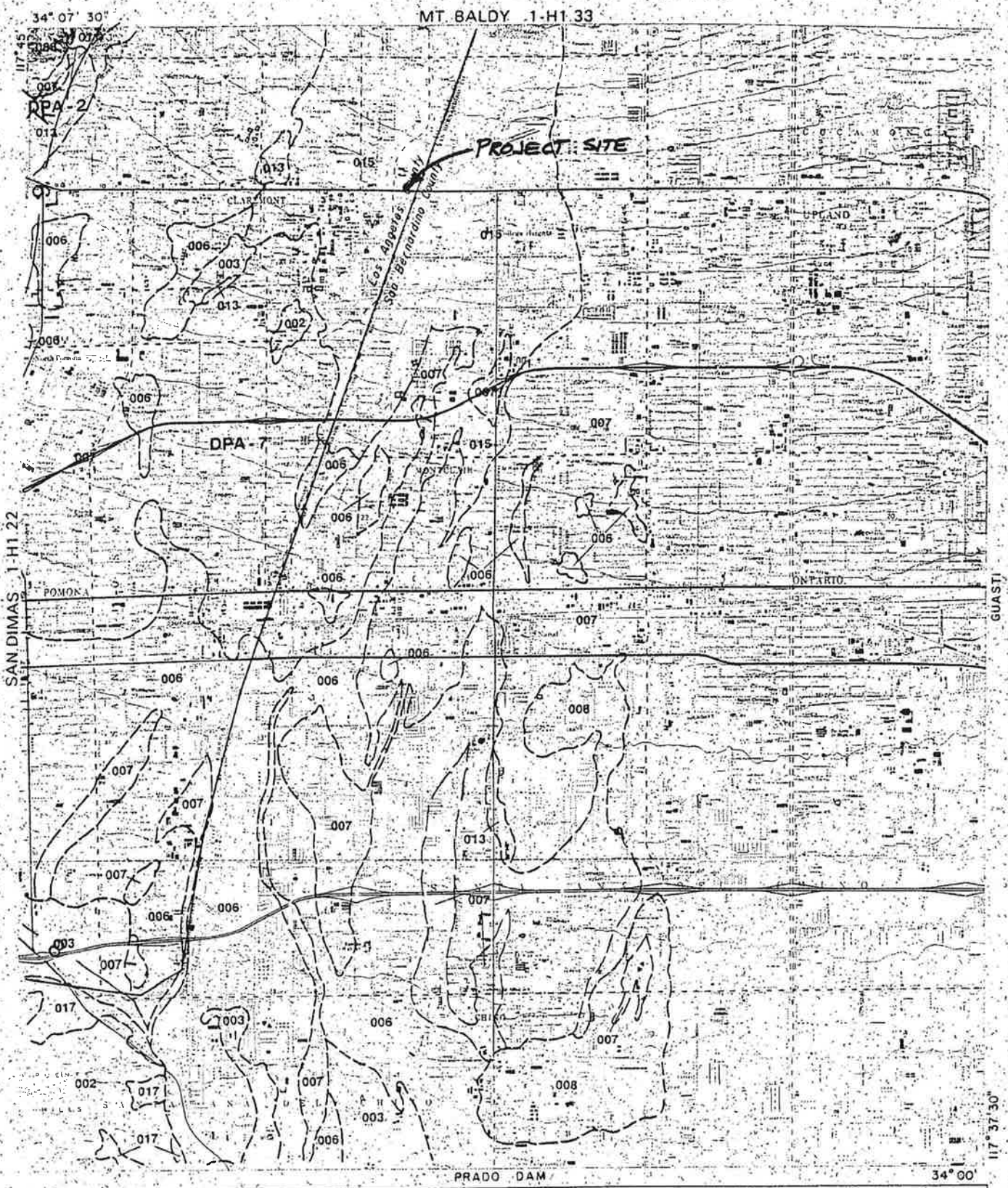
$$Q_{URB} = 0.855\, Q_{CAP} = 0.855(5.4)$$
$$Q_{URB} = 4.6 \text{ CFS}$$

PEAK PIPE (CULVERT) Q (FROM 10 YEAR FREQUENCY RAINFALL AT POINT A:

$$Q_{CULVERT} = 0.696\, Q_{CAP} = 0.696(5.4)$$

$$\boxed{Q_{CULVERT} = 3.8 \text{ CFS}}$$

- SEE ATTACHED PARKWAY CULVERT CAPACITY CALCULATION TO CHECK CAPACITY OF EXISTING PARKWAY CULVERT.


34° 07' 30"
MT. BALDY 1-H1 33
117° 45'
DPA-2
PROJECT SITE
CLAREMONT
UPLAND
Los Angeles Co.
San Bernardino County
DPA-7
POMONA
ONTARIO
SAN DIMAS 1-H1 22
GUASTI
PRADO DAM
34° 00'
117° 37' 30"
LEGEND
SOIL CLASSIFICATION AREA
DEBRIS POTENTIAL AREA
RAINFALL ZONE
12 50-YEAR ISOHYET (MAX 24-HOUR AMOUNT)
LACDPW
ONTARIO
1981
hydrologic map
0 FEET 5000

Runoff Coefficient Groups																	
RC	G	RC	G	RC	G	RC	G	RC	G	RC	G	RC	G	RC	G	RC	G
1	-	21	B	41	B	61	B	81	A	101	B	121	B	141	A	161	B
2	A	22	A	42	A	62	A	82	A	102	A	122	B	142	A	162	A
3	B	23	A	43	B	63	A	83	-	103	A	123	A	143	B	163	A
4	A	24	B	44	A	64	A	84	B	104	A	124	B	144	B	164	A
5	A	25	A	45	B	65	A	85	B	105	A	125	B	145	B	165	A
6	A	26	B	46	B	66	A	86	B	106	B	126	B	146	A	166	B
7	A	27	B	47	A	67	B	87	B	107	A	127	B	147	A	167	A
8	A	28	B	48	A	68	A	88	B	108	A	128	B	148	B	168	B
9	A	29	A	49	A	69	B	89	A	109	A	129	B	149	B	169	B
10	B	30	B	50	A	70	A	90	A	110	A	130	B	150	B	170	B
11	A	31	B	51	A	71	A	91	A	111	A	131	B	151	A	171	B
12	A	32	A	52	B	72	A	92	A	112	A	132	B	152	A	172	B
13	A	33	A	53	B	73	A	93	A	113	A	133	A	153	B		
14	A	34	A	54	A	74	B	94	A	114	A	134	B	154	A		
15	B	35	B	55	A	75	B	95	A	115	A	135	A	155	A		
16	A	36	A	56	A	76	B	96	B	116	B	136	B	156	A		
17	A	37	B	57	B	77	A	97	A	117	A	137	A	157	B		
18	B	38	A	58	A	78	B	98	A	118	A	138	B	158	B		
19	B	39	A	59	A	79	A	99	A	119	B	139	A	159	A		
20	B	40	A	60	B	80	A	100	A	120	A	140	A	160	B		

RC = Runoff Coefficient Curve Number
G = Group Letter (See Pages 2 & 3)

NOT for use for Areas Greater than 10 Acres
***

Los Angeles County
Department of Public Works

CAPITAL FLOOD Q'S FOR SMALL DEVELOPED DRAINAGE AREAS
-
RUNOFF COEFFICIENT GROUP DEFINITION

A = 1.4 Ac
Q = 5.4 CFS →

Area (Acres)	Capital Flood Q's by Rainfall Zone: I	J	K	L	M
0.5	1.8	1.4	2.1	2.6	3.0
1.0	3.3	2.6	4.0	4.9	5.7
1.5	4.8	3.7	5.8	7.1	8.2
2.0	6.2	4.9	7.6	9.2	11.0
2.5	7.6	6.0	9.4	11.0	13.0
3.0	8.9	7.0	11.0	13.0	15.0
3.5	10.0	8.1	13.0	15.0	18.0
4.0	12.0	9.2	14.0	17.0	20.0
4.5	13.0	10.0	16.0	19.0	22.0
5.0	14.0	11.0	18.0	21.0	24.0
5.5	15.0	12.0	19.0	23.0	27.0
6.0	17.0	13.0	21.0	25.0	29.0
6.5	18.0	14.0	23.0	27.0	31.0
7.0	19.0	15.0	24.0	29.0	33.0
7.5	20.0	16.0	26.0	31.0	35.0
8.0	21.0	17.0	27.0	33.0	37.0
8.5	23.0	18.0	29.0	35.0	40.0
9.0	24.0	19.0	30.0	36.0	42.0
9.5	25.0	20.0	32.0	38.0	44.0
10.0	26.0	21.0	34.0	40.0	46.0

NOT for use for Areas Greater Than 10 Acres.

QAREA3.TAB

Flood Level Adjustment	
Flood Level	Factor
10 Yrs.	0.696
Urban	0.855

To Adjust from a Capital Flood to a 10-Year or Urban Flood, Multiply the Table Q by the Factor.

Los Angeles County
Department of Public Works

CAPITAL FLOOD Q'S FOR SMALL DEVELOPED DRAINAGE AREAS
–
RUNOFF COEFFICIENT GROUP B

Parkway Culvert Calculation

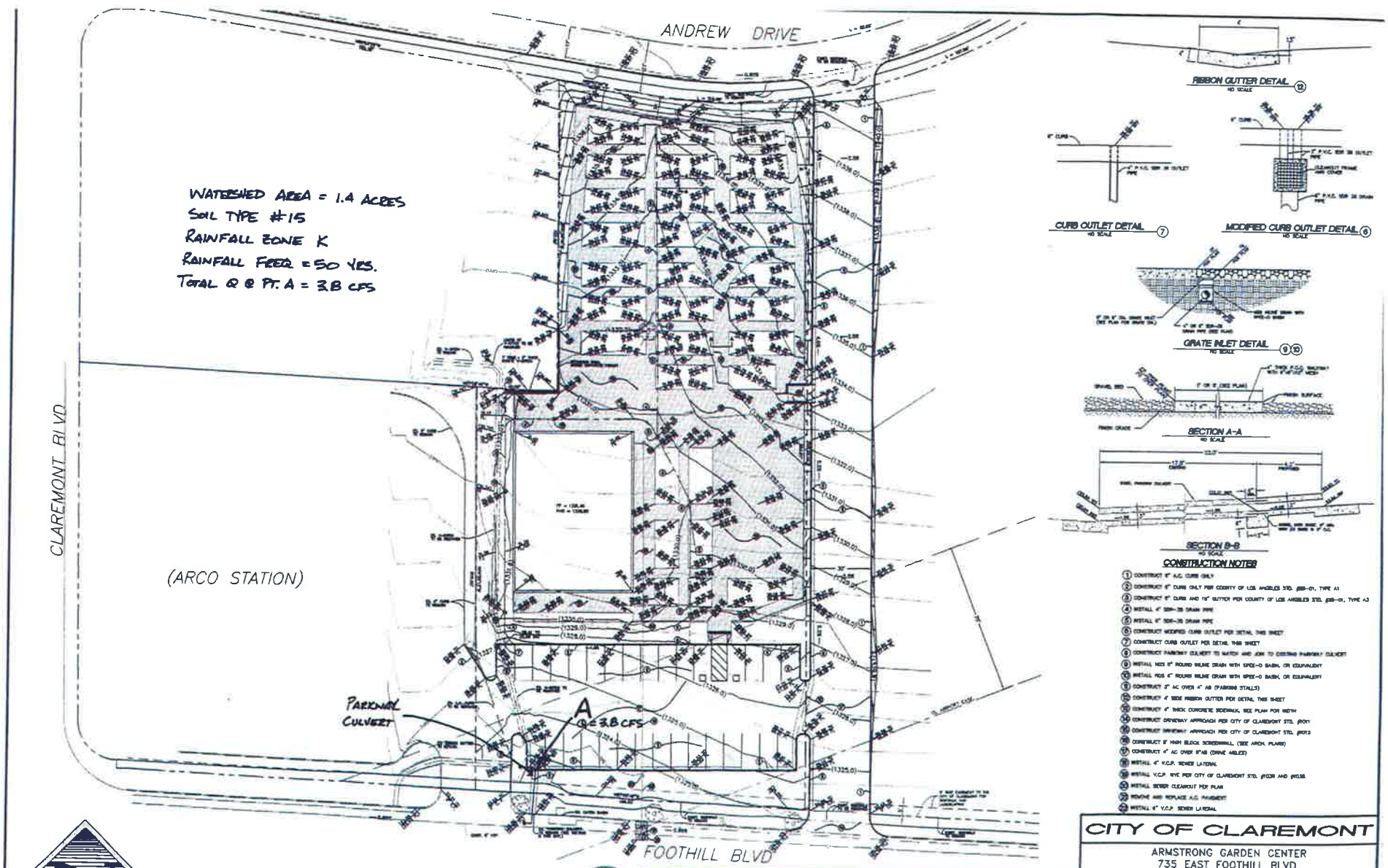
Parkway Culvert Sizing Calculation - Stream B	
depth=	0.330
width=	2.750
a=	0.908
P=	6.160
R=	0.147
n=	0.013
K=	28.936

Capacity at a given slope:	
Slope (%)	Q (cfs)
2.27	4.36

$$Q = \frac{1.486}{n} AR_H^{2/3} S_f^{1/2}$$

CAPACITY OF EXISTING PARKWAY CULVERT = 4.36 CFS > 3.8 CFS (FROM HYDROLOGY STUDY)

THEREFORE, EXISTING PARKWAY CULVERT O.K.


ANDREW DRIVE
CLAREMONT BLVD
FOOTHILL BLVD
(ARCO STATION)
WATERSHED AREA = 1.4 ACRES
SOIL TYPE #15
RAINFALL ZONE K
RAINFALL FREQ = 50 YRS.
TOTAL Q @ PT. A = 3.8 CFS
PARKWAY CULVERT
A
Q = 3.8 CFS
RIBBON GUTTER DETAIL 12
CURB OUTLET DETAIL 7
MODIFIED CURB OUTLET DETAIL 6
GRATE INLET DETAIL 9 10
SECTION A-A
SECTION B-B
CONSTRUCTION NOTES
SCALE 1" = 20'
CITY OF CLAREMONT
ARMSTRONG GARDEN CENTER
735 EAST FOOTHILL BLVD.
CLAREMONT, CA
Crouse/Beers & Associates, Inc.
G-9839
2 of 3

No. 2123 -G

Application for
GRADING/ON-SITE IMPROVEMENT PERMIT
CITY OF CLAREMONT
207 Harvard Avenue
Claremont, California 91711

Engineering Division
714/399-5465

JOB LOCATION 735 E. FOOTHILL BLVD.

LOT NUMBER(S) _____ TRACT/PARCEL NUMBER _____

OWNER Armstrong Garden. CONTRACTOR SIMAC Const.

ADDRESS 2200 E. Alosta st. 200 ADDRESS 901 Dove St. Suite 145

CITY Glendora, CA 91740 CITY Newport Beach, 92660

PHONE (626) 914-1091 PHONE 949-440-3005

REFUND DEPOSIT TO: NAME: Armstrong Garden ADDRESS: 2200 E. Alosta Suite 200 CITY: Glendora, CA 91740-4673

VALIDATION

DESCRIPTION OF WORK

GRADING AND ONSITE IMPROVEMENTS PER PLAN G-9839

CUBIC YARDS HANDLED	CHECK IF SUPERVISED GRADING
3852	☑

I hereby acknowledge that I have read this application and state that this is correct and agree to comply with the requirements of this permit, all city ordinances, standards, specifications; state laws, the **Standard Specifications for Public Works Construction,** latest edition, and the **Uniform Building Code,** latest edition.

Signature _____ Company SIMAC CONST INC.

Authorized By Mark Yahyaian Date 12-1-98

This permit becomes a grading/on-site improvement permit when properly filled out, signed, approved, and validated. This permit becomes null and void one (1) year from date of issuance.

INSPECTION IS REQUIRED - 24 Hour notice must be given to the Engineering Division.

COMMENTS: CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES

$100 CREDIT INCLUDED IN PLAN CHECK FEE

12/01/98 10:47AM 000#7463 A

H0000000000002123
PUBLIC WORK PERM $19723.00
XXXTOTAL $19723.00
CHECK $19723.00
$0.00

State Lic. & Classif.	City Lic #
486058	14390

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE _____ DATE 12-1-98

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reasons:(Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractors(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code.)

Policy No. _____ Company CAU INSURANCE

☑ Copy is filed with the city. ☐ Certified copy is hereby furnished.

C 40363737 **CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE**

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less).

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Sign _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Workers Compensation provision of the Labor Code, you must forthwith comply with such provision or this permit shall be deemed revoked.

DWG. NO. CHANGE FILE NO.

Fee	Account No.	Amount
GRADING PLAN CHECK	110-306-0-4602	$ 3,316
GRADING PERMIT	110-306-0-4235	4,851
	Subtotal	8,167
Refundable Deposits		
CASH DEPOSIT (guaranteeing improvements)	110-231	$11,556
	Total	19,723
Non-Cash Deposits		**Amount**
Bond No.		
C.D. No.		
Letter of Credit No.		

1998

APPLICANT - White FINANCE - Blue FILE - Pink INSPECTOR - Card

3631

Application for
PUBLIC WORKS CONSTRUCTION PERMIT

CITY OF CLAREMONT
207 Harvard Avenue
Claremont, California 91711

Engineering Division
(909) 399-5465

REFUND DEPOSIT TO:
NAME: Armstrong Garden
ADDRESS: 2200 E. Alosta Suite 200
CITY: Glendora, CA 91740-4673

VALIDATION

JOB LOCATION 735 E. Foothill Blvd.

OWNER Armstrong Garden CONTRACTOR Simoc Const.

ADDRESS 2200 E. Alosta Ave st.200 ADDRESS 901 Dove St. Suite 145

CITY Glendora, CA 91740 CITY Newport Beach 92660

PHONE (626) 914-1091 PHONE 949-440-3003

DESCRIPTION OF WORK

Installation of new drive approach on Foothill and Andrew and sewer connection on Foothill.

I hereby acknowledge that I have read this application and state that this is correct and agree to comply with the requirements of this permit, all city ordinances, standards, specifications, state laws, and the **Standard Specifications for Public Works Construction,** latest edition.

Signature _____ Company Simoc Const. Inc.

Authorized By Mah Vahgini Date 12-1-98.

This permit becomes a public works construction permit when properly filled out, signed, approved, and validated. This permit becomes null and void ninety (90) days from date of issuance.

INSPECTION IS REQUIRED—24-Hour notice must be given to the Engineering Division—(909) 399-5481.

12/01/98 10:47AM 00007462 A

COMMENTS:

SEWER FEE TO COUNTY PAID 11-25-98

CONTRACTOR MUST OBTAIN CALTRANS PERMIT FOR WORK

OWNER TO PAY $50,000 AND $27,500 FOR SIGNAL AND MEDIAN IMPROVEMENTS.

00000000000003631
PUBLIC WORK PERM $38826.0
CHECK $38826.0
$0.0

State Lic. & Classif. 486058 | City Lic. # 14390

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE _____ DATE 12/1/98

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reasons: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B. & P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code.)

Policy No. _____ Company CRU INSI

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

C-40363737 **CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE**

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less).

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Date _____ Sign _____

NOTICE TO APPLICANT: If after making this Certificate of Exemption you should become subject to the Workers Compensation provision of the Labor Code, you must forthwith comply with such provision or this permit shall be deemed revoked.

DWG. NO.	FILE NO.	
Fee	Account No.	Amount
Public Works	110-306-0-4230	# 178
P.W Plan check.	110-306-0-4613	111
Sewer connection.	311-306-0-4616	500
Drainage	123-306-0-4640	17,357
Resurfacing	110-306-0-4605	773
Transportation	140-306-0-4631	15,357
	Subtotal	34,276
Refundable Deposits		
Public Works Deposit	110-231	4,550
	Total	38,826
Non-Cash Deposits		Amount
Bond No.		
C.D. No.		
Letter of Credit No.		

1998

AMERICAN BUSINESS FORMS

WHITE - Applicant BLUE - Finance PINK - File CARD - Inspector

ection Request Line
(909) 399-5372

Application for Building Permit

912666 | PLAN CHECK # 2429

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: NEW RETAIL BUILDING
PLAN CHECK ONLY
UNCONDITIONED NURSERY

Type of Const.	Occ. Group	Use Zone	Fire Zone
			3

Tract No.	Lot No.	APN

Setback F S L R | Review # | Date

Building Address: 735 E. FOOTHILL BL.
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ACOSTA AV. #200
City: GLENDORA Zip: 91740 Tel. 626 914-1091
Contractor: SIMAC CONSTRUCTION
Address: 13938 BERNARDO CTR. DR.
City: SAN DIEGO Zip: 92127 Tel. 619 674-9880
State Lic. & Classif. City Lic. #
Arch. Engr., Designer: OP-ART (TIM WHITE)
Address: 7803 EMERY PL Tel. 909 466-4369
City: RANCHO C. Zip: 91730 State Lic.#

CONSTRUCTION ESTIMATE

1ST FL.	4800 SQ. FT. @	36.50	$175200 -
2ND FL.	SQ. FT. @		
POR.	SQ. FT. @		
GAR.	SQ. FT. @		
CAR P.	SQ. FT. @		
WALL	L.F. @		
A/C F=4800	SQ. FT. @	1.60	7680 -
ROOF	SQ. FT. @		
POOL	SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION			$182880 -

NOTE: Not to be used as property tax valuation

ISSUANCE	$ 19 00
CONST. FEE	$
TOTAL CONST. FEE	$

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

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☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code)

Policy No. _____ Company _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)
I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civil Code)

Lender's Name _____

Lender's Address _____

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD	
APPLIANCE			DRYER	
AIR CONDITIONER			B.T.U.	
HEATING SYSTEM			B.T.U.	
MECH. PLAN CHECK FEE				
ISSUANCE FEE				$ 19 00
			TOTAL MECH. FEE	$

NO.	ELECTRICAL FEES		NO.	PLUMBING FEES	
UNITS				SQ.FT. @ .05	
	TIMER			YARD SPKLR SYSTEM	
	MOBILEHOME SVC.			GAS PIPING	
	POWER OUTLET			HOUSE SEWER	
	MOTOR HP			DRAINAGE PIPING	
	POOL/SPA			DRINKING FOUNTAIN	
	FIXTURES			URINAL	
	OUTLETS			WATER PIPING	
	SWITCHES			FLOOR DRAIN	
				POOL/SPA	
	SIGN			WASHER (AUTO) (DISH)	
				GARBAGE DISPOSAL	
				LAUNDRY TRAY	
	TEMP. USE SERV.			KITCHEN SINK	
	POLE TEMP/PERM			WATER CLOSET	
	SUB-POLES			LAVATORY	
	AMP. SERVICE			SHOWER	
	SQ. FT. @ C			BATH TUB	
	SQ. FT. @ C			WATER HEATER	
	SQ. FT. RESID @ .05			SEWAGE DISPOSAL	
	SQ. FT. GAR. @ .01			PLAN CHECK	
	PLAN CHECK				
	ISSUANCE FEE	$ 19 00		ISSUANCE FEE	$ 19 00
	TOTAL ELEC. FEE	$		TOTAL PLUMB. FEE	$

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE		SUB-TOTAL
PLAN CHECK	**ADD'L PLAN CK.**	**PARKLAND FEE**	**FIRE FEE**	**UGD UTILITY FEE**	
1237.28					
SMI	**MICRO FEE**	**TRANSPORTATION FEE**		**TOTAL DUE**	
				$ 1237.28	

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant _____ Date 9/18/98

Mailing Address _____

City, State, Zip _____

Bldg. Costy Date 9-18-98
Engr. _____ Date _____
Plan _____ Date _____

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas ____ Electric ____ Sch. Dist ____ San Fee ____
Finaled By ____ Date ____
C/O Issued ____ Gas Co ____ Elect. Co. ____

1998

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422

CHARLES W. CARRY
Chief Engineer and General Manager

Counter Hours: 7:00 a.m. - 4:00 p.m. Mon. - Thurs.
7:00 a.m. - 3:00 p.m. Fri.

Account No.:	0398263
District No.:	21

SEWERAGE SYSTEM CONNECTION FEE

Date: November 25, 1998

Property Owner: COLUMBIA GROUP LTD.

Address of Property: 735 E FOOTHILL BOULEVARD
CLAREMONT, CA 91711

Thomas Guide Page:

Contact: TIMOTHY F. WHITE

Phone: 909-466-4369

Mailing Address: 7803 EMERY PLACE
RANCHO CUCAMONGA, CA 91730

County Assessor Map Book, Page, and Parcel Number: 8307-003-037

Structure is Proposed.

User Category and Units of Usage:

Category: 19A

Number of Units:

Square Footage: 4,800

CONNECTION FEE CALCULATION

4.80	X	$129.00	=	$619.20
Number of Units of Usage		Connection Fee Per Unit of Usage		Connection Fee

COMMENTS:

A-21-661

$619.20
Connection Fee Due

1998

Fee Payment Received From:
ARMSTRONG GARDEN CENTERS, INC.
Amount: $619.20 Ck. No.: 05293
D.C.:

Processed by: RG
Approved by:
Date: November 25, 1998

APPLICANT COPY

SANITATION DISTRICTS
OF LOS ANGELES COUNTY
APPROVED
CHARLES W. CARRY
CHIEF ENGINEER & GEN. MGR.

VALID ONLY WHEN STAMPED

Recycled Paper

OPERATION	DATE	INSPECTOR
BUILDING APPROVALS		
Set Back		
Ftgs & Frms		
Reinforcement		
Slab Grade		
Roof Deck/Trusses		
Shear Nailing		
Hold Downs		
Framing		
Exterior Lath		
Interior Lath		
Drywall		
Throat/Damper		
Fireplace P/L		
Fireplace T/O		
Pregunite - Pool		
Fence & Gate - Pool		
INSULATION Thick "R" Value		
Walls		
Ceiling		
Floor		
Block Wall Footings		
Bond Beam		
Grout		
Final		
PLUMBING APPROVALS		
Ground Plumbing		
UG Water Line		
Septic/Sewer		
Rough Plumbing		
Gas Line/Test		
Water Service		
Vents		
Water Heater		
Water Softener		
Grease Traps		
Clarifier		
Water Piping Test		
Final		
ELECTRICAL APPROVALS		
UG Electric		
UFR Ground		
Temporary Power Pole		
Rough Electrical		
Electrical Service		
Pool Electrical		
Rough Conduit		
Final		

OPERATION	DATE	INSPECTOR
MECHANICAL APPROVALS		
Plenums/Ducts		
Combustion Air		
Air Conditioning		
FAU		
Ventilation System		
FAU Compartment		
Inlets/Outlets		
Compressor		
Appl. Clearance		
Commercial Hood		
Fire Dampers		
Final		
FIRE RATED ASSEMBLIES		
Area Sep. Walls		
Rated Corridors		
Doors		
Openings		
Fire Alarms		
Occupancy Separation		
Stair Enclosure		
Smoke Detectors		
EXTINGUISHERS		
Fire Extinguishers		
Auto Sprinklers		
Kitchen Hood Ext.		
MISCELLANEOUS		
Temp. Toilet Facility		
Construction Trailers		

ADDITIONAL INFORMATION

* 12/16/98 Not Ready J.K.

(1) SCE release ok.

(2.) Need ground rod at Meter location and pound down grnd rod at sub-panel

12/22/98

STREET NAME _____

PERMIT NUMBER _____

1998

CONSOLIDATED GEOSCIENCE, INC.
SITE ASSESSMENTS · FOUNDATION ENGINEERING · CONSTRUCTION MONITORING

Project No: 98-154-13-01
December 3, 1998

Armstrong Garden Center, Inc.
c/o Crouse/Beers and Associates
1700 Hamner Avenue, Suite 104
Norco, California 91760

ATTENTION: Mr. Jason Keller

SUBJECT: ADDENDUM TO PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT
Armstrong Garden Center, Newport Beach Facility
1500 East Pacific Coast Highway
Newport Beach, California

REFERENCE: Consolidated Geoscience, Inc., "Preliminary Geotechnical Investigation Report, Armstrong Garden Center, 1500 East Pacific Coast Highway, Newport Beach, Orange County, Caifornia", Project No.: 98-154-13-01, dated November 13, 1998.

Dear Mr. Keller:

Presented below are the results of additional sulfate testing performed on a sample of the near surface soils at the subject site. The soluble sulfate content was determined in accordance with California Standard No. 417.

SOLUBLE SULFATE TEST RESULTS
(California 417)

Test Location	Soil Type	Sulfate Content (%)	UBC Classification
B-3 @ 0-3 feet	Silty Clay	0.3078	Severe

2651 SATURN STREET · BREA, CALIFORNIA · 92821 · TEL: (714) 996 - 5234 · FAX: (714) 996-9524

Laboratory test results presented in our referenced report and this addendum indicate a sulfate content of 0.1074 % and 0.3078 % for the tested samples. Soils with sulfate concentrations between 0.20% (2000 ppm) and 2.0% (20,000 ppm) are generally reported to have a severe corrosive effect on concrete as defined in Table 19-A-3 of the UBC (1994 edition). It is our opinion that Type V Portland cement should be used for concrete in contact with site soils. A maximum water-cement ratio of 0.45 should be considered, subject to the approval of the Project Structural Engineer.

The recommendations provided herein shall supercede that provided in Section 6.6 of our referenced report.

It is a pleasure being associated with you on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office.

Sincerely,

CONSOLIDATED GEOSCIENCE, INC.

REGISTERED PROFESSIONAL ENGINEER
DANIEL J. MORIKAWA
No. C049453
Exp. 9-30-00
STATE OF CALIFORNIA

Trevor E. Myers
Project Engineer

Daniel J. Morikawa, P.E.
Senior Project Manager
C.E. 49453
Expires 9/30/00

Distribution: Addressee (3 copies)
Mr. Tim White, Op-Art (1 copy)

Crouse/Beers & Associates, Inc.
Engineering • Surveying • Planning • Construction Management

DATE: December 22, 1998

City of Claremont
Engineering Department
207 Harvard Ave.
Claremont, CA 91711-0880

Reference Project: Armstrong Garden Center
735 East Foothill Blvd.

Subject: Civil Engineer's Certification of Building Pad Rough Grade

Attention: Mark Vukojevich

I hereby approve the building pad rough grading for the referenced project in accordance with Chapter A33, Uniform Building Code, 1994 Edition. This letter is to advise you that the rough grading has been accomplished as to the establishment of line, grade, drainage, and erosion control, in accordance with the approved Precise Grading Plan dated 11/24/98.

The building pad is suitable for building construction as related to the preceding items, and no significant field changes were made from the approved Precise Grading Plan.

CIVIL ENGINEER: Douglas N. Crouse

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS N. CROUSE
No. 23796
Exp. 12/31/01
CIVIL
STATE OF CALIFORNIA

RCE No.: 23796 Exp. Date: 12/31/01

CC: Mr. Tim White – OP-ART
Mr. Morgan Fox – Simak Construction

1700 Hamner Ave., Suite 104
Norco, CA 91760-2957
(909) 736-2040
FAX: (909) 736-5292

Inspection Request Line
(909) 399-5372

Application for Building Permit

912984 | PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: NEW RETAIL BUILDING AND LATTICE PATIO

Type of Const.	Occ.Group	Use Zone	Fire Zone
			3

Tract No.	Lot No.	APN

Setback F	S	L	R	R	Review #	Date
						12/17/98

Building Address: 735 E. FOOTHILL BLVD.
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ACOSTA AVE. #200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: SIMAC CONSTRUCTION INCORPORATED
Address: 15938 BERNARDO CTR. DRIVE
City: SAN DIEGO | Zip: 92127 | Tel.: 619/674-9880
State Lic. & Classif.: 486058 B 01/31/00-EXP | City Lic. #:
Arch. Engr., Designer: OP-ART (TIM WHITE)
Address: 7803 EMERY PLACE | Tel.: 909/466-4369
City: CUCAMONGA | Zip: 91730 | State Lic.#:

CONSTRUCTION ESTIMATE

1ST FL.	4800	SQ. FT. @	36.50	$ 175,200 00
2ND FL.		SQ. FT. @		
PORCH LAT. 7552		SQ. FT. @	8.00	60,416 00
GAR.		SQ. FT. @		
CAR P.		SQ. FT. @		
WALL		L.F. @		
AIR F.S. 4800		SQ. FT. @	1.60	7,680 00
ROOF		SQ. FT. @		
POOL		SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION				$ 243,296 00

NOTE: Not to be used as property tax valuation

ISSUANCE	$ 20 00
CONST. FEE	$ 1,857 42
TOTAL CONST. FEE	$ 1,877 42

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD
APPLIANCE			DRYER
AIR CONDITIONER			B.T.U.
HEATING SYSTEM			B.T.U.
MECH. PLAN CHECK FEE			
ISSUANCE FEE			$ 20 00
TOTAL MECH. FEE			$

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE: [signature] DATE: 12-17-98

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code)

Policy No. ON FILE W/STATE Company TILL 09/01/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civil Code)

Lender's Name _____

Lender's Address _____

ELECTRICAL FEES

UNITS			
	TIMER		
	MOBILEHOME SVC.		
	POWER OUTLET		
	MOTOR HP		
	POOL/SPA		
	FIXTURES		
	OUTLETS		
	SWITCHES		
	SIGN		
	TEMP. USE SERV.		
	POLE TEMP/PERM		
	SUB-POLES		
1	AMP. SERVICE 400	47	40
	SQ. FT. @ C	240	00
	SQ. FT. @ C		
	SQ. FT. RESID @ .05		
	SQ. FT. GAR. @ .01		
	PLAN CHECK		
	ISSUANCE FEE	$ 20	00
	TOTAL ELEC. FEE	$ 307	40

PLUMBING FEES

SQ.FT. @ .05	240	00
YARD SPKLR SYSTEM		
GAS PIPING		
HOUSE SEWER	19	00
DRAINAGE PIPING		
DRINKING FOUNTAIN		
URINAL		
WATER PIPING		
FLOOR DRAIN		
POOL/SPA		
WASHER (AUTO) (DISH)		
GARBAGE DISPOSAL		
LAUNDRY TRAY		
KITCHEN SINK		
WATER CLOSET		
LAVATORY		
SHOWER		
BATH TUB		
WATER HEATER		
SEWAGE DISPOSAL		
PLAN CHECK		
ISSUANCE FEE	$ 20	00
TOTAL PLUMB. FEE	$ 279	00

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	GRD TOTAL
1877.42		307.40	279.00	5472.00	7,935.82

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UCD UTILITY FEE
	248.66		960.00	

SMI	MICRO FEE	TRANSPORTATION FEE		TOTAL DUE
7.35	57.00	PAID		$9,208.83

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant: [signature] Date: 12-17-98

Mailing Address _____

State, Zip _____

Bldg. A. Peterson Date 12/17/98
Engr. [signature] Date 12-22-98
Plan [signature] Date 12-17-98

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ 3/9/99 Date _____
C/O Issued _____ Gas Co. _____ Elect. Co. _____

1998

CITY OF CLAREMONT Community Development Department

City Hall
207 Harvard Avenue
P.O. Box 880
Claremont, CA 91711-0880
FAX (909) 399-5492

Building • (909) 399-5471
Planning • (909) 399-5470
Engineering • (909) 399-5465
Community Improvement • (909) 399-5467
Economic Development • (909) 399-5341

November 24, 1998

Op-Art Architects
Attn: Tim White

FEES & DEPOSITS FOR 735 E. FOOTHILL

Below is a list of the required development fees and deposits to commence construction: The supporting documents for the fee calculations are available at my office. Please note that a permit for wall construction must be obtained from the Building Division and a sewer connection fee must be paid to the Los Angeles County Sanitation District prior to the issuance of permits. If you have any questions, please contact me at (909)399-5478.

Public Works Permit	$ 178	
Public Works Plan Check	111	
Grading Plan Check	3,316	(includes $100 credit)
Grading Permit	4,851	
Sewer Fee	500	
Drainage	17,357	
Resurfacing Fee	773	
Transportation Impact	15,357	
	$42,443	
Public Works Deposit	$4,450	
Grading Deposit	11,556	
Signal Improvements	50,000	
Median Improvements	27,500	
	$93,506	

Sincerely,

Mark Vukojevic,
Assistant Civil Engineer

file

CITY OF CLAREMONT

DEMAND

PAYABLE TO: Armstrong Garden
2200 E. Alosta Avenue, Suite 200
Glendora, CA 91740-4673

DATE: March 30, 1999

Description	Cost	Account #
Refund deposit from grading/on-site improvement permit # 2123-G. Work done at 735 E. Foothill for new Armstrong Nursery.	$11,556.00	110-231

The undersigned, being duly sworn, deposes and says that the above bill is correct, the amount thereof is justly due, and no part thereof has been allowed or paid, and that the services therein mentioned have been actually rendered, and the items mentioned have been actually furnished.

Signed: Andrea [illegible] Supervisor's Approval: Craig R. Bradshaw

If over $1,000 Department Manager's Approval: Anthony [illegible]

1999

	DATE	INSPECTOR'S SIGNATURE
COMPACTION REPORT RECEIVED		
SUPERVISING ENGINEER'S CERTIFICATE RECEIVED		
ROUGH GRADING APPROVAL		
PLANTING AND IRRIGATION		
FINAL APPROVAL	3-19-99	A. Schaun
SURETY BOND RELEASED		
MAINTENANCE BOND RELEASED		

Deposit of $11,556.00 refunded 3-30-99. Andrea Hamilton

CITY OF CLAREMONT

file

DEMAND

PAYABLE TO: Armstrong Garden
2200 E. Alosta Avenue, Suite 200
Glendora, CA 91740-4673

DATE: March 30, 1999

1999

Description	Cost	Account #
Refund deposit for public works permit #3631. Drive approach and sewer lateral installed at 735 E. Foothill for new Armstrong Nursery.	$ 4,550.00	110-231

The undersigned, being duly sworn, deposes and says that the above bill is correct, the amount thereof is justly due, and no part thereof has been allowed or paid, and that the services therein mentioned have been actually rendered, and the items mentioned have been actually furnished.

Signed: Andrea Abernathy Supervisor's Approval: Craig M. Bradshaw

If over $1,000 Department Manager's Approval: Anthony Gatti

Inspection Request Line
(909) 399-5372

Application for Building Permit

913151 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: RETAINING WALL 4 FT. HIGH BY 63 L.F.

Building Address: 735 E. FOOTHILL BLVDE
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ALOSTA AVE. SUITE 200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: SIMAC CONSTRUCTION
Address: 901 DOVE STREET SUITE 145
City: NEWPORT | Zip: 92660 | Tel.: 949/440-3003
State Lic. & Classif.: 486058 B EXP. 01/31/00 | City Lic. #:
Arch. Engr., Designer:
Address: | Tel.:
City: | Zip: | State Lic.#:

Type of Const.	Occ.Group	Use Zone	Fire Zone
			3

Tract No.	Lot No.	APN

Setback				Review #	Date
F	S	L	R		02/04/99

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE _____ DATE 2-4-99

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code)

Policy No. ON FILE W/STATE Company TILL 09/01/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civil Code).

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant _____ Date 2-4-99

Mailing Address _____

City, State, Zip _____

CONSTRUCTION ESTIMATE

1ST FL.		SQ. FT. @		$	
2ND FL.		SQ. FT. @			
POR.		SQ. FT. @			
GAR.		SQ. FT. @			
CAR P.		SQ. FT. @			
WALL	63X4	L.F. @	17.50	1,102	50
A/C		SQ. FT. @			
ROOF		SQ. FT. @			
POOL		SQ. FT. @			
ESTIMATED CONSTRUCTION VALUATION				$ 1,102	50

NOTE: Not to be used as property tax valuation

ISSUANCE	$	20 00
CONST. FEE	$	37 59
TOTAL CONST. FEE	$	57 59

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD		
APPLIANCE			DRYER		
AIR CONDITIONER			B.T.U.		
HEATING SYSTEM			B.T.U.		
MECH. PLAN CHECK FEE					
ISSUANCE FEE				$	20 00
			TOTAL MECH. FEE	$	

ELECTRICAL FEES

UNITS					
	TIMER				
	MOBILEHOME SVC.				
	POWER OUTLET				
	MOTOR HP				
	POOL/SPA				
	FIXTURES				
	OUTLETS				
	SWITCHES				
	SIGN				
	TEMP. USE SERV.				
	POLE TEMP/PERM				
	SUB-POLES				
	AMP. SERVICE				
	SQ. FT. @ C				
	SQ. FT. @ C				
	SQ. FT. RESID @ .05				
	SQ. FT. GAR. @ .01				
	PLAN CHECK				
	ISSUANCE FEE	$	20 00		
	TOTAL ELEC. FEE	$			

PLUMBING FEES

	SQ.FT. @ .05		
	YARD SPKLR SYSTEM		
	GAS PIPING		
	HOUSE SEWER		
	DRAINAGE PIPING		
	DRINKING FOUNTAIN		
	URINAL		
	WATER PIPING		
	FLOOR DRAIN		
	POOL/SPA		
	WASHER (AUTO) (DISH)		
	GARBAGE DISPOSAL		
	LAUNDRY TRAY		
	KITCHEN SINK		
	WATER CLOSET		
	LAVATORY		
	SHOWER		
	BATH TUB		
	WATER HEATER		
	SEWAGE DISPOSAL		
	PLAN CHECK		
	ISSUANCE FEE	$	20 00
	TOTAL PLUMB. FEE	$	

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
57.59					57.59

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UGD UTILITY FEE
30.12				

SMI	MICRO FEE	TRANSPORTATION FEE		TOTAL DUE
1.05	19.00			$107.76

Bldg. _____ Date 2/4/99
Engr. _____ Date 2-4-99
Plan _____ Date 2-4-99

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co _____ Elect. Co _____

1999

Inspection Request Line
(909) 399-5372

Application for Building Permit

913244 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: RETAINING WALL 2 FT. HIGH BY 22 L.F. IN ADDENDUM TO PERMIT NUMBER 913151

Building Address: 735 E. FOOTHILL BLVD.
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ALOSTA AVE. SUITE 200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: SIMAC CONSTRUCTION
Address: 901 DOVE STREET SUITE 145
City: NEWPORT | Zip: 92660 | Tel.: 949/440-3003
State Lic. & Classif.: 486058 B EXP. 01/31/00 | City Lic. #:
Arch. Engr., Designer:
Address: | Tel.:
City: | Zip: | State Lic.#:

Type of Const.	Occ.Group	Use Zone	Fire Zone
			3

Tract No.	Lot No.	APN

Setback F	S	L	R	R	Review #	Date
						03/03/99

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @		$	
2ND FL.	SQ. FT. @			
POR.	SQ. FT. @			
GAR.	SQ. FT. @			
CAR P.	SQ. FT. @			
WALL	2X22 L.F. @	8.50	187	00
A/C	SQ. FT. @			
ROOF	SQ. FT. @			
POOL	SQ. FT. @			
ESTIMATED CONSTRUCTION VALUATION			$ 187	00

NOTE: Not to be used as property tax valuation

ISSUANCE	$ 20	00
CONST. FEE	$ 32	12
TOTAL CONST. FEE	$ 52	12

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD		
APPLIANCE			DRYER		
AIR CONDITIONER			B.T.U.		
HEATING SYSTEM			B.T.U.		
MECH. PLAN CHECK FEE					
ISSUANCE FEE				$ 20	00
			TOTAL MECH. FEE	$	

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE 3-3-99 DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

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☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)*

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. *(Sec. 3800, Labor Code)*

Policy No. ON FILE W/STATE Company TILL 09/01/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. *(Sec. 3097, Civil Code).*

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant X _____ Date 3-3-99

Mailing Address _____

ELECTRICAL FEES

NO. UNITS				
	TIMER			
	MOBILEHOME SVC.			
	POWER OUTLET			
	MOTOR HP			
	POOL/SPA			
	FIXTURES			
	OUTLETS			
	SWITCHES			
	SIGN			
	TEMP. USE SERV.			
	POLE TEMP/PERM			
	SUB-POLES			
	AMP. SERVICE			
	SQ. FT. @ C			
	SQ. FT. @ C			
	SQ. FT. RESID @ .05			
	SQ. FT. GAR. @ .01			
	PLAN CHECK			
	ISSUANCE FEE	$ 20	00	
	TOTAL ELEC. FEE	$		

PLUMBING FEES

NO.				
	SQ.FT. @ .05			
	YARD SPKLR SYSTEM			
	GAS PIPING			
	HOUSE SEWER			
	DRAINAGE PIPING			
	DRINKING FOUNTAIN			
	URINAL			
	WATER PIPING			
	FLOOR DRAIN			
	POOL/SPA			
	WASHER (AUTO) (DISH)			
	GARBAGE DISPOSAL			
	LAUNDRY TRAY			
	KITCHEN SINK			
	WATER CLOSET			
	LAVATORY			
	SHOWER			
	BATH TUB			
	WATER HEATER			
	SEWAGE DISPOSAL			
	PLAN CHECK			
	ISSUANCE FEE	$ 20	00	
	TOTAL PLUMB. FEE	$		

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
52.12					52.12

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UGD UTILITY FEE
25.69				

SMI	MICRO FEE	TRANSPORTATION FEE		TOTAL DUE
1.05	2.50			$81.36

Bldg. _____ Date 3-3-99
Engr. _____ Date 3-3-99
Plan _____ Date 3-3-99

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____

1999

Inspection Request Line
(909) 399-5372

Application for Building Permit

913150 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: INSTALLATION OF 2 EXTERIOR LIGHTS AT 15' HIGH

Type of Const.	Occ.Group	Use Zone	Fire Zone 3
Tract No.	Lot No.	APN	
Setback F S L R	Review #	Date	

Building Address: 735 E. FOOTHILL BLVDE
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ALOSTA AVE. SUITE 200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: SIMAC CONSTRUCTION
Address: 901 DOVE STREET SUITE 145
City: NEWPORT | Zip: 92660 | Tel.: 949/440-3003
State Lic. & Classif.: 486058 B EXP. 01/31/00 | City Lic. #:
Arch. Engr., Designer:
Address: | Tel.:
City: | Zip: | State Lic.#:

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @	$	
2ND FL.	SQ. FT. @		
POR.	SQ. FT. @		
GAR.	SQ. FT. @		
CAR P.	SQ. FT. @		
WALL	L.F. @		
A/C	SQ. FT. @		
ROOF	SQ. FT. @		
POOL	SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION EST		$	3,600 00
NOTE: Not to be used as property tax valuation	ISSUANCE	$	20 00
	CONST./FEE	$	85 50
	TOTAL CONST. FEE	$	105 50

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE [signature] DATE 2-4-99

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (Sec. 3800, Labor Code)

Policy No. ON FILE W/STATE Company TILL 09/01/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civil Code)

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

X Signature of Applicant [signature] Date 2-4-99

Mailing Address _____

City, State, Zip _____

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD
APPLIANCE			DRYER
AIR CONDITIONER			B.T.U.
HEATING SYSTEM			B.T.U.
MECH. PLAN CHECK FEE			
ISSUANCE FEE			$ 20 00
		TOTAL MECH. FEE	$

ELECTRICAL FEES

UNITS			
	TIMER		
	MOBILEHOME SVC.		
	POWER OUTLET		
	MOTOR HP		
	POOL/SPA		
2	FIXTURES	1	90
	OUTLETS		
2	SWITCHES	1	90
	SIGN		
	TEMP. USE SERV.		
	POLE TEMP/PERM		
	SUB-POLES		
	AMP. SERVICE		
	SQ. FT. @ C		
	SQ. FT. @ C		
	SQ. FT. RESID @ .05		
	SQ. FT. GAR. @ .01		
	PLAN CHECK		
	ISSUANCE FEE	$ 20	00
	TOTAL ELEC. FEE	$ 23	80

PLUMBING FEES

	SQ.FT. @ .05	
	YARD SPKLR SYSTEM	
	GAS PIPING	
	HOUSE SEWER	
	DRAINAGE PIPING	
	DRINKING FOUNTAIN	
	URINAL	
	WATER PIPING	
	FLOOR DRAIN	
	POOL/SPA	
	WASHER (AUTO) (DISH)	
	GARBAGE DISPOSAL	
	LAUNDRY TRAY	
	KITCHEN SINK	
	WATER CLOSET	
	LAVATORY	
	SHOWER	
	BATH TUB	
	WATER HEATER	
	SEWAGE DISPOSAL	
	PLAN CHECK	
	ISSUANCE FEE	$ 20 00
	TOTAL PLUMB. FEE	$

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
105.50		23.80			129.30

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UGD UTILITY FEE
68.45				

SMI	MICRO FEE	TRANSPORTATION FEE		TOTAL DUE
1.05	2.85			$201.65

Bldg. [signature] Date 2/4/99
Engr. _____ Date _____
Plan [signature] Date 2-4-99

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co. _____ Elect. Co _____

1999

Inspection Request Line
(909) 399-5372

Application for Building Permit

913152 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: TRASH ENCLOSURE

Trash Enclosure

Type of Const.	Occ.Group	Use Zone	Fire Zone 3
Tract No.	Lot No.	APN	
Setback F S L R R	Review #	Date 02/04/99	

Building Address: 735 E. FOOTHILL BLVDE
Owner: ARMSTRONG GARDEN CENTER
Mailing Address: 2200 E. ALOSTA AVE. SUITE 200
City: GLENDORA | Zip: 91740 | Tel.: 626/914-1091
Contractor: SIMAC CONSTRUCTION
Address: 901 DOVE STREET SUITE 145
City: NEWPORT | Zip: 92660 | Tel.: 949/440-3003
State Lic. & Classif.: 486058 B EXP. 01/31/00 | City Lic. #
Arch. Engr., Designer
Address | Tel.
City | Zip | State Lic.#

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @	$	
2ND FL.	SQ. FT. @		
POR.	SQ. FT. @		
GAR.	SQ. FT. @		
CAR P.	SQ. FT. @		
WALL	L.F. @		
A/C	SQ. FT. @		
ROOF	SQ. FT. @		
POOL	SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION EST		$ 4,800	00
NOTE: Not to be used as property tax valuation	ISSUANCE	$ 20	00
	CONST.FEE	$ 98	35
	TOTAL CONST. FEE	$ 118	35

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE: Gary L. DATE: 2-7-99

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)*

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)*

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. *(Sec. 3800, Labor Code)*

Policy No. ON FILE W/STATE Company TILL 09/01/99

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. *(Sec 3097, Civil Code)*

Lender's Name _____

Lender's Address _____

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD		
APPLIANCE			DRYER		
AIR CONDITIONER			B.T.U.		
HEATING SYSTEM			B.T.U.		
MECH. PLAN CHECK FEE					
ISSUANCE FEE				$ 20	00
			TOTAL MECH. FEE	$	

ELECTRICAL FEES

NO. UNITS				NO.			
	TIMER				SQ.FT. @ .05		
	MOBILEHOME SVC.				YARD SPKLR SYSTEM		
	POWER OUTLET				GAS PIPING		
	MOTOR HP				HOUSE SEWER		
	POOL/SPA				DRAINAGE PIPING		
	FIXTURES				DRINKING FOUNTAIN		
	OUTLETS				URINAL		
	SWITCHES				WATER PIPING		
					FLOOR DRAIN		
	SIGN				POOL/SPA		
					WASHER (AUTO) (DISH)		
					GARBAGE DISPOSAL		
					LAUNDRY TRAY		
	TEMP. USE SERV.				KITCHEN SINK		
	POLE TEMP/PERM				WATER CLOSET		
	SUB-POLES				LAVATORY		
	AMP. SERVICE				SHOWER		
	SQ. FT. @ C				BATH TUB		
	SQ. FT. @ C				WATER HEATER		
	SQ. FT. RESID @ .05				SEWAGE DISPOSAL		
	SQ. FT. GAR. @ .01				PLAN CHECK		
	PLAN CHECK						
	ISSUANCE FEE	$	20 00		ISSUANCE FEE	$	20 00
	TOTAL ELEC. FEE	$			TOTAL PLUMB. FEE	$	

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
118.35					118.35

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UGD UTILITY FEE
78.66				

SMI	MICRO FEE	TRANSPORTATION FEE		TOTAL DUE
1.05	2.85			$200.91

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work commences is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant: Gary L. Date: 2-4-99

Mailing Address _____

City, State, Zip _____

Bldg. _____ Date _____
Engr. _____ Date _____
Plan Steve Sastro Date 2-4-99

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co. _____ Elect Co. _____

1999

1999

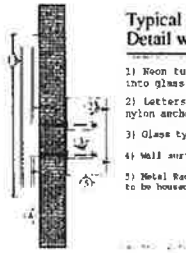
SIGN A



SIGN B



TWO (2) SETS INDIVIDUAL ILLUMINATED CHANNEL LETTERS
Manufacture and install on raceways, custom fabricated individual illuminated channel letters with "ARMSTRONG" to have #2793 red acrylic faces with green trim cap and green returns to match faces. "GARDEN CENTER" to have #2108 green faces with green trim cap and green returns to match faces. All letters will be mounted to a raceway and color will match the exterior color of the building. (Color to be verified)



Typical Channel Letter
Detail with Raceway (INTERIOR)

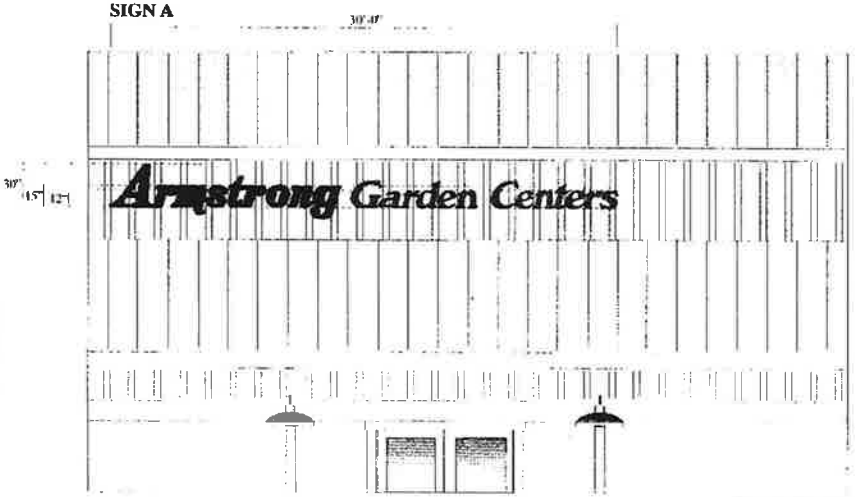
1) Neon tubing illumination with electrodes [illegible] into glass housings. (U.L. listed)
2) Letters to mount to wall by using #10 [illegible] nylon anchors or equivalent.
3) Glass type electrical housing. U.L. listed
4) Wall surface
5) Metal Raceway with switch with transformer to be housed inside.

SIMINGTON & CO.
ELECTRICAL ADVERTISING
11221 Old River School Road
Downey, Ca. 90241
562.928-8100
Cont.Lic.#644090

ART LAYOUT

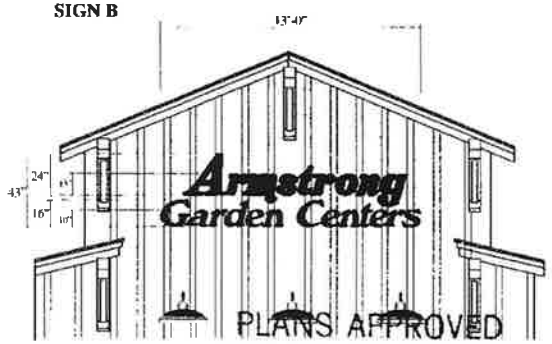
This design is the sole property of Simington & Co. Electrical Advertising and is not to be reproduced, copied, altered or used in any manner outside this organization without the express written approval of Simington & Co. All artwork can be negotiated for sale in the event Simington & Co. does not perform the work designed. It is the discretion of the this company to determine the sale and a reasonable cost for design.

SIGN A



Elevation (Partial)

SIGN B



Elevation (Partial)

PLANS APPROVED
CITY OF CLAREMONT

Building Div. [signature] Date 3-4-99

Engineering Div. ____ Date ____

Planning Div. [signature] Date 3-4-99

The approval of these plans, specifications and computations shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and

Approved: _____ *Date:* _____ *Title:* _____

Client: Armstrong Garden Centers
735 E. Foothill Blvd.
Claremont, Ca. 71711

Attn: Bill Heim, Adv. Prod. Mgr.

Date: 2.22.99
Job N°: 99-578
Scale: noted
Designer: J.S.
Sheet N°: 1 of 1
Revised: 3.2.99

Inspection Request Line
(909) 399-5372

Application for Building Permit

913249 PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: FIRE ALARM SYSTEM APPROVED BY L.A. COUNTY FIRE DEPT.

Type of Const.	Occ.Group	Use Zone	Fire Zone 3
Tract No.	Lot No.	APN	
Setback F S L R	Review #	Date	

Building Address: 735 E. Foothill Blvd.
Owner: Armstrong Garden Center
Mailing Address: SAME AS ABOVE LISTED
City: Claremont Zip: 91711 Tel.: 445-0744
Contractor: Saddleback Security System
Address: 22872 Sailwind Way
City: Lake Forest Zip: 92630 Tel.: 949/837-0749
State Lic. & Classif.: 642171 C-10 Exp City Lic. #: 14649
Arch. Engr., Designer
Address: Tel.:
City: Zip: State Lic.#:

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @		$
2ND FL.	SQ. FT. @		
POR.	SQ. FT. @		
GAR.	SQ. FT. @		
CAR P.	SQ. FT. @		
WALL	L.F. @		
A/C	SQ. FT. @		
ROOF	SQ. FT. @		
POOL	SQ. FT. @		
ESTIMATED CONSTRUCTION VALUATION			$

NOTE: Not to be used as property tax valuation

ISSUANCE	$	20 00
CONST. FEE	$	
TOTAL CONST. FEE	$	

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE 3-5-99 DATE

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

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If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. (*Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.*)

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. (*Sec. 3800, Labor Code*)

Policy No. _____ *Company* _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(*This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.*)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date _____ Sig. _____

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. (*Sec. 3097, Civil Code*).

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code. Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration if work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above mentioned property for inspection purposes.

Signature of Applicant _____ Date 3-5-99

Mailing Address _____

City, State, Zip _____

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD
APPLIANCE			DRYER
AIR CONDITIONER			B.T.U.
HEATING SYSTEM			B.T.U.
MECH. PLAN CHECK FEE			
ISSUANCE FEE			$ 20 00
			TOTAL MECH. FEE $

ELECTRICAL FEES

UNITS			
	TIMER		
	MOBILEHOME SVC.		
	POWER OUTLET		
	MOTOR HP		
	POOL/SPA		
	FIXTURES		
	OUTLETS		
	SWITCHES		
1	Strobe	5 25	
	SIGN		
1	Sub-Breaker	9.50	
	TEMP. USE SERV.		
	POLE TEMP/PERM		
	SUB-POLES		
	AMP. SERVICE		
	SQ. FT. @ C		
	SQ. FT. @ C		
	SQ. FT. RESID @ .05		
	SQ. FT. GAR. @ .01		
	PLAN CHECK		
	ISSUANCE FEE	$ 20 00	
	TOTAL ELEC. FEE	$ 34 75	

PLUMBING FEES

	SQ.FT. @ .05	
	YARD SPKLR SYSTEM	
	GAS PIPING	
	HOUSE SEWER	
	DRAINAGE PIPING	
	DRINKING FOUNTAIN	
	URINAL	
	WATER PIPING	
	FLOOR DRAIN	
	POOL/SPA	
	WASHER (AUTO) (DISH)	
	GARBAGE DISPOSAL	
	LAUNDRY TRAY	
	KITCHEN SINK	
	WATER CLOSET	
	LAVATORY	
	SHOWER	
	BATH TUB	
	WATER HEATER	
	SEWAGE DISPOSAL	
	PLAN CHECK	
	ISSUANCE FEE	$ 20 00
	TOTAL PLUMB. FEE	$

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
		34.75			34.75

PLAN CHECK	ADD'L PLAN CK.	PASS/LAND FEE	FIRE FEE	UBC UTILITY FEE

SMI	MICRO FEE	TRANSPORTATION FEE	TOTAL DUE
	2.00		36.75

Bldg. _____ Date 3-5-99
Engr. _____ Date _____
Plan _____ Date _____

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

Approved: Gas _____ Electric _____ Sch. Dist _____ San Fee _____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co. _____ Elect. Co _____

1999

Inspection Request Line
(909) 399-5372

Application for Building Permit

913246 | PLAN CHECK #

CITY OF CLAREMONT
207 Harvard Ave.
Claremont, California 91711
(909) 399-5471

PLEASE PRINT

Use of Permit: 2 EXTERNAL ILLUMINATED SIGNS CHANNEL LETTERS

READ "ARMSTONG GARDEN CENTERS"

Type of Const.	Occ.Group	Use Zone	Fire Zone 3
Tract No.	Lot No.	APN	
Setback F S L R	Review #	Date 03/04/99	

Building Address	735 E. FOOTHILL BLVD.
Owner	ARMSTRONG GARDEN CENTERS
Mailing Address	2200 E. ALOSTA AVE. SUITE 200
City / Zip / Tel.	GLENDORA / 91740 / 626/914-1091
Contractor	SIMINGTON ELECTRICAL ADVERTISING
Address	11223 OLD RIVER SCHOOL ROAD
City / Zip / Tel.	DOWNEY / 90241 / 562/928-8100
State Lic. & Classif.	644090 EXP. 12/31/01
City Lic. #	
Arch. Engr., Designer	
Address / Tel.	
City / Zip / State Lic.#	

CONSTRUCTION ESTIMATE

1ST FL.	SQ. FT. @		$	
2ND FL.	SQ. FT. @			
POR.	SQ. FT. @			
GAR.	SQ. FT. @			
CAR P.	SQ. FT. @			
WALL	L.F. @			
~~XXXX~~ SIGN 120	SQ. FT. @	30.00	3,600	00
ROOF	SQ. FT. @			
POOL	SQ. FT. @			
ESTIMATED CONSTRUCTION VALUATION			$ 3,600	00

NOTE: Not to be used as property tax valuation

ISSUANCE	$	20 00
CONST./FEE	$	85 50
TOTAL CONST. FEE	$	115 50

MECHANICAL FEES

VENT SYSTEM	FAN	EVAP. COOL	HOOD	
APPLIANCE			DRYER	
AIR CONDITIONER			B.T.U.	
HEATING SYSTEM			B.T.U.	
MECH. PLAN CHECK FEE				
ISSUANCE FEE				$ 20 00
			TOTAL MECH. FEE	$

NO.	ELECTRICAL FEES		NO.	PLUMBING FEES	
UNITS				SQ.FT. @ .05	
	TIMER			YARD SPKLR SYSTEM	
	MOBILEHOME SVC.			GAS PIPING	
	POWER OUTLET			HOUSE SEWER	
	MOTOR HP			DRAINAGE PIPING	
	POOL/SPA			DRINKING FOUNTAIN	
	FIXTURES			URINAL	
	OUTLETS			WATER PIPING	
	SWITCHES			FLOOR DRAIN	
				POOL/SPA	
2	SIGN	38 00		WASHER (AUTO) (DISH)	
				GARBAGE DISPOSAL	
				LAUNDRY TRAY	
	TEMP. USE SERV.			KITCHEN SINK	
	POLE TEMP/PERM			WATER CLOSET	
	SUB-POLES			LAVATORY	
	AMP. SERVICE			SHOWER	
	SQ. FT. @ C			BATH TUB	
	SQ. FT. @ C			WATER HEATER	
	SQ. FT. RESID @ .05			SEWAGE DISPOSAL	
	SQ. FT. GAR. @ .01			PLAN CHECK	
	PLAN CHECK				
	ISSUANCE FEE	$ 20 00		ISSUANCE FEE	$ 20 00
	TOTAL ELEC. FEE	$ 58 00		TOTAL PLUMB. FEE	$

CONST. FEE	MECH. FEE	ELEC. FEE	PLUMB. FEE	ART FEE	SUB-TOTAL
115.50		58.00			173.50

PLAN CHECK	ADD'L PLAN CK.	PARKLAND FEE	FIRE FEE	UGD UTILITY FEE
68.45				

SMI	MICRO FEE	TRANSPORTATION FEE	TOTAL DUE
1.05	2.25		$245.25

Bldg. _____ Date 3-4-99
Engr. _____ Date
Plan _____ Date 3-4-99

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws

Approved: Gas ____ Electric ____ Sch. Dist ____ San Fee ____
Finaled By: _____ Date _____
C/O Issued _____ Gas Co. _____ Elect. Co. _____

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

SIGNATURE _____ DATE 3/4/99

OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason: (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance also requires the applicant for such permit to file a signed statement that he is licensed pursuant to Division 3 of the Business and Professions Code, or that he is exempt therefrom, and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon and who does such work himself or through his employees, provided that such improvements are not intended or offered for sale.* If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale.)

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project. *(Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law.)*

☐ I am exempt under Sec. _____ B.& P.C. for this reason _____

Date _____ Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Worker's Compensation Insurance, or a certified copy thereof. *(Sec. 3800, Labor Code)*

Policy No. _____ Company _____

☐ Copy is filed with the city. ☐ Certified copy is hereby furnished.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

(This section need not be completed if the permit is for one hundred dollars ($100) valuation or less.)
I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Worker's Compensation Laws of California.

Date ON FILE W/STATE AS EXEMPT

NOTICE TO APPLICANT: If, after this Certificate of Exemption you should become subject to the Workers' Compensation provision of the Labor Code, you must forthwith comply with such provision or this shall be deemed revoked.

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued. *(Sec. 3097, Civil Code)*

Lender's Name _____

Lender's Address _____

HAZARDOUS MATERIAL DECLARATION

Will the applicant or future building occupant handle a hazardous material or a mixture containing a hazardous material equal to or greater than the amounts specified on the Hazardous Materials Information Guide?

☐ YES ☐ NO

Will the proposed building or modified facility be within 1000 feet of the outer boundary of a school?

☐ YES ☐ NO

I have read the Hazardous Material Information Guide and understand my requirements under the Los Angeles County Code, Title 2 Chapter 2.20 Section 2.20.100 through 2.20.140 concerning hazardous materials reporting.

Owner or Authorized Agent X _____

NOTE: WHEN AN ADDITION OR REPAIR TO ANY DWELLING UNIT EXCEEDS $1,000 IN VALUATION, SMOKE DETECTORS MUST BE INSTALLED AND TESTED PRIOR TO FINAL INSPECTION. UBC, SEC. 1210

This is a building permit when properly filled out, signed and validated, and is subject to expiration of work hereunder is suspended for 180 days.

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this city to enter the above-mentioned property for inspection purposes.

Signature of Applicant _____ Date 3/4/99

Mailing Address _____

City, State, Zip _____

1999

OPERATION	DATE	INSPECTOR
BUILDING APPROVALS		
Set Back		
Figs & Frms	1/8/99.	HH
Reinforcement		
Slab Grade		
Roof Deck/Trusses	2/1/99	HH
Sheer Nailing		
Hold Downs	2/1/99	HH
Framing	2/4/99	HH
Exterior Lath		
Interior Lath		
Drywall	HH	2/4/99.
Throat/Damper		
Fireplace P/I		
Fireplace T/O		
Pregunite - Pool		
Fance & Gate Pool		
INSULATION Thick "R" value		
Walls		
Ceiling		
Floor		
Block Wall Footings		
Bond Beam		
Grout		
Final		
PLUMBING APPROVALS		
Ground Plumbing		
UG Water Line		
Septic/Sewer		
Rough Plumbing	HH	2/4/99.
Gas Line/Test		
Water Service		
Vents		
Water Heater		
Water Softener		
Grease Traps		
Clarifier		
Water Piping Test		
Final		
ELECTRICAL APPROVALS		
UG Electric		
UFR Ground		
Temporary Power Pole		
Rough Electrical		
Electrical Service		
Pool Electrical		
Rough Conduit Walls	HH	
Final		

2' Ledge Pads For lattice O.K Norm. HH

OPERATION	DATE	INSPECTOR
MECHANICAL APPROVALS		
Plenums/Ducts		
Combustion Air		
Air Conditioning		
FAU		
Ventilation System		
FAU Compartment		
Inlets/Outlets		
Compressor		
Appl. Clearance		
Commercial Hood		
Fire Dampers		
Final		
FIRE RATED ASSEMBLIES		
Area Sep. Walls		
Rated Corridors		
Doors		
Openings		
Fire Alarms		
Occupancy Separation		
Stair Enclosure		
Smoke Detectors		
EXTINGUISHERS		
Fire Extinguishers		
Auto Sprinklers		
Kitchen Hood Ext.		
MISCELLANEOUS		
Temp. Toilet Facility		
Construction Trailers		

ADDITIONAL INFORMATION

Temp. Pwr pole release OK.
(1) Ground rod and GEC not installed and sized to Code.
(2) Plumbing needs fall and additional Coating wrap, as well as add Steel to footing. 12/31/98 RS

1999

STREET NAME _____

PERMIT NUMBER _____

(1) Drainage pipe 4" to 6" Lt. Partial from N/Lt BLDG. to parking lot 1-15-99 RS

1812

Public Works Inspection Record

DATE REQUESTED	DATE WANTED	WORK	REMARKS	DATE APPROVED	INSP.
		Sewer connection - drive approaches		3-19-99	

REFUND OF DEPOSIT AUTHORIZED Andrea Harris DEPOSIT REFUNDED 3-30-99 AMOUNT 4,550.

1999

CONSOLIDATED GEOSCIENCE INC.

Geotechnical Consultants

K.J. MELLIN
Senior Technician

Geotechnical Engineering • Laboratory Testing • Foundation Design

2651 Saturn St. • Brea, CA 92821 • (714) 996-5234 • FAX (714) 996-9524

SIMAC CONSTRUCTION, INC.

GENERAL CONTRACTOR
901 Dove Street, Suite 145
Newport Beach, CA 92660
(949) 440-3003
FAX: 440-3011
E-mail: SimacGC@aol.com

CA LIC #486058
AZ LIC #108925
NV LIC #40903
UT LIC #96-310578-5501

Harry Price
Superintendent
Pgr: (714) 237-4072

SIMAC CONSTRUCTION, INC.

GENERAL CONTRACTOR
901 Dove Street, Suite 145
Newport Beach, CA 92660
(949) 440-3003
FAX: (949) 440-3011

CA LIC #486058
AZ LIC #108925
NV LIC #40903
UT LIC #96-310578-5501

Paul Sears
Project Manager
Pgr: (714) 490-5852

SIMAC CONSTRUCTION, INC.

GENERAL CONTRACTOR
15938 Bernardo Center Drive
San Diego, CA 92127
(619) 674-9880
FAX: 674-5580

CA LIC #486058
AZ LIC #108925
NV LIC #40903
UT LIC #96-310578-5501

Morgan Fox
Superintendent
Pgr: (619) 970-8859



City of Claremont

207 Harvard Avenue/P.O. Box 880
Claremont, CA 91711-0880
(909) 399-5471

PERMIT NO. B00-000-589

Permit Type: Comm Alteration

PROJECT	TRACT NO.	LOT NO.	APPLICATION DATE	ISSUED BY
			6/13/2000	AMP

Permit Status: Issued

PROJECT ADDRESS — **ASSESSORS PARCEL NO.** — **GEO CODE**

735 E Foothill Blvd

OWNER
Armstrong Garden Center

MAILING ADDRESS
735 E Foothill Blvd
Claremont, Ca 91711

PHONE NO. — **FAX NO.**

APPLICANT — **MAILING ADDRESS** — **PHONE NO.** — **FAX NO.**

2000

CONTRACTOR/PROFESSIONAL
Armstrong Garden Center

MAILING ADDRESS

PHONE NO. — **FAX NO.**
EMAIL ADDRESS:

License No. — Type: — Expires:

TENANT — **MAILING ADDRESS** — **PHONE NO.** — **FAX NO.**

DESCRIPTION

Construction of new 500 square foot trellis.

Construction Type	UOM	# of Units	Value	Construction Type	UOM	# of Units	Value
Patio	sq ft	500	$4,650.00				

OCCUPANCY Patio **TOTAL VALUATION** $4,650.00

FEE DETAIL

QTY	UOM	DESC	AMT	AMT PAID	ACCT
0.00		Bld Non Res	$98.34	$98.34	
1.00	Flat	Permit Issuance	$20.00	$20.00	
0.00		SMIP 2	$0.98	$0.98	
8.00	page	Microfilm page	$2.00	$2.00	
3.00	sheet	Microfilm sheet	$2.55	$2.55	
0.00		Plan chk nonres	$78.67	$78.67	
Totals for:			**$202.54**	**$202.54**	

CHECK
CHANGE

$202.54 **Total Amount Paid: $ 202.54**

Bldg. _____ Date 6-13-00

Engr. _____ Date _____

Plan T. Christman Date 6.13.00

The issuance of this permit and approval of associated plans, specifications, and computations of said permit shall not prevent the administrative authority from thereafter requiring the correction of errors or from preventing construction being carried on thereunder when in violation of City ordinances, applicable codes, standards, and State and Federal laws.

APPROVED

Gas _____ Electric _____ Sch. Dist. _____ San Fee _____ C/O Issued _____

Finaled By: _____ Date 7/14/00 Gas Co. _____ Elect. Co. _____

City of Claremont
207 Harvard Avenue/P.O. Box 880
Claremont, CA 91711-0880

PERMIT / PLAN REVIEW APPLICATION

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Class _____ License No. _____ Exp. Date _____

Signature of Contractor: _____

OWNER - BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9, commencing with Section 7000 of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500)):

☒ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving he or she did not build or improve for the purpose of sale).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

☐ I am exempt under Sec._____, B. & P.C. for this reason:

_____

Date 6-13-00 Owner _____

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following:

☐ I have and will maintain a certificate of consent to self-insure for workers' compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☒ I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier _____

Policy Number _____

(This section need not be completed if the permit is for one hundred dollars or less)

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation Laws of California, and agree that if I should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 6-13-00 Applicant _____

WARNING: Failure to secure Workers' Compensation Coverage is unlawful, and shall subject an employer to criminal penalties and civil fines up to One Hundred Thousand Dollars ($100,000), in addition to the cost of compensation, damages as provided for in Section 3706 of the Labor Code, interest and attorney's fees.

CONSTRUCTION LENDING AGENCY

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ.C.).

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction, and hereby authorize representatives of this City to enter upon the property for inspection purposes.

Date _____ Signature _____

IMPORTANT: APPLICATION IS HEREBY MADE TO THE BUILDING OFFICIAL FOR A PERMIT SUBJECT TO THE CONDITIONS AND RESTRICTIONS SET FORTH ON THIS APPLICATION AND THE FOLLOWING:

1. Construction activity is prohibited between the hours of 7:00pm and 7:00am and on Sundays and Holidays.
2. The City's approved plans and permit inspection card must remain on the job site for use by City inspection personnel.
3. Final inspection of the work authorized by this permit is required. A Certificate of Occupancy must be obtained prior to use and occupancy of new buildings, structures and remodeling work.

NAME Von Jacobsen TITLE Agent (AGC)
Print name and title

I certify that I have read this application and state that the above information is correct and that I am the owner or the duly authorized agent of the owner. I agree to comply with all city and state laws relating to building construction. I hereby authorize representatives of this City to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption from the Worker's Compensation provisions of the Labor Code, I should become subject to such provisions, I will forthwith comply. In the event I do not comply with Workmen's Compensation law, this permit shall be deemed revoked.

SIGNATURE _____ DATE 6-13-00

This permit/plan review expires by time limitation and becomes null and void if the work authorized by the permit is not commenced within 180 days from the date of permit issuance or if the permit is not obtained within 180 days from the date of plan submittal. This permit expires and becomes null and void if any work authorized by this permit is suspended or abandoned for 180 consecutive days or if no progressive work has been verified by a City building inspector for a period of 180 consecutive days.

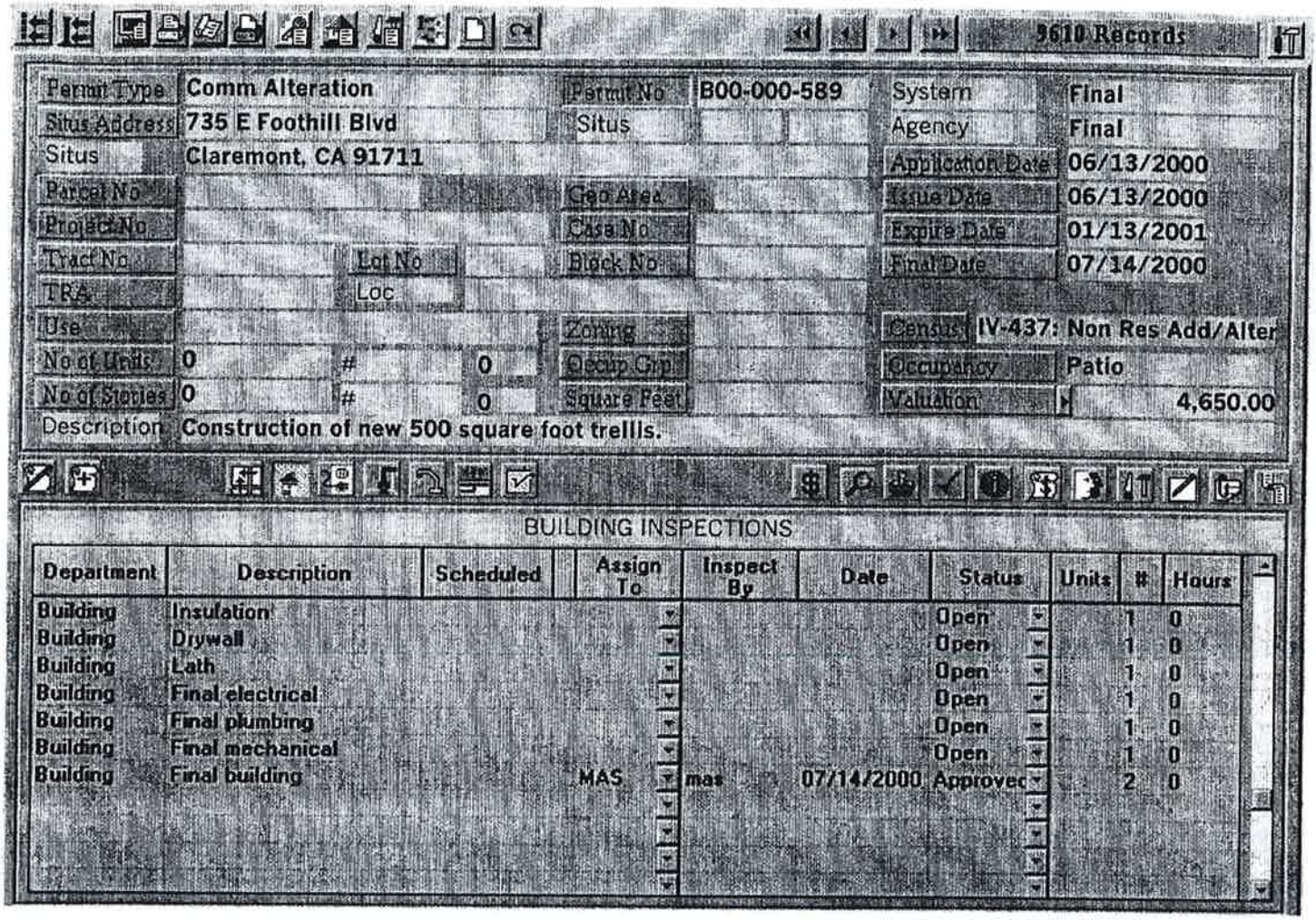
CALLS FOR INSPECTION

Requests for inspection should be made at least one (1) business day in advance of the inspection by telephone at (909) 399-5471.

INSPECTORS OFFICE HOURS ARE:

Monday - Thursday	Fridays
8:00 a.m. - 8:45 a.m.	8:00 a.m. - 8:45 a.m.
4:30 p.m. - 5:00 p.m.	4:30 p.m. - 5:00 p.m.

2000



Permit Type	Comm Alteration	Permit No	B00-000-589	System	Final
Situs Address	735 E Foothill Blvd	Situs		Agency	Final
Situs	Claremont, CA 91711			Application Date	06/13/2000
Parcel No		Geo Area		Issue Date	06/13/2000
Project No		Case No		Expire Date	01/13/2001
Tract No	Lot No	Block No		Final Date	07/14/2000
TRA	Loc				
Use		Zoning		Census	IV-437: Non Res Add/Alter
No of Units	0 # 0	Occup Grp		Occupancy	Patio
No of Stories	0 # 0	Square Feet		Valuation	4,650.00
Description	Construction of new 500 square foot trellis.				

BUILDING INSPECTIONS

Department	Description	Scheduled	Assign To	Inspect By	Date	Status	Units	#	Hours
Building	Insulation					Open		1	0
Building	Drywall					Open		1	0
Building	Lath					Open		1	0
Building	Final electrical					Open		1	0
Building	Final plumbing					Open		1	0
Building	Final mechanical					Open		1	0
Building	Final building		MAS	mas	07/14/2000	Approved		2	0

735 E. Foothill

INLAND ASPHALT & COATINGS
Paving - Earthwork - Concrete
1870 W. 9th Street, Suite A
Upland, CA 91786
(909) 981-2355 FAX (909) 981-8563
License No. 724257 Fed. ID. 33-0141830

INVOICE NO. 3468

Date: 12/15/2000

SOLD TO:

COMANY: Citv of Claremont
ADDRESS: 207 Harvard
CITY: Claremont
STATE: CA ZIPCODE 91711
ORDER NO.
ATTENTION: Scott

SHIP TO:

JOB: A/C Patches
ADDRESS: Various loactions
CITY: Claremont
STATE:
DATE COMPLETED:
ATTENTION: Scott

ITEM	QUANTITY	UNIT PRICE	DESCRIPTION	PRICE
1	99.00	$5.50	1604 TOWNE AVE.	$544.50
2	1.00	$125.00	4148 GARY (MINIMUM CHARGE)	$125.00
3	1.00	$400.00	RHINO RECORDS PATCH/REPLACE DRAIN	$400.00
4	70.00	$6.00	1217 DARTMOUTH 8" A/C * CUC permit # 3419	* $420.00
5	48.00	$5.00	12TH & CAMPBRIDGE 4" A/C	$240.00
6	59.00	$5.00	NORTHWESTERN BY BUTTE 4" A/C	$295.00
7	74.00	$5.50	HARRISON BY MOUNTAIN 6" A/C	$407.00
8	147.00	$6.00	*143 E. 10TH 8" A/C	* $882.00
9	1.00	$190.00	PARK & 8TH SKINPATCH	$190.00
10	1.00	$190.00	8TH & HARRISON SKINPATCH	$190.00
11	1.00	$125.00	12TH & BAUGHMAN SLOT PATCH (MINIMUM CHARGE)	$125.00
12	1.00	$125.00	742 11TH SLOT PATCH (MINIMUM CHARGE)	$125.00
13	1.00	$350.00	584 ARROW HWY. PATCH CONCRETE (MINIMUM CHARGE)	$350.00
14	91.00	$5.25	584 ARROW HWY. 5" A/C	$477.75

*COLLEGE CHARGE

ok to pay 12/22/00

TOTAL DUE $4,771.25

file copy
(can't find permit)

City of Claremont
207 Harvard Avenue
Claremont, CA 91711
(909) 399-5479

INVOICE

Date Prepared: 1/24/01

To: Claremont University Center
303 E. First Street
Claremont, CA 91711

Attention: Rafael Torres

Description: Invoice for permanent A.C. repairs

Location: 143 E. 10th Street

Final asphalt repair cost from
Inland Asphalt & Coatings

Amount Due

$ 882.00

Please remit the above amount within thirty (30) days of the date shown on the city invoice. Thank you.

Andrea Harrington

Andrea Harrington, Assistant Engineer
phone number: (909) 399-5479

Account #140-126

Cancelled
6-7-01
new bill to go to
CVC for $400
$482 paid by city from
account 110-231
pw permit #3303 (because we
paid Arco's bill from our acct
and were now taking the
deposit)
5116

address file

city of claremont

DEMAND

Payable To: **Armstrong Garden**
2200 E. Alosta, Suite 200
Glendora, CA 91740-4673

Date: **April 30, 2002**

Vendor's Business License No.

Description	Cost	Account #
Refund drainage fee paid with public		
works permit #3631 on 12-1-98 for 735		
E. Foothill Blvd, Armstrong Garden		
project. This fee had been collected		
previously for the entire Parcel Map		
No. 23719 with public works permit		
#3258 on 6-30-97, and was re-collected		
in error.	**17357.00**	
TOTAL	**$17357.00**	

The undersigned, being duly sworn, deposes and says that the above bill is correct, the amount thereof is justly due, and no part thereof has been allowed or paid, and that the services therein mentioned have been actually rendered, and the items mentioned have been actually furnished.

Signed: Andrea Harrington **Supervisor's Approval:** Craig L. Bradshaw

If over $5,000 Department Manager's Approval: _____

CITY OF CLAREMONT

FAX TRANSMITTAL

COVER SHEET

City Hall
Engineering Division
207 Harvard Avenue
P.O. Box 880
Claremont, CA 91711-0880

FAXED

TOTAL PAGES INCL COVER: 4

DATE: February 22, 2002 **TIME SENT:** 9 pm **TO FAX NO:** (909) 625-6358

TO: Dick Bell

FROM: CITY OF CLAREMONT, FAX NO. (909) 399-5327

Andrea Harrington Engineering Division (909) 399-5479

MESSAGE:

Hi Dick,

The following sheets are 8 ½ x 14 so tell me if this doesn't work.

The first one is for the grading permit for the Arco Station and is for $13,274.
The next is for the remainder prior to recordation of the map and is for $129,375.
The 3rd sheet is a piece of the map showing the recordation date after payment of all drainage fees.

APPENDIX D:

HISTORIC TOPOGRAPHIC MAPS

735 Foothill Blvd.

735 Foothill Blvd.

Claremont, CA 91711

Inquiry Number: 5230729.4

March 22, 2018

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/22/18

Site Name:	Client Name:
735 Foothill Blvd.	PIC Environmental Services
735 Foothill Blvd.	2619 Sierra Way
Claremont, CA 91711	La Verne, CA 91750
EDR Inquiry # 5230729.4	Contact: Tim Hersch

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by PIC Environmental Services were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: E4237

Coordinates:

Latitude:	34.107598 34° 6' 27" North
Longitude:	-117.700637 -117° 42' 2" West
UTM Zone:	Zone 11 North
UTM X Meters:	435378.78
UTM Y Meters:	3774307.90
Elevation:	1337.94' above sea level

Maps Provided:

2012	1940
1981	1933
1976	1928, 1933
1973	1903
1967	1900
1954	1897
1944	
1942	

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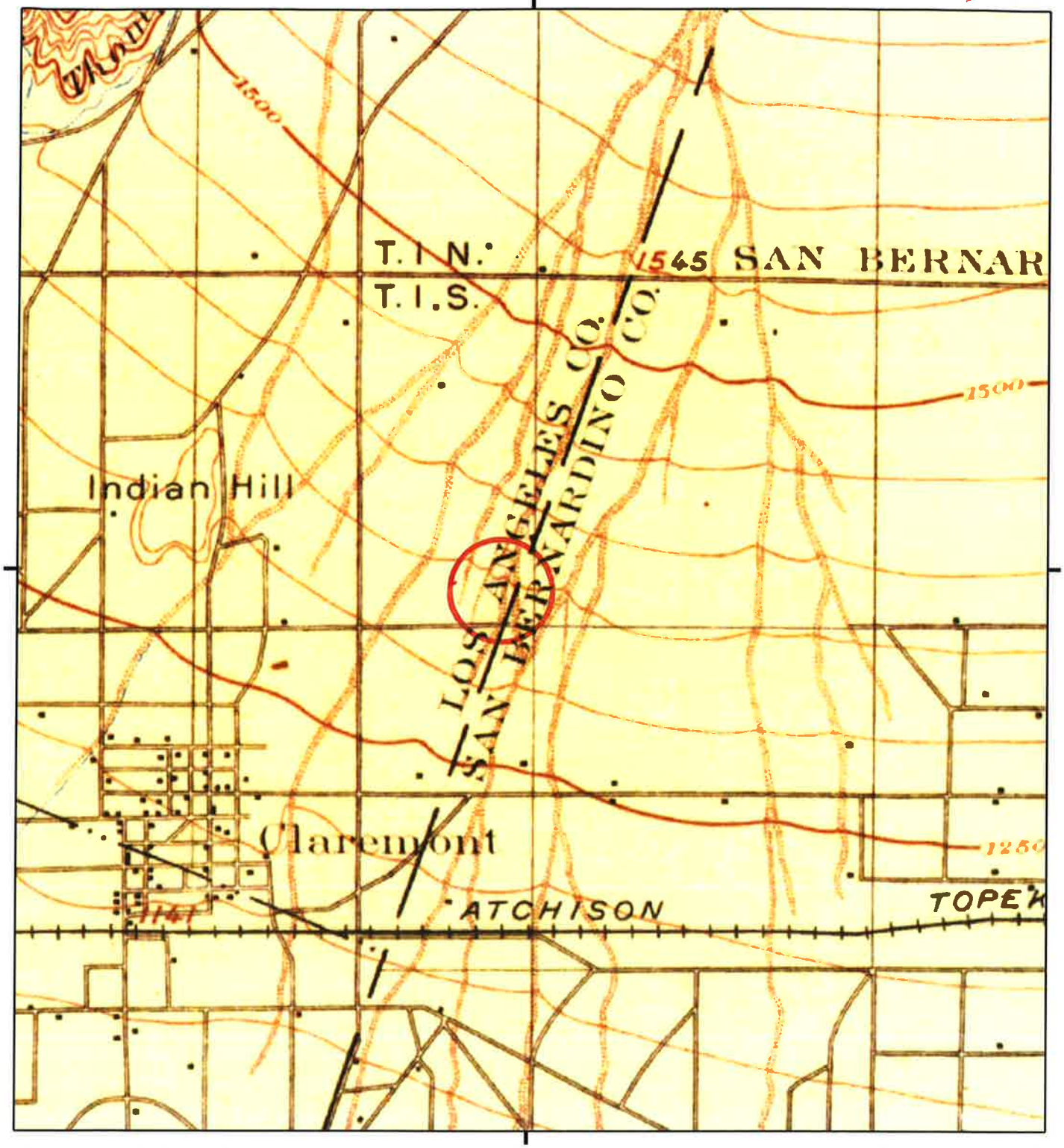
Historical Topo Map

1897



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

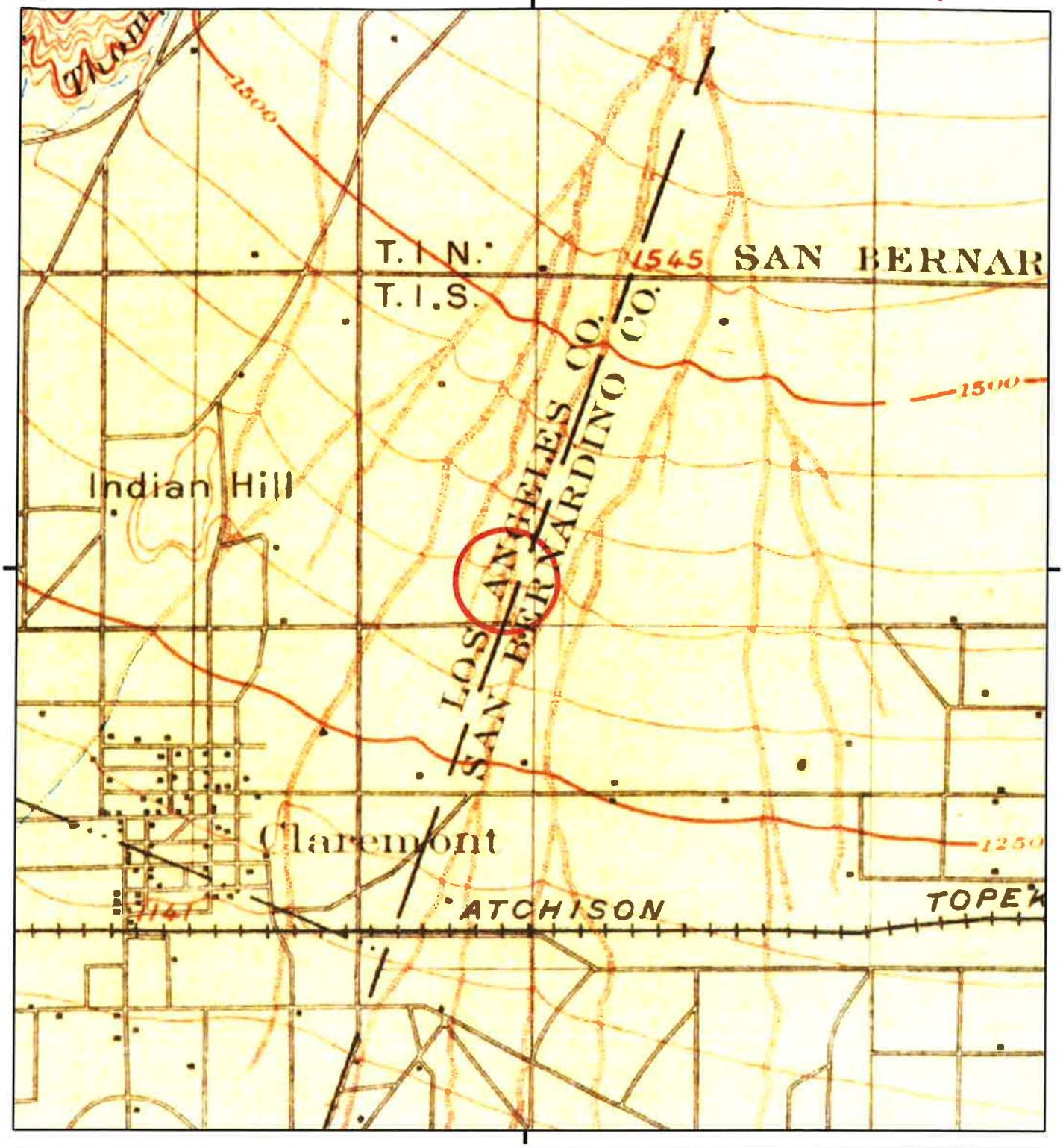
TP, Cucamonga, 1897, 15-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1900



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

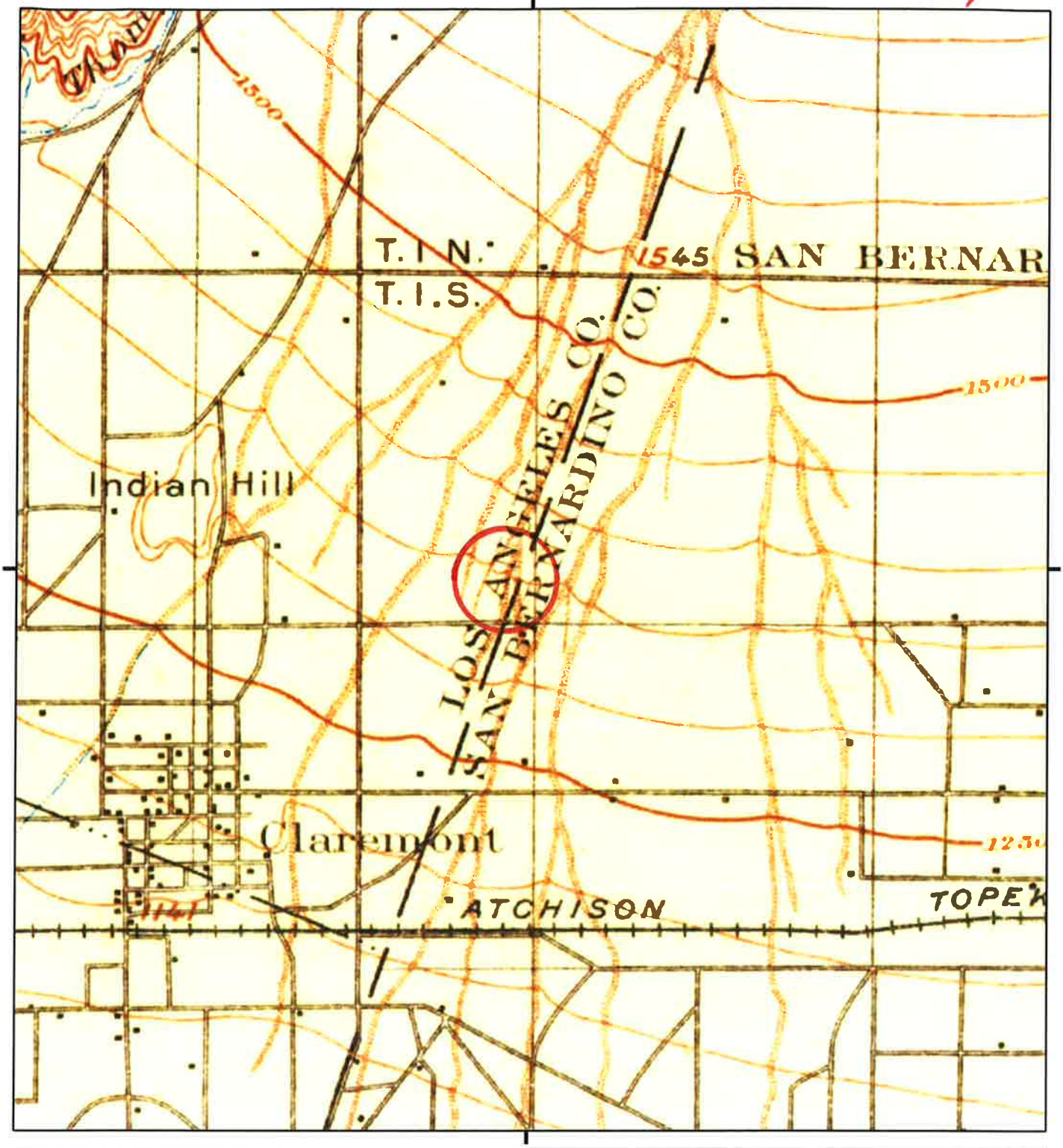
TP, Cucamonga, 1900, 15-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1903



This report includes information from the following map sheet(s).

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W E
SW S SE

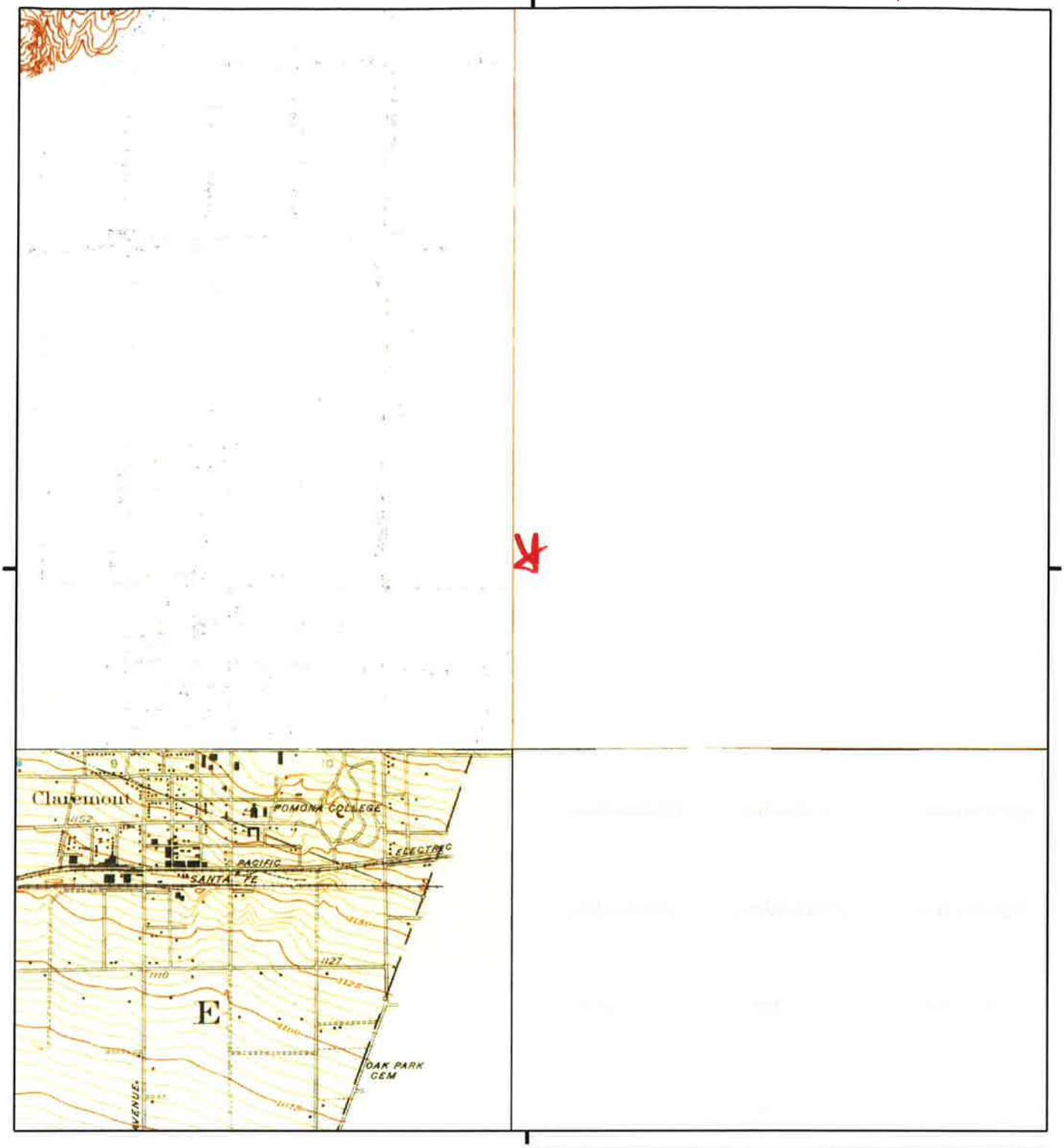
TP, Cucamonga, 1903, 15-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1928, 1933



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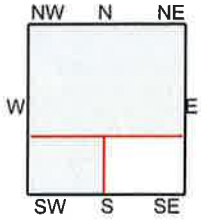


TP, La Verne and Evey Canyon, 1933, 7.5-minute
SW, Claremont, 1928, 7.5-minute
NW, La Verne, 1928, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1933



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

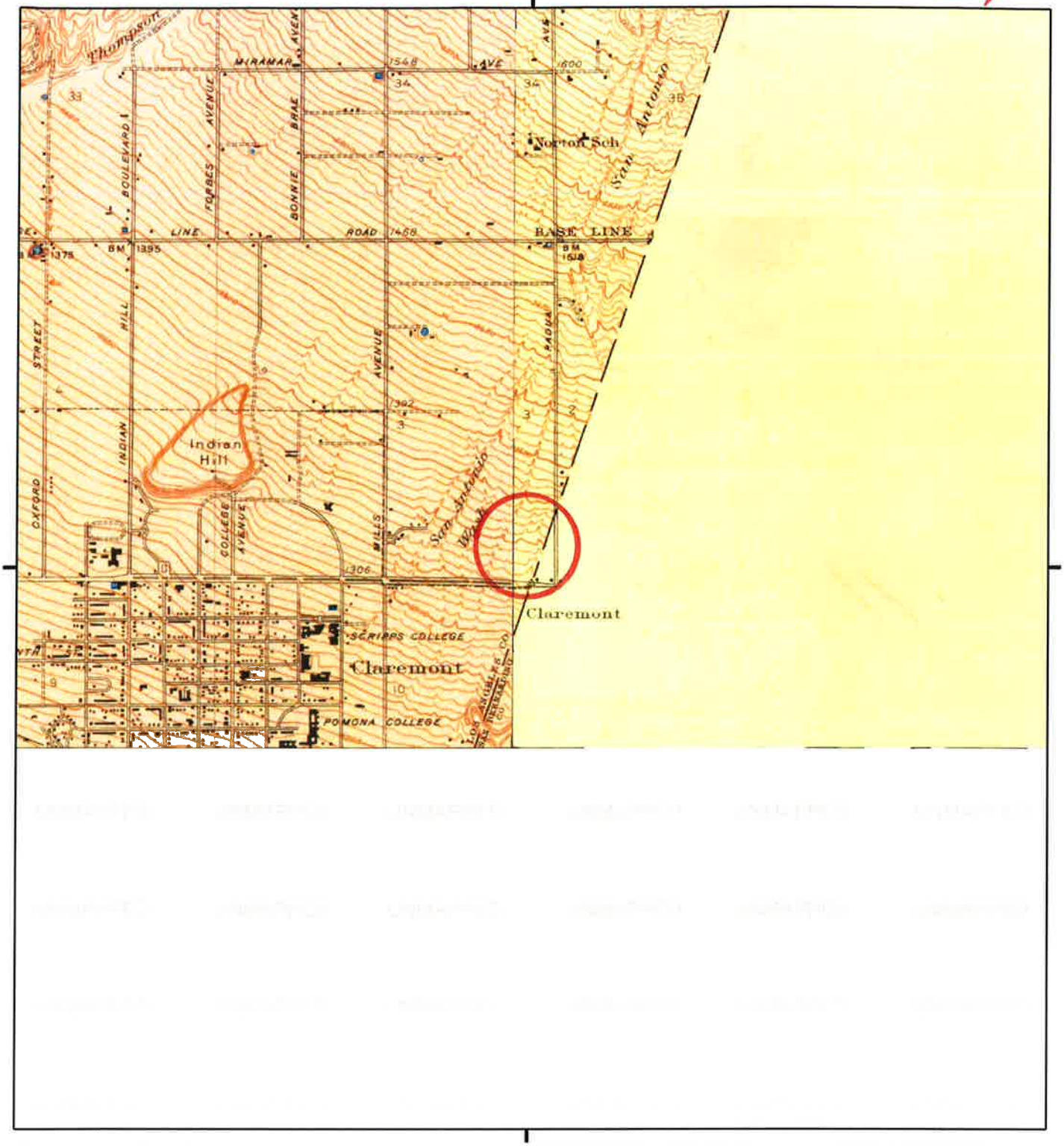
TP, Ontario, 1933, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1940



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

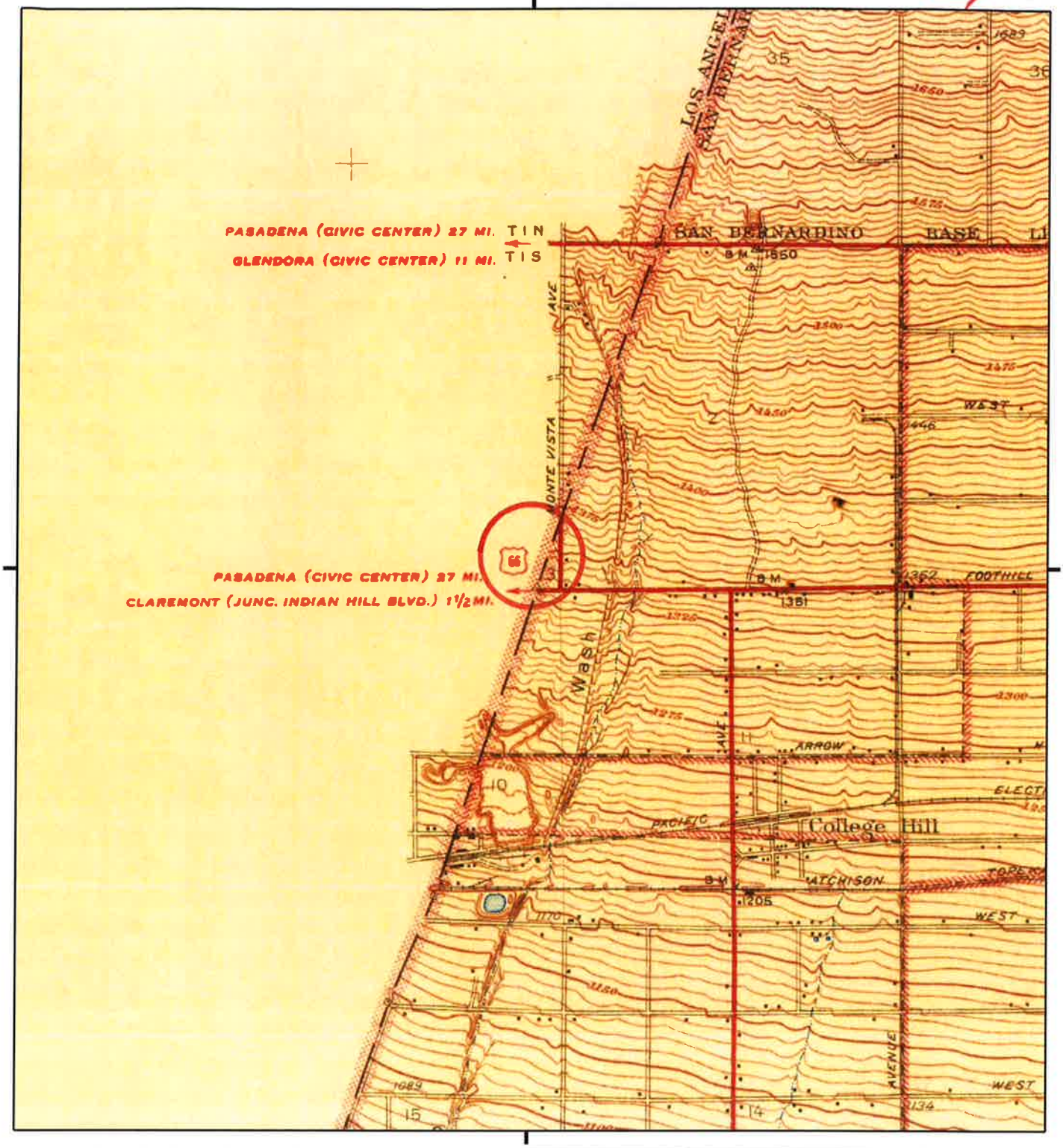
TP, Evey Canyon, 1940, 7.5-minute
NW, La Verne, 1940, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1942



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

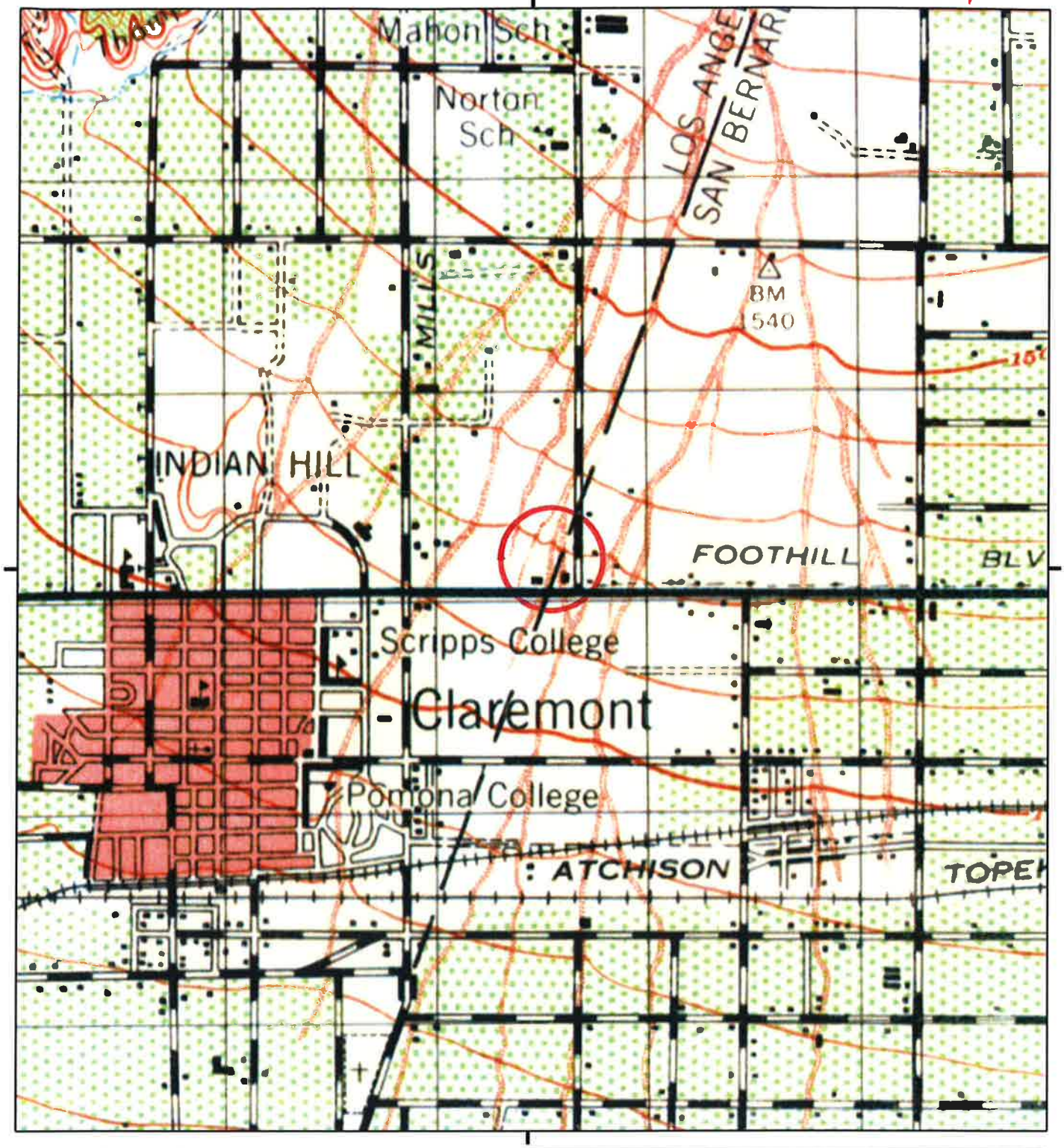
TP, Ontario and Vicinity, 1942, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1944



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

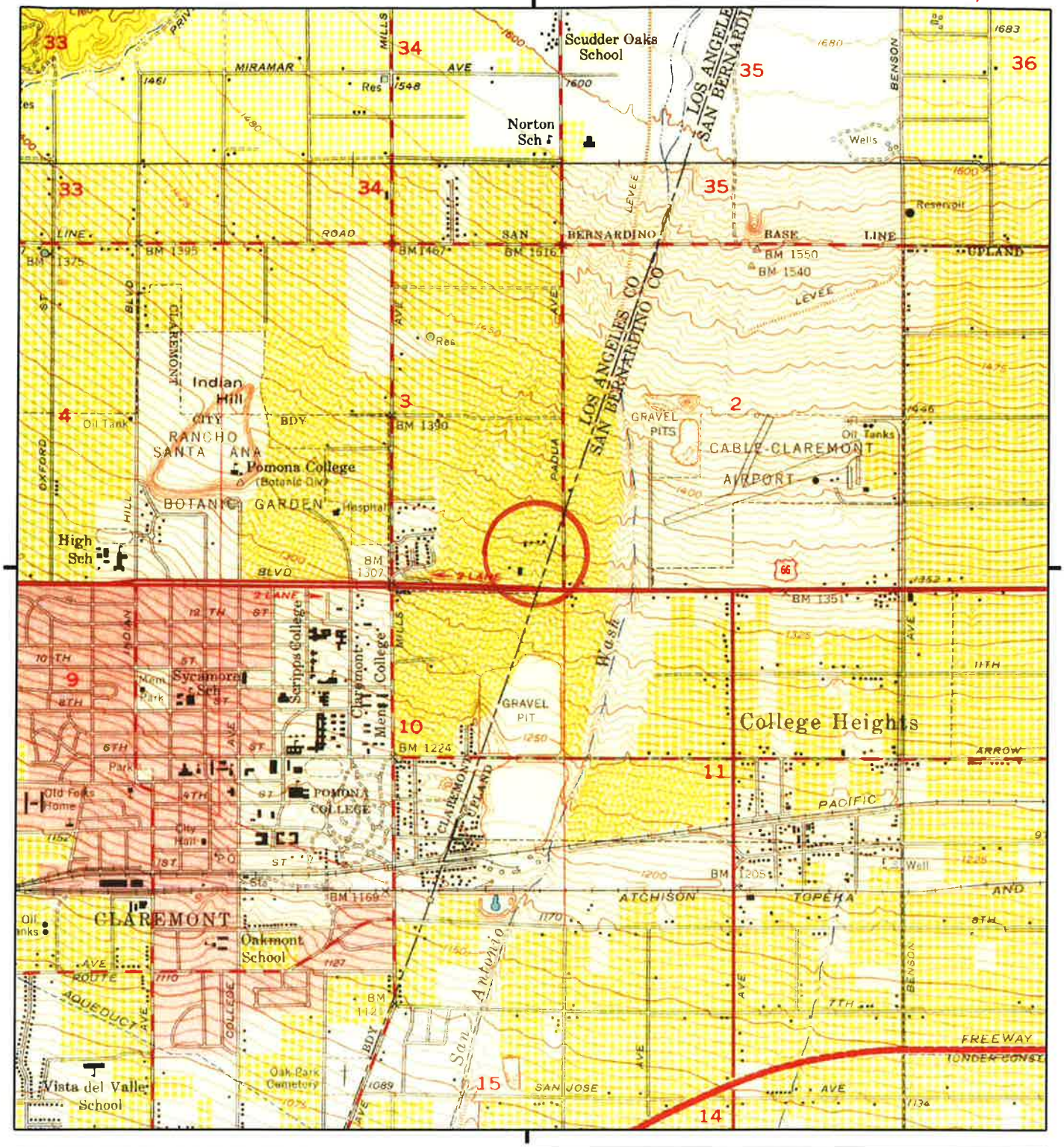
TP, CUCAMONGA, 1944, 15-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

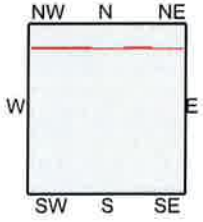
Historical Topo Map

1954



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



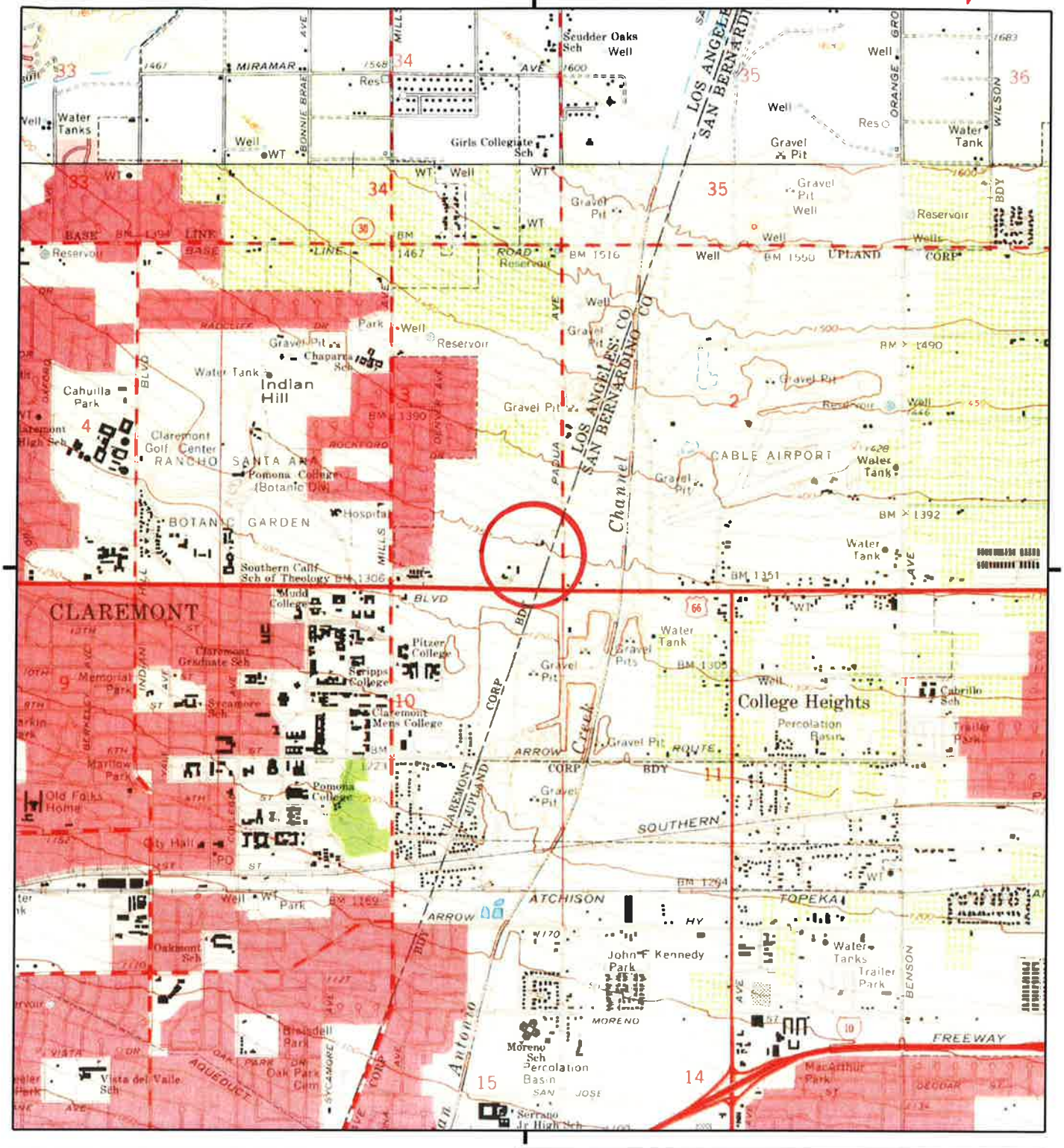
TP, Ontario, 1954, 7.5-minute
N, Mt. Baldy, 1954, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1967



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

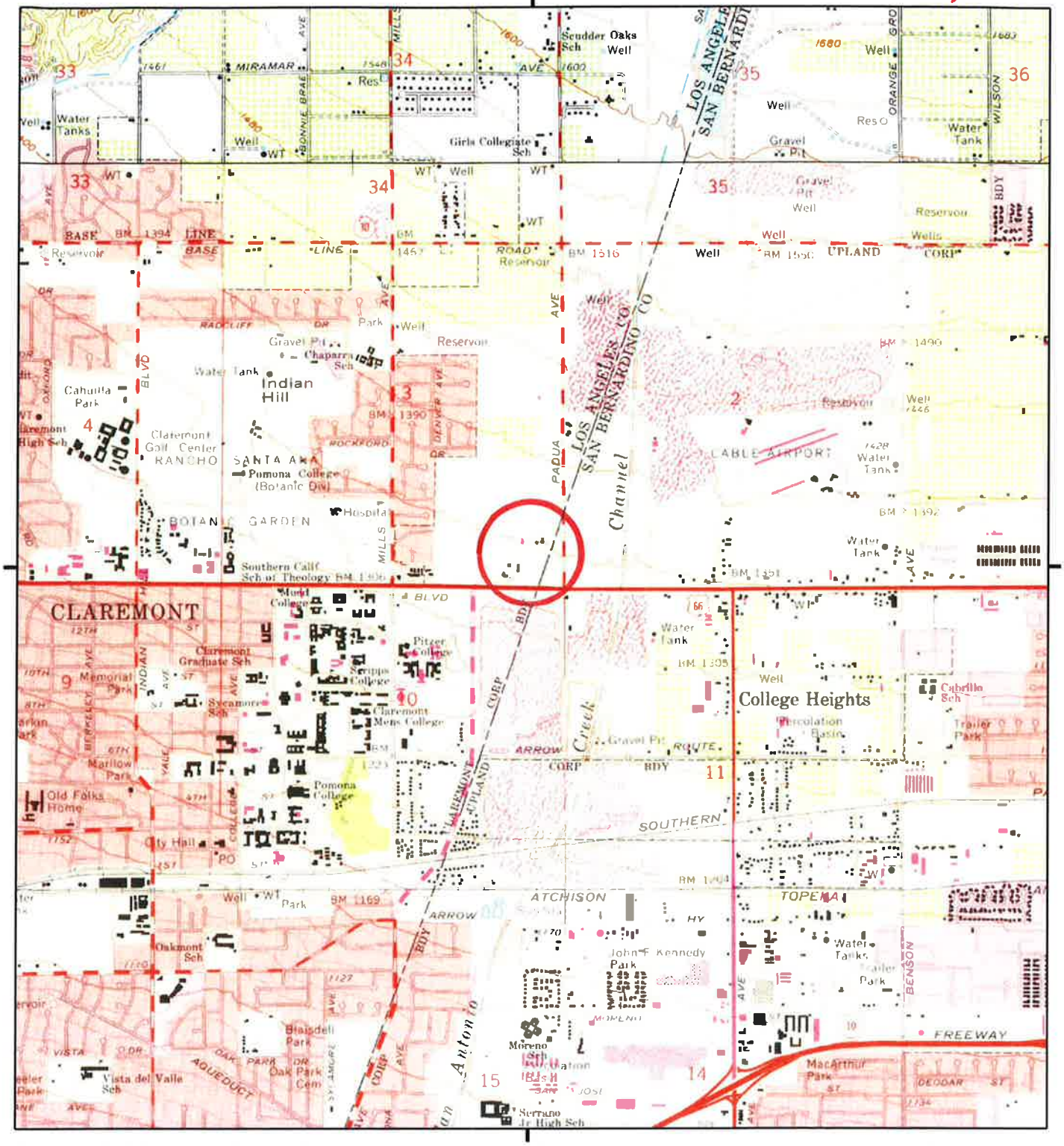
TP, Ontario, 1967, 7.5-minute
N, Mt. Baldy, 1967, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

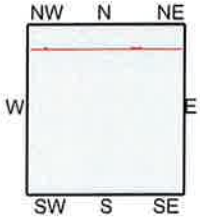
Historical Topo Map

1973



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5



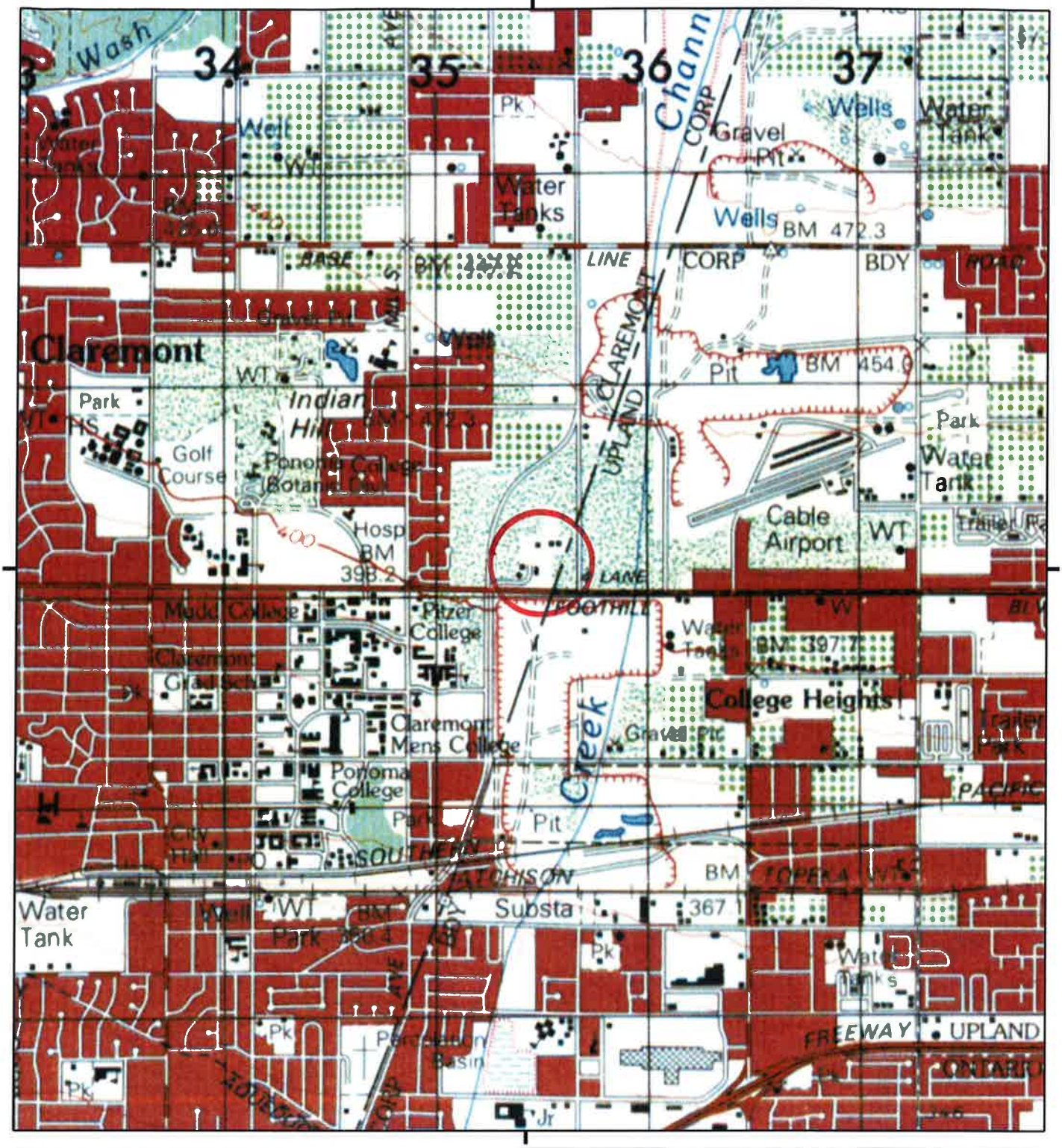
TP, Ontario, 1973, 7.5-minute
N, Mt. Baldy, 1973, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1976



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

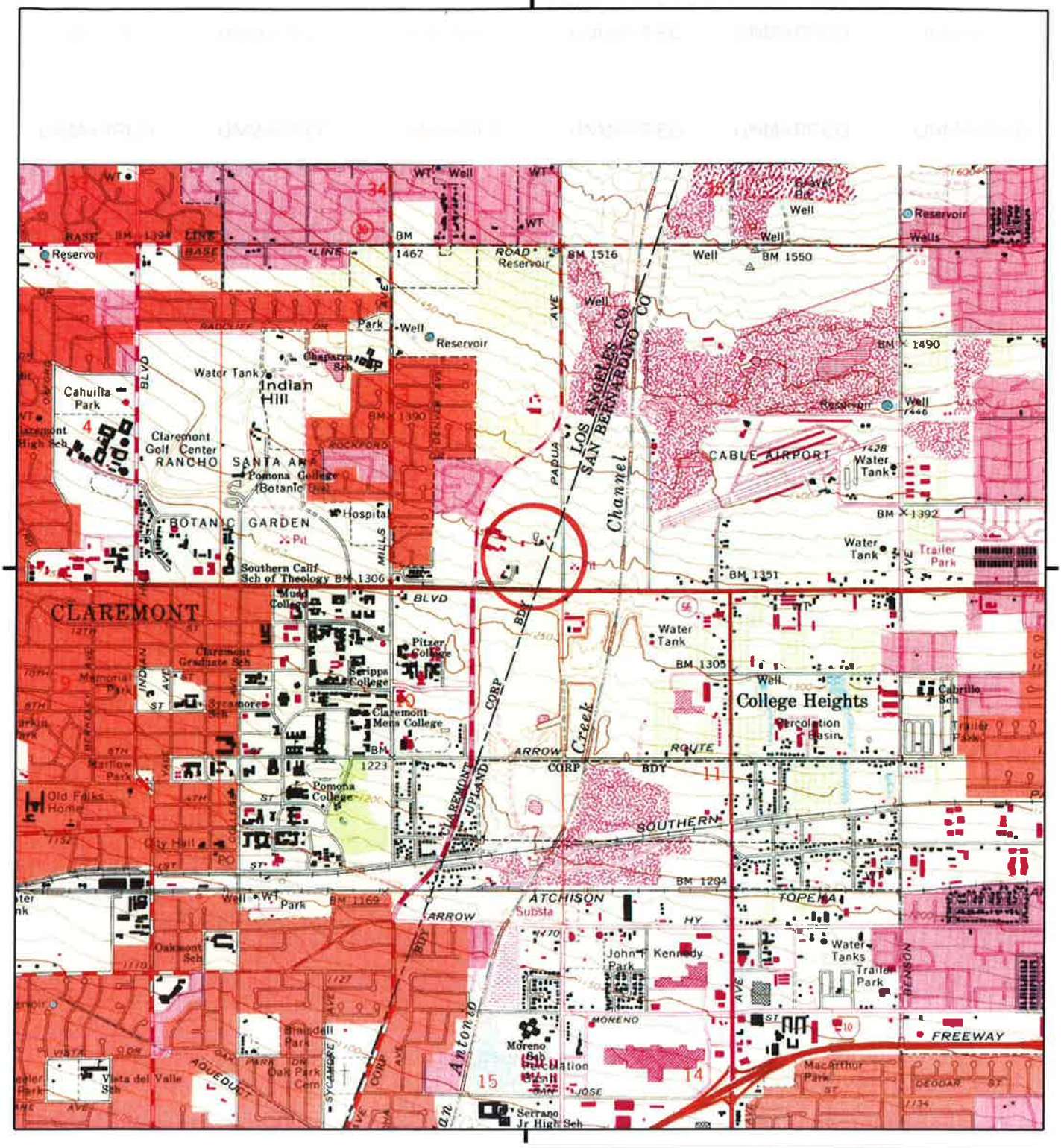
TP, ONTARIO, 1976, 15-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

1981



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

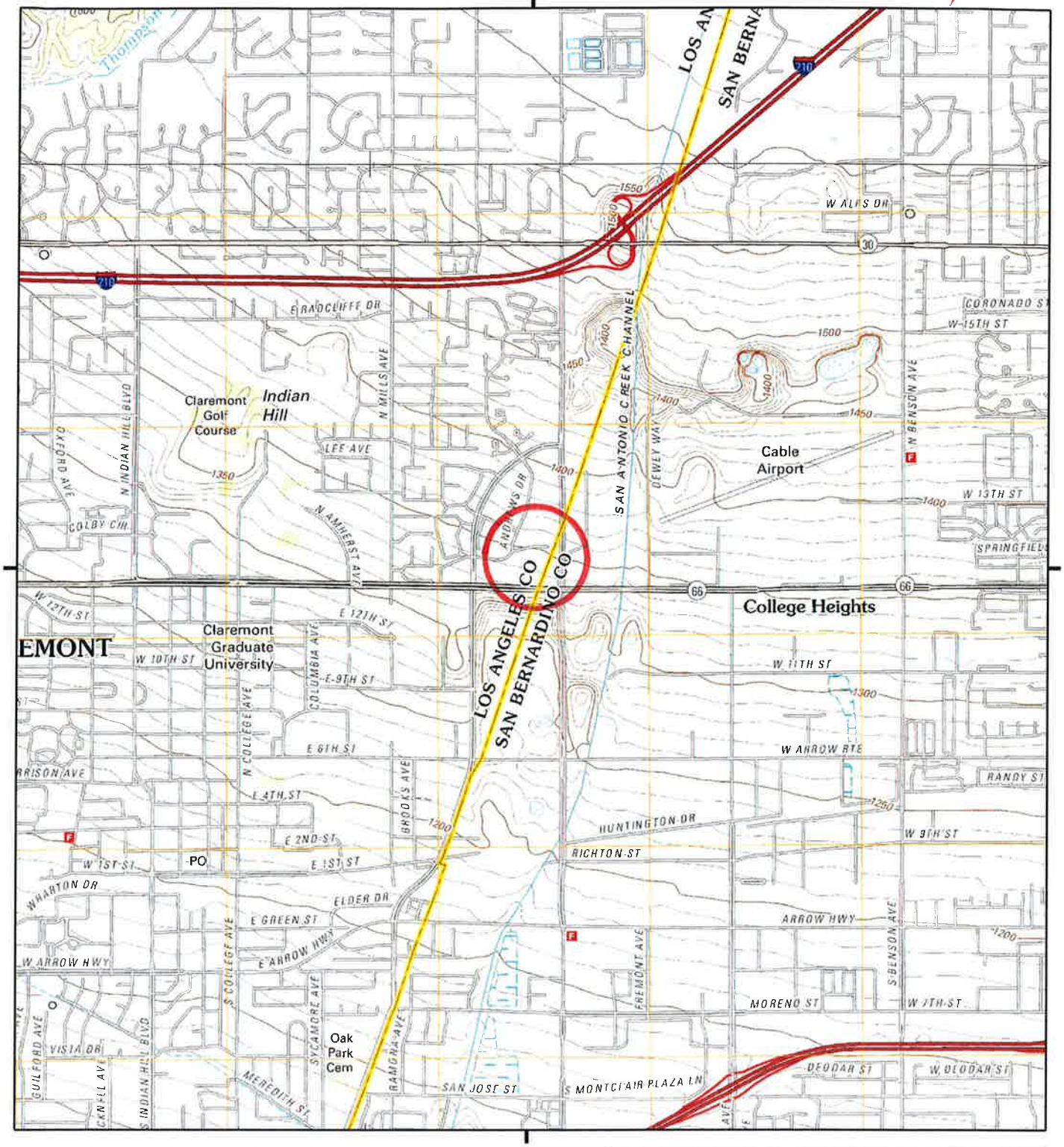
TP, Ontario, 1981, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

Historical Topo Map

2012



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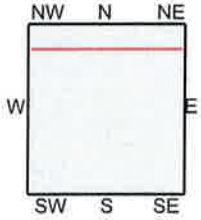

TP, Ontario, 2012, 7.5-minute
N, Mount Baldy, 2012, 7.5-minute

SITE NAME: 735 Foothill Blvd.
ADDRESS: 735 Foothill Blvd.
Claremont, CA 91711
CLIENT: PIC Environmental Services

N

APPENDIX E:

HISTORIC AERIAL PHOTOGRAPHS

E

735 Foothill Blvd.

735 Foothill Blvd.

Claremont, CA 91711

Inquiry Number: 5230729.9

March 23, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

03/23/18

Site Name:

735 Foothill Blvd.
735 Foothill Blvd.
Claremont, CA 91711
EDR Inquiry # 5230729.9

Client Name:

PIC Environmental Services
2619 Sierra Way
La Verne, CA 91750
Contact: Tim Hersch

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2014	1"=500'	Flight Year: 2014	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Flight Date: June 05, 2002	USDA
1994	1"=500'	Acquisition Date: June 01, 1994	USGS/DOQQ
1990	1"=500'	Flight Date: August 29, 1990	USDA
1989	1"=500'	Flight Date: August 03, 1989	USDA
1981	1"=500'	Flight Date: February 21, 1981	EDR Proprietary Brewster Pacific
1977	1"=500'	Flight Date: April 25, 1977	EDR Proprietary Brewster Pacific
1975	1"=500'	Flight Date: December 01, 1975	USGS
1966	1"=500'	Flight Date: April 16, 1966	USGS
1964	1"=500'	Flight Date: August 15, 1964	USGS
1959	1"=500'	Flight Date: October 15, 1959	USDA
1953	1"=500'	Flight Date: February 11, 1953	USDA
1949	1"=500'	Flight Date: May 21, 1949	USDA
1938	1"=500'	Flight Date: June 03, 1938	USDA
1928	1"=500'	Flight Date: January 01, 1928	USGS

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

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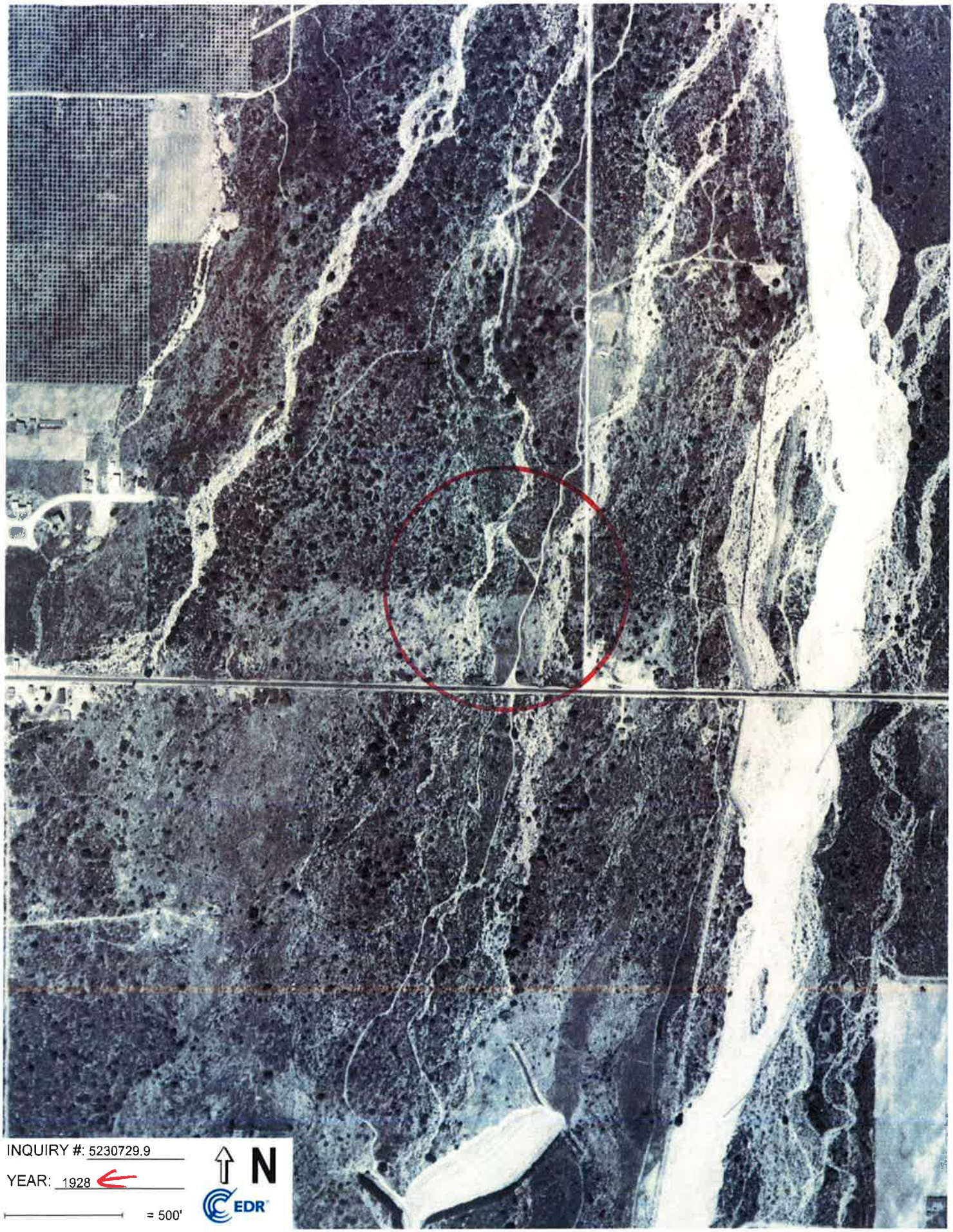


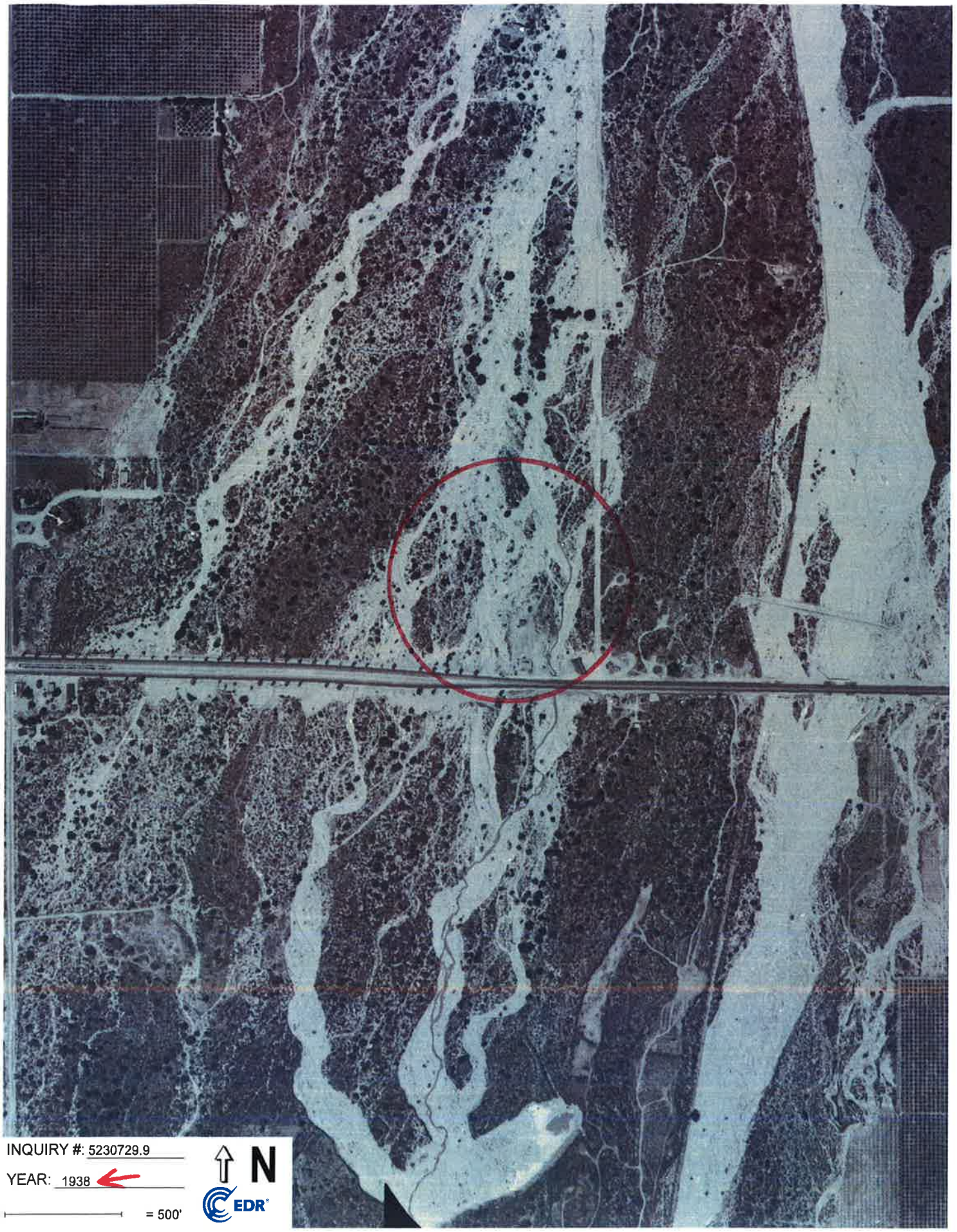
INQUIRY #: 5230729.9

YEAR: 1928

= 500'

N

EDR



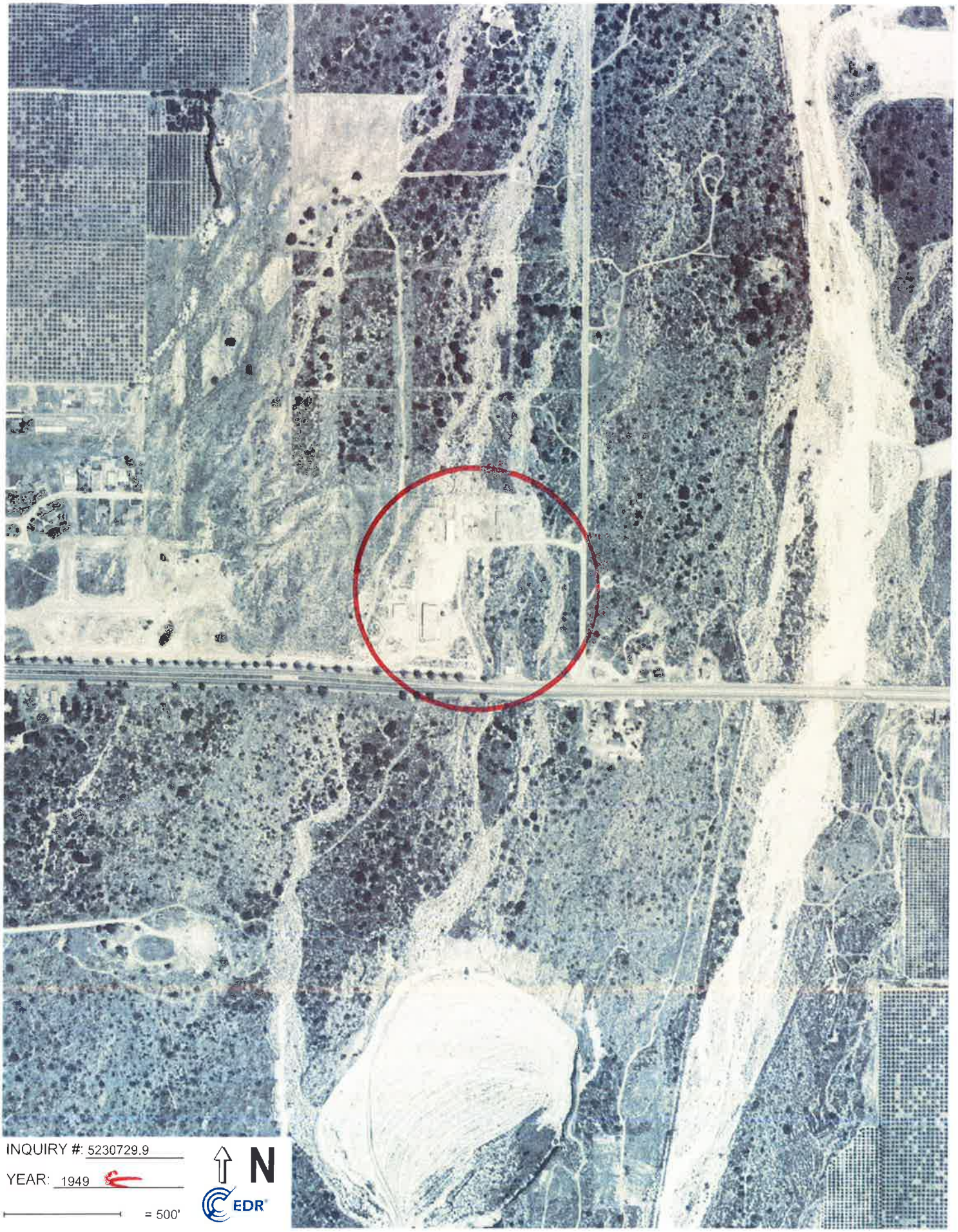
INQUIRY #: 5230729.9

YEAR: 1938

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1949

= 500'

N

EDR



INQUIRY #: 5230729.9

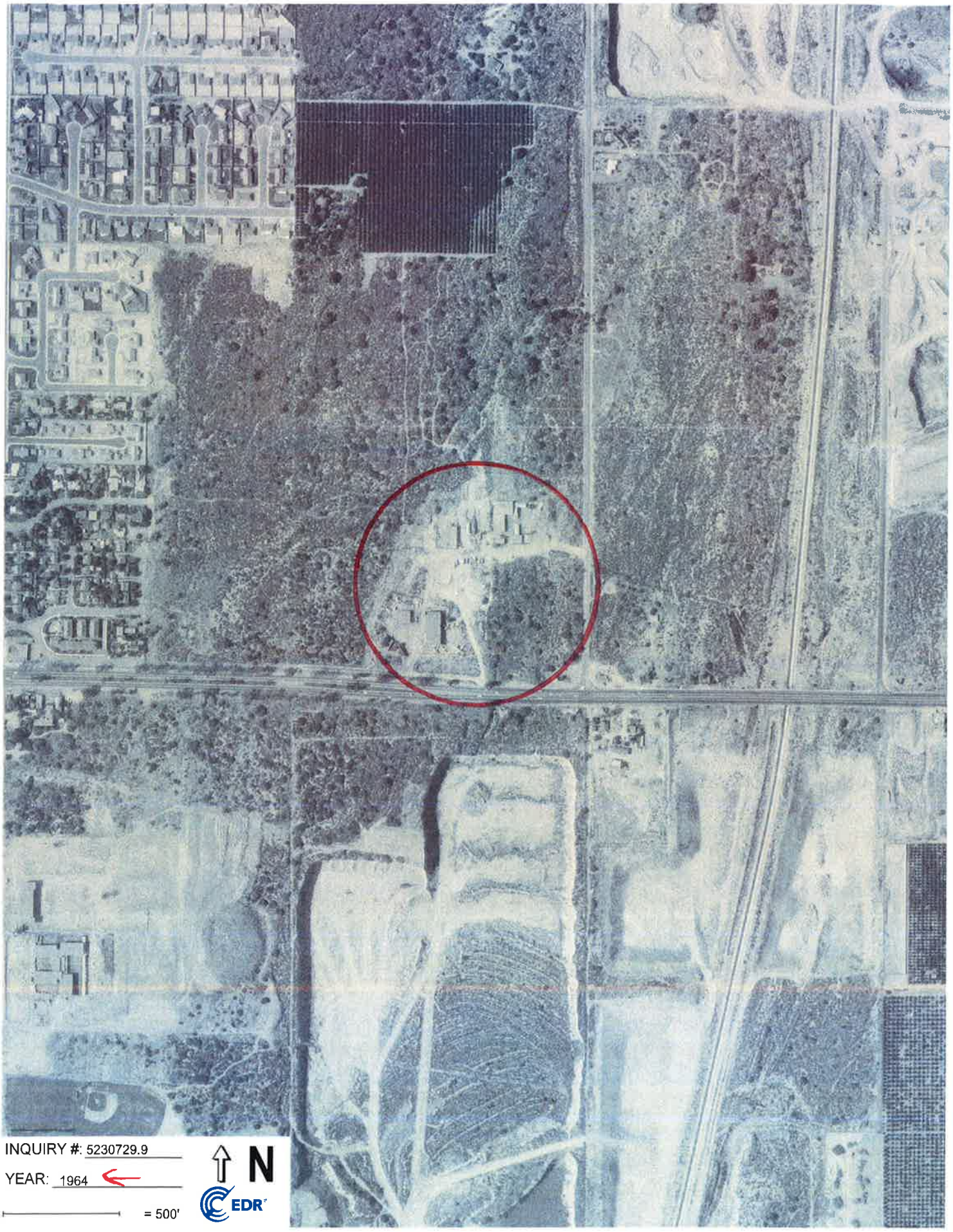
YEAR: 1953

= 500'

N

EDR


INQUIRY #: 5230729.9
YEAR: 1959
= 500'
N
EDR



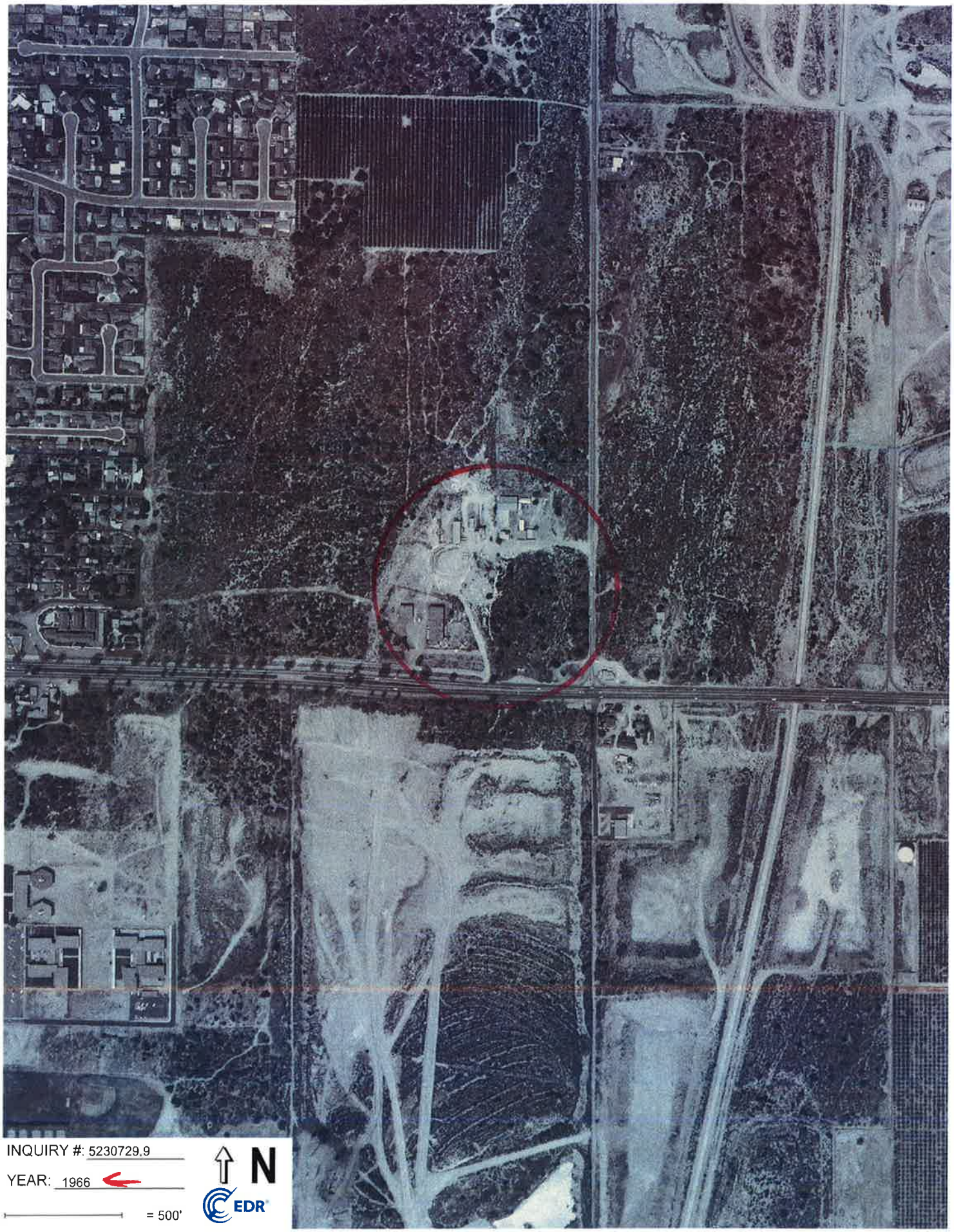
INQUIRY #: 5230729.9

YEAR: 1964

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1966

= 500'

N

EDR



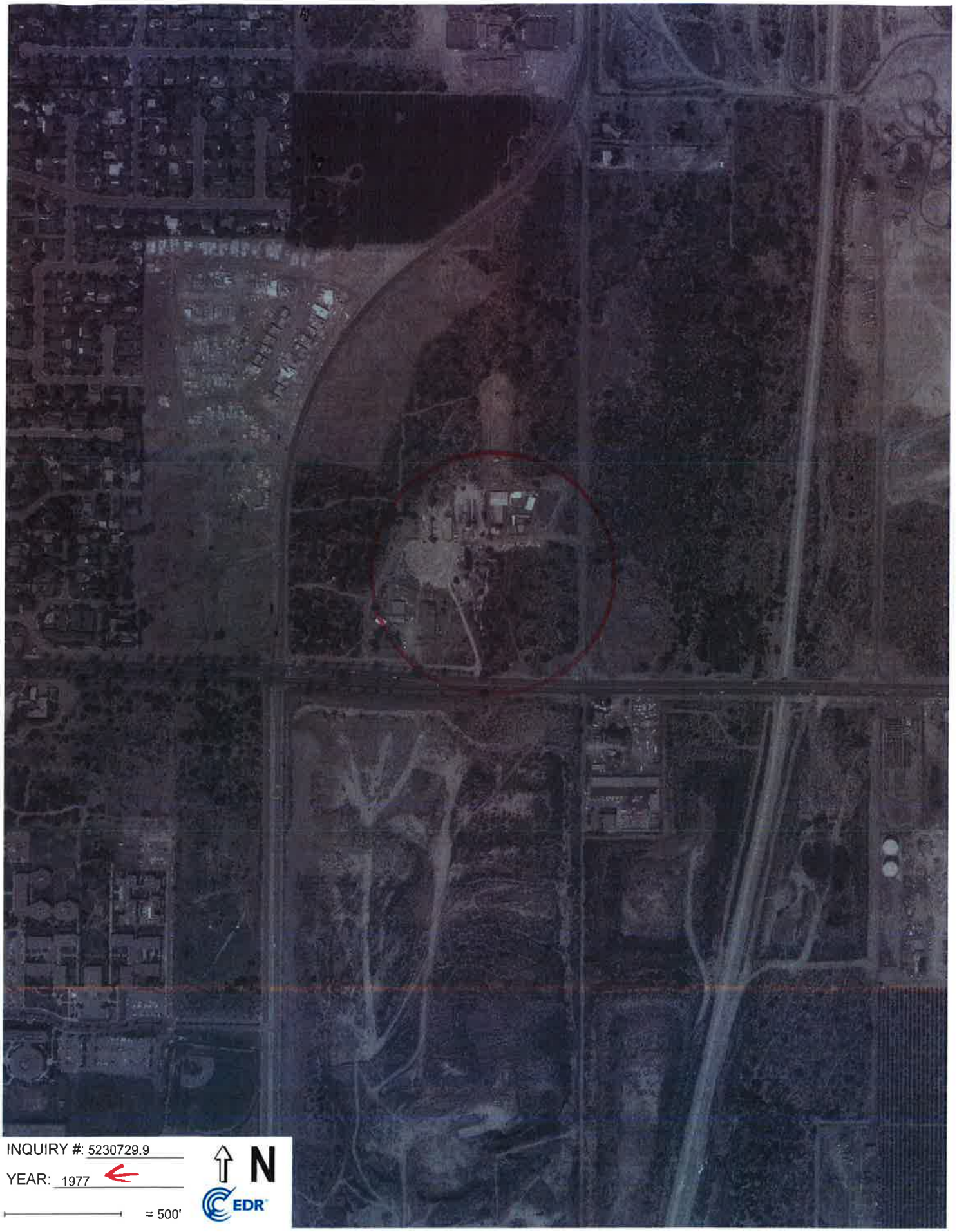
INQUIRY #: 5230729.9

YEAR: 1975

= 500'

N

EDR



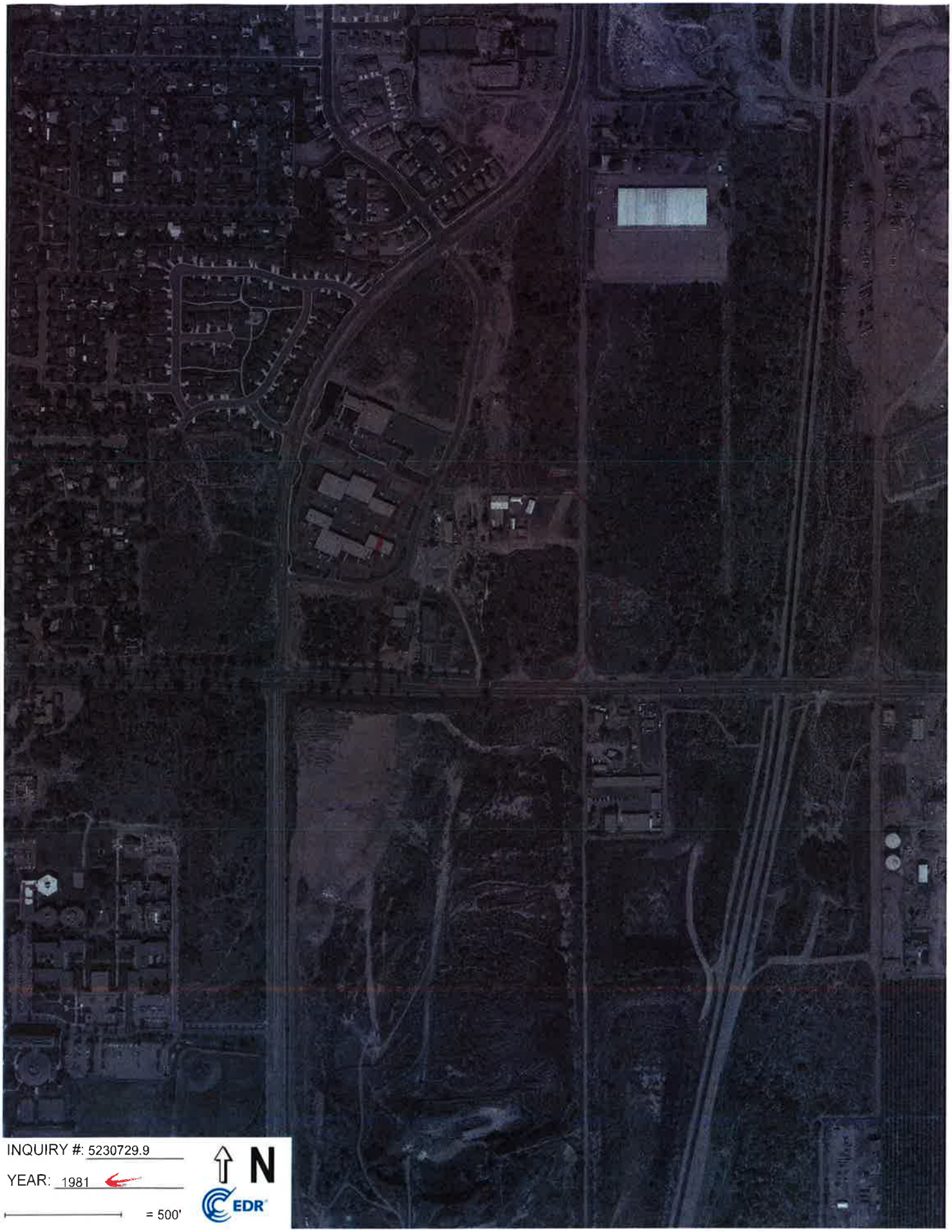
INQUIRY #: 5230729.9

YEAR: 1977

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1981

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1989

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1990

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 1994

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 2002

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 2005

= 500'

N

EDR



INQUIRY #: 5230729.9

YEAR: 2010

= 500'

N

EDR


INQUIRY #: 5230729.9
YEAR: 2014
= 500'
N
EDR

APPENDIX F:

CITY DIRECTORY REPORT

735. Foothill = Armstrong Nursery

737 - 911 E Foothill Blvd = Site

PAGES 5, 6, + 10

735 Foothill Blvd.
735 Foothill Blvd.
Claremont, CA 91711

Inquiry Number: 5230729.5
March 22, 2018

The EDR-City Directory Abstract

EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1920 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by
infoUSA
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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2014	EDR Digital Archive	-	X	X	-
2010	EDR Digital Archive	-	X	X	-
2006	Haines Company	-	-	-	-
2004	Haines Company	-	-	-	-
2003	Haines & Company	-	X	X	-
	Haines & Company	X	X	X	-
2001	Haines Company, Inc.	-	-	-	-
2000	Haines	-	-	-	-
1999	Haines Company	-	-	-	-
1996	GTE	-	X	X	-
1995	Pacific Bell	-	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1991	Pacific Bell	-	X	X	-
1990	Pacific Bell	-	X	X	-
1986	Pacific Bell	-	-	-	-
1985	GTE	-	X	X	-
	Pacific Bell	-	X	X	-
1981	Pacific Telephone	-	X	X	-
1980	GTE	-	X	X	-
	GTE	X	X	X	-
1976	R.L. Polk & Co Publishers	-	-	-	-
1975	GTE	-	X	X	-
	GTE	X	X	X	-
1972	R. L. Polk & Co.	-	-	-	-
1971	R. L. Polk & Co.	-	-	-	-
1970	GTE	-	X	X	-
1969	Pacific Telephone	-	-	-	-
1967	R. L. Polk & Co.	-	-	-	-
1966	Pacific Telephone	-	-	-	-
1965	GTE	-	-	-	-
1964	Pacific Telephone	-	-	-	-
1963	Pacific Telephone	-	-	-	-
1962	Pacific Telephone	-	-	-	-
1961	R. L. Polk & Co.	-	-	-	-
1960	General Telephone Company Publishers	-	X	X	-
1958	Pacific Telephone	-	-	-	-
1957	Pacific Telephone	-	-	-	-
1956	Pacific Telephone	-	-	-	-
1955	R. L. Polk & Co.	-	-	-	-
1954	R. L. Polk & Co.	-	-	-	-
1952	Los Angeles Directory Co.	-	-	-	-
1951	Los Angeles Directory Co.	-	-	-	-
1950	Pacific Telephone	-	-	-	-
1949	Los Angeles Directory Co.	-	-	-	-
1948	Associated Telephone Company, Ltd.	-	-	-	-
1947	Pacific Directory Co.	-	-	-	-
1946	Southern California Telephone Co	-	-	-	-
1945	R. L. Polk & Co.	-	-	-	-
1944	R. L. Polk & Co.	-	-	-	-
1942	Los Angeles Directory Co.	-	-	-	-
1940	Los Angeles Directory Co.	-	-	-	-
1939	Los Angeles Directory Co.	-	-	-	-
1938	Los Angeles Directory Company Publishers	-	-	-	-
1937	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1936	Los Angeles Directory Co.	-	-	-	-
1935	Los Angeles Directory Co.	-	-	-	-
1934	Los Angeles Directory Co.	-	-	-	-
1933	Los Angeles Directory Co.	-	-	-	-
1932	Los Angeles Directory Co.	-	-	-	-
1931	TRIBUNE-NEWS PUBLISHING CO.	-	-	-	-
1930	Los Angeles Directory Co.	-	-	-	-
1929	Los Angeles Directory Co.	-	-	-	-
1928	Los Angeles Directory Co.	-	-	-	-
1927	Los Angeles Directory Co.	-	-	-	-
1926	Los Angeles Directory Co.	-	-	-	-
1925	Los Angeles Directory Co.	-	-	-	-
1924	Los Angeles Directory Co.	-	-	-	-
1923	Los Angeles Directory Co.	-	-	-	-
1921	Los Angeles Directory Co.	-	-	-	-
1920	Los Angeles Directory Co.	-	-	-	-

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	*Type*	*Findings*
911 East Foothill Blvd	Client Entered	
743 East Foothill Blvd	Client Entered	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

735 Foothill Blvd.
Claremont, CA 91711

FINDINGS DETAIL

Target Property research detail.

E FOOTHILL BLVD

735 E FOOTHILL BLVD

Year	Uses	Source
2003	ARMSTRONGGARDEN	Haines & Company
	CENTER	Haines & Company

Adjacent to west

743 E FOOTHILL BLVD

Year	Uses	Source
1975	Woodworks The	GTE
	BACKPACKER SHOP	Pacific Telephone

East Foothill Blvd

743 East Foothill Blvd

Year	Uses	Source
1980	H & W LANDSCAPE SVCS	GTE
	POWER PLANT NURSERY	GTE
	WOOD N STUFF	GTE
1975	Woodworks The	GTE
	BACKPACKER SHOP	Pacific Telephone

911 East Foothill Blvd

Year	Uses	Source

FOOTHILL BLVD E

743 FOOTHILL BLVD E

Year	Uses	Source
1980	H & W LANDSCAPE SVCS	GTE
	POWER PLANT NURSERY	GTE

FINDINGS

Year	Uses	Source
1980	WOOD N STUFF	GTE



FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

CLAREMONT BLVD N

1420 CLAREMONT BLVD N

Year	Uses	Source
1996	Building	GTE
	A GAILEY A VARNEY	GTE
	A TROY CORP	GTE
	A CALVARY CHAPEL	GTE
	A LODESTAR SYS INC	GTE
	A CINNAMON DESIGN	GTE
	A FULMER PHD BOB G	GTE
	v ALLSTATE INSURANCE CO	GTE
	D 0 WYKOFF JANE GRAPHIC	GTE
	A HAIR OF THE DOG	GTE
	SOUTHERN CALIFORNIA	GTE
	CLAREMONT GRAPHICS	GTE
	CENTER	GTE
	COMMUNITY HEALTH	GTE
	B DANIEL TAYLOR	GTE
	PORTRAITURE	GTE
	B SOUTHLAND DATA	GTE
	PROCESSING	GTE
	NEWS BROADCAST NETWORK	GTE
	A W & W ENTERPRISES	GTE
	SYNCHRONEX	GTE
	A LAWNSCAPE SYSTEMS	GTE
	BEDOL INTERNATL GROUP	GTE
	A HICKEY ASSOCIATES	GTE
	ROBERT	GTE
	B PAPER ARTS MERCHANDISE	GTE
	A AIKIDO MUSUBI	GTE
	A QUALITY CONTAINER	GTE
	B EXPO POWER SYSTEMS	GTE
	D ART MASTER ART PAK	GTE
	A JOHNSON INS JANET	GTE

FINDINGS

Year	Uses	Source
1996	v SUNDIAL INSURANCE	GTE
	D THE BUYERS AGENT	GTE
	B H K INC	GTE
	NEW LIFE CHRISTIAN CENTER	GTE
1990	BUILDING	Pacific Bell
	FOOTHILL JAZZERCISE	Pacific Bell
	A NIMBUS	Pacific Bell
	A LODESTAR SYS INC	Pacific Bell
	A VALLEY MED IMAGING	Pacific Bell
	A VALLEY MED BILLING	Pacific Bell
	A CINNAMON DESIGN	Pacific Bell
	A MILLER FINANCIAL	Pacific Bell
	A FULMER PHD BOB G	Pacific Bell
	A +COPORATE CHEER	Pacific Bell
	C APCA INC	Pacific Bell
	D WYKOFF JANE GRAPHIC	Pacific Bell
	B ALLEGRO TYPOGRAPHICS	Pacific Bell
	C MPQ BUSINESS SUPPLRS	Pacific Bell
	C COLLEGE TYPWRTR SVC	Pacific Bell
	WARE GRAPHICS	Pacific Bell
	A HAIR OF THE DOG	Pacific Bell
	B + SINGLETON S DOG TRAINING	Pacific Bell
	A DATACARD CORP	Pacific Bell
	B PARRY RICHARD	Pacific Bell
	B BAGGERLY & ASSOC	Pacific Bell
	A PITEX INC	Pacific Bell
	B + BRASS SHACK POLISH ING	Pacific Bell
	B B S POLISHING	Pacific Bell
	B ASCON INC	Pacific Bell
	A GLASS PLUS	Pacific Bell
	C NIEMEYER DEVELOPMENT	Pacific Bell
	A LAWNSCAPE SYSTEMS	Pacific Bell
	A CERTIFIED BUILDING	Pacific Bell
	A JAVCO	Pacific Bell
	B VALLEZ PLASTERING	Pacific Bell
	A CHRYSALIS GALLERY	Pacific Bell
	B SUPPLY LINE INC	Pacific Bell
	D PRO BIKE	Pacific Bell

FINDINGS

Year	Uses	Source
1990	A BURTON INTERIORS	Pacific Bell
	A BURTON QUALITY HOMES INC	Pacific Bell
	B JOHNSON INS JANET	Pacific Bell
	C NEWS RADIO NETWORK	Pacific Bell
	E GERMAN GENEALOGICAL SVC	Pacific Bell
1985	BUILDING	GTE
	A VALLEY MED IMAGING	GTE
	A VALLEY MED BILLING	GTE
	A VAN DAM CORNELIUS	GTE
	A MILLER ROOT REALTOR	GTE
	B +STRATECON INC	GTE
	A HORACE MANN INS CO	GTE
	C APCA INC	GTE
	D GROUP BENEFITS SHPRS	GTE
	A + CHETNEY WM L D	GTE
	B 0 OBROWN JIM	GTE
	C COLLEGE TYPWRTR SVC	GTE
	C MPQ BUSINESS SUPPLRS	GTE
	D WARE GRAPHICS	GTE
	A CARLY MOULTRIE S	GTE
	B 8 MACHINE INTELLIGENCE	GTE
	A AMICI CONSTRUCTION	GTE
	B +BAGGERLY&ASSOCIATES	GTE
	B 5 BONTANA ELECTRIC	GTE
	B 0 JUST SERVICES INC	GTE
	A $DOUGHERTY LARRY	GTE
	B OMURCO INC	GTE
	A LAWNSCAPE SYSTEMS	GTE
	A CHRYSALIS GALLERY	GTE
	B 0 BODY JAZZ	GTE
	A OH & 0 DESGN PHTGRPHY	GTE
	B BROWNWOOD FURNITURE	GTE
1980	BUILDING	GTE
	CALVARY CHAPEL OF	GTE
	+ APPROVED AIR CNDTNG	GTE
	A PAPER FACTORY OUTLET 6 Z	GTE
	B 6 BELL & HOWELL	GTE
	IOS 105 A +GRANGE INS ASSN	GTE

FINDINGS

Year	Uses	Source
1980	A MOON R J INC 6 Z	GTE
	A MOON R J INC	GTE
	A MELVYN ROBERT S	GTE
	A BEAUTY BARBER S SUPL 626 53 Z	GTE
	B 6 AMERICAN ELECTRIC	GTE
	B ART MASTER BOOK CO	GTE
	ULTIMATE AIR CONDNG	GTE
	A +LAWNSCAPE SYSTEMS	GTE
	+ ACTION EXTROED PLSTC	GTE
	A PUBLISHER OUTLET INC	GTE

E FOOTHILL BLVD

701 E FOOTHILL BLVD

Year	Uses	Source
2003	AMPMARCO	Haines & Company

759 E FOOTHILL BLVD

Year	Uses	Source
1975	REEL FURNITURE	GTE
	Reiff Ray	GTE

795 E FOOTHILL BLVD

← Pomona e Towne Ave. – not Claremont

Year	Uses	Source
1960	Adams Richfield Serv Ston	General Telephone Company Publishers

E MARYLIND AVE

771 E MARYLIND AVE

Year	Uses	Source
1981	ANDREW CALIF CORP CLAR	Pacific Telephone

FOOTHILL BLVD E

655 FOOTHILL BLVD E

Year	Uses	Source
1996	MCDERMOTT MD JOHN J	GTE
1990	MCDERMOTT MD JOHN J	Pacific Bell
1980	MCDERMOTT MD JOHN J	GTE
1970	USHEETS DESIGN H	GTE

FINDINGS

661 FOOTHILL BLVD E

Year	Uses	Source
1980	SHEETS M ASSOCS DSGN	GTE
	SHEETS MILLARD	GTE

665 FOOTHILL BLVD E

Year	Uses	Source
1996	H MANE ATTRACTION	GTE
	Building	GTE
	B SORRENTO 8 ITALIAN	GTE
	C BALDWIN REALTY	GTE
	E KAPERS	GTE
	G ALL BRIDES OF CLAREMONT	GTE
	I SHUTTER BUG ONE HOUR	GTE
	J AMORE YOGURT & CAFE	GTE
	K FOOTHILL LAUNDRY & DRY	GTE
	M BRICKS BILLARDS & MUSIC	GTE
1990	N ALLSTATE INS CO	Pacific Bell
	K a FOOTHILL LAUNDRY & DRY	Pacific Bell
	J CLAREMONT YOGURT	Pacific Bell
	H COBURN DONN	Pacific Bell
	H RENDON SANDR	Pacific Bell
	H +HARRIS KAREN	Pacific Bell
	H GRABSKI KATHY	Pacific Bell
	H MANE ATTRACTION	Pacific Bell
	H QUINONEZ YOLANDE	Pacific Bell
	BUILDING B SORRENTO S ITALIAN	Pacific Bell
	C PALOMARES ESCROW INC	Pacific Bell
	C BALDWIN REALTY	Pacific Bell
	D ASHLEY S CAROUSEL OF	Pacific Bell
	E +4 KAPERS	Pacific Bell
	F BRENNEMANS ESQUIRE	Pacific Bell
	G FASHIONS BY ELAYNE	Pacific Bell

689 FOOTHILL BLVD E

Year	Uses	Source
1970	n ELWELL OR C H	GTE

FINDINGS

695 FOOTHILL BLVD E

Year	Uses	Source
1970	BBETSY ROSS ICE CREAM	GTE

697 FOOTHILL BLVD E

Year	Uses	Source
1996	IRON WORKS GYM	GTE
1990	BUILDING C FOOTHILL VIDEO NO	Pacific Bell

699 FOOTHILL BLVD E

Year	Uses	Source
1990	EXXON CO US	Pacific Bell

MARYLIND AVE

763 MARYLIND AVE

Year	Uses	Source
2003	XXXX	Haines & Company

Marylind Ave

771 Marylind Ave

Year	Uses	Source
2014	CONVEYOR MFG & SVC INC	EDR Digital Archive
	CONVEYOR MFG & SVC INC	EDR Digital Archive
2010	CONVEYOR MFG & SVC INC	EDR Digital Archive
	CONVEYOR MFG & SVC INC	EDR Digital Archive

MARYLIND AVE

771 MARYLIND AVE

Year	Uses	Source
2003	MFG&SERVICE	Haines & Company
	DEHORTAJoseflma	Haines & Company
1975	Andrew Calif Corp	GTE

Marylind Ave

791 Marylind Ave

Year	Uses	Source
2014	COMPASSION HOSPICE	EDR Digital Archive
	COMPASSION HOSPICE	EDR Digital Archive

FINDINGS

Year	Uses	Source
2014	TAURUS MARKETING	EDR Digital Archive
	HOLY INFANT HOME CARE INC	EDR Digital Archive
	HOLY INFANT HOME CARE INC	EDR Digital Archive
	TAURUS MARKETING	EDR Digital Archive
2010	TAURUS MARKETING	EDR Digital Archive
	HOLY INFANT HOME CARE INC	EDR Digital Archive
	PERSONAL CARE SERVICES	EDR Digital Archive
	PERSONAL CARE SERVICES	EDR Digital Archive
	TAURUS MARKETING	EDR Digital Archive
	HOLY INFANT HOME CARE INC	EDR Digital Archive

MARYLIND AVE

791 MARYLIND AVE

Year	Uses	Source
2003	OCHOCOArturo	Haines & Company
	A&O SUPPLY	Haines & Company
	&A DISTRIBUTORS	Haines & Company

MARYLIND AVE E

771 MARYLIND AVE E

Year	Uses	Source
1996	38 GRINDING CO	GTE

N CLAREMONT BLVD

1400 N CLAREMONT BLVD

Year	Uses	Source
1981	DU PONT DE NEMOURS EI & CO PHOTO PRODUCTS DEPT BURBANK	Pacific Telephone

1402 N CLAREMONT BLVD

Year	Uses	Source
2003	XXXX	Haines & Company

1420 N CLAREMONT BLVD

Year	Uses	Source
2003	HAIR OFTHE DOG	Haines & Company
	BUILDING AIKI MUSUBI D	Haines & Company
	AIKIDO MUSUBI D	Haines & Company

FINDINGS

Year	Uses	Source
2003	ALLSTATE INS SALES	Haines & Company
	OFFICE ANDERSON&ASSOCIA	Haines & Company
	TES ANDERSON&ASSOCIA	Haines & Company
	TES BEDOL INTERNATL	Haines & Company
	GROUP CA BUYERS AGENT	Haines & Company
	CALVARY CHAPEL OF	Haines & Company
	CLAREMONT CINNAMON DESIGN	Haines & Company
	CLAREMONTTAX	Haines & Company
	ASSOCIATES INC DANIEL TAYLOR	Haines & Company
	PORTRAITURE DICK LOYA	Haines & Company
	ENTERPRISES EEPIC INC	Haines & Company
	ELLIOTTMYRN	Haines & Company
	FULMERBOB G PH D	Haines & Company
	GAILEY A VARNEY TAX	Haines & Company
	GENESIS RESOURCE	Haines & Company
	W&W ENTERPRISES 9 S	Haines & Company
	HEALTHY LIMB THE	Haines & Company
	LEARNING POINT OF	Haines & Company
	CLRMNTTHE LOCHHEAD GUY R	Haines & Company
	ATTY LODESTAR SYSTEMS	Haines & Company
	INC MCDONALDS	Haines & Company
	FRANCHISE MICHAEL NEGRETE	Haines & Company
	PHOTOGRAPHY MILLENIA REAL	Haines & Company
	ESTATE MORRIS DENVER INS	Haines & Company
	NEWS BROADCAST	Haines & Company
	NETWORK PACKAGINGALLIANCE	Haines & Company
	LLC PATHFINDER ASSOCTS	Haines & Company
	PROFFITT DEE E	Haines & Company
	QUALITY CONTAINER	Haines & Company
	RENAISSANCE RDLGY	Haines & Company
	BLLNG OFC	Haines & Company
	CLAREMONT BLVDN	Haines & Company
	SEAMAGINE	Haines & Company
	HYDROSPACE CORP	Haines & Company
	SOUTHERN CA 90 214 9 A	Haines & Company
	PRINTING COMPANY	Haines & Company
	SUNDIAL INSURANCE 9 W 941	Haines & Company
	SYNCHRONEX 9492 1e	Haines & Company

FINDINGS

Year	Uses	Source
2003	TAYLOR PORTRI	Haines & Company
	TORRES ANNAMOD 9 M 2 1 B 7 TROYCORP 9m	Haines & Company
1995	MS B RADIOLOGY MEDICAL GROUP INC	Pacific Bell
1991	Supply Line Inc	Pacific Bell
1990	GERMAN GENEALOGICAL SOCIETY OF AMERICA CLAREMONT CA	Pacific Bell
	INSIGHT CABLE VISION CLAREMONT	Pacific Bell
1985	VALLEY MEDICAL BILLING SERVICES INC	Pacific Bell
	VALLEY MEDICA IMAGING CLAREMONT	Pacific Bell

APPENDIX G:

EDR REPORT

735 E. Foothill Blvd = Armstrong Nursery

731 - 911 E. Foothill Blvd. = site

6

NO LISTINGS

735 Foothill Blvd.
735 Foothill Blvd.
Claremont, CA 91711

Inquiry Number: 5230729.2s
March 22, 2018

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

735 FOOTHILL BLVD.
CLAREMONT, CA 91711

COORDINATES

Latitude (North):	34.1075980 - 34° 6' 27.35"
Longitude (West):	117.7006370 - 117° 42' 2.29"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	435377.3
UTM Y (Meters):	3774113.0
Elevation:	1338 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5619074 ONTARIO, CA
Version Date:	2012
North Map:	5630625 MOUNT BALDY, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140527, 20140603
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
735 FOOTHILL BLVD.
CLAREMONT, CA 91711

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	WORKERS DISEASE DETE	1336 N MONTE VISTA A	San Bern. Co. Permit	Higher	91, 0.017, NE
A2	RSI ASSOCIATES, INC	1302 MONTE VISTA STE	San Bern. Co. Permit	Higher	114, 0.022, ENE
A3	CITY OF CLAREMONT CO	1616 NORTH MONTE VIS	SWF/LF	Higher	168, 0.032, NE
4	A B A & SONS CONSTRU	767 MARYLAND AVE	SWEEPS UST	Higher	224, 0.042, NE
B5	ARCO J&K AMPM	701 E FOOTHILL BLVD	UST, LOS ANGELES CO. HMS	Lower	276, 0.052, West
C6	J B'S POOL SERVICE	2186 W FOOTHILL BLVD	San Bern. Co. Permit	Lower	286, 0.054, ESE
C7	MINNESOTA RUBBER AND	2377 W FOOTHILL BLVD	RCRA NonGen / NLR, FINDS, ECHO	Higher	325, 0.062, ESE
8	INTEGRATED CARE SYST	2315 W FOOTHILL BLVD	RCRA-SQG, FINDS, ECHO	Higher	434, 0.082, East
B9	CONROCK-CLAREMONT (R	FOOTHILL & CLAREMONT	WMUDS/SWAT	Lower	443, 0.084, WSW
B10	H&S #6	699 E FOOTHILL BLVD	UST	Lower	513, 0.097, West
B11	INLAND CHEVRON	699 E FOOTHILL BLVD	RCRA-SQG, LUST, FINDS, HIST CORTESE	Lower	513, 0.097, West
B12	EXXON CO USA #7-6222	699 E FOOTHILL BLVD	SWEEPS UST	Lower	513, 0.097, West
13	HOLLIDAY ROCK COMPAN		US MINES	Lower	1098, 0.208, ESE
14	CLAREMONT COLLEGES	NE&SE COR CLAREMONT	SWF/LF	Lower	1400, 0.265, SW
15	CLAREMONT LANDFILL	ARROW ROUTE & CLAREM	WMUDS/SWAT, LDS, WDS	Lower	1454, 0.275, South
D16	CONOCOPHILLIPS COMPA	601 FOOTHILL BLVD,E	LUST	Lower	1594, 0.302, West
D17	76 PRODUCTS STATION	601 FOOTHILL BLVD E	LUST, HIST CORTESE	Lower	1594, 0.302, West
18	CITY OF CLAREMONT/CO	1616 MONTE VISTA AVE	SWF/LF, NPDES, San Bern. Co. Permit	Higher	1751, 0.332, NNE
19	CLAREMONT COLLEGES D	1100 NORTH MILLS AVE	SWF/LF, WMUDS/SWAT	Lower	1813, 0.343, WSW
E20	WESTON E. MONTGOMERY	2085 W 11TH ST	LUST, HIST UST	Lower	2110, 0.400, SE
E21	WESTON E. MONTGOMERY	2085 11TH ST	LUST, HIST CORTESE	Lower	2110, 0.400, SE
F22	DINEEN TRUCKING INC.	1284 AIRPORT DR	LUST, SWEEPS UST, CA FID UST, HIST CORTESE, WDS	Higher	2558, 0.484, ENE
F23	DINEEN TRUCKING	1284 AIRPORT DR	LUST, HIST UST, NPDES, San Bern. Co. Permit	Higher	2558, 0.484, ENE
24	CABLE AIRPORT	1749 W 13TH ST	ENVIROSTOR, EMI	Higher	4027, 0.763, ENE
25	CLAREMONT COLLEGE	301 E. FIRST STREET	ENVIROSTOR, Notify 65	Lower	5026, 0.952, SSW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ..... Federal Facility Site Information listing
SEMS ..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

EXECUTIVE SUMMARY

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State and tribal leaking storage tank lists

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
SLIC ..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS ..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
AOCONCERN ..... San Gabriel Valley Areas of Concern
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
CDL ..... Clandestine Drug Labs
Toxic Pits ..... Toxic Pits Cleanup Act Sites
US CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST UST ..... Hazardous Substance Storage Container Database

CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
DOCKET HWC	Hazardous Waste Compliance Docket Listing
ECHO	Enforcement & Compliance History Information
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan

EXECUTIVE SUMMARY

Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
LOS ANGELES CO. HMS	HMS: Street Number List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
LA Co. Site Mitigation	Site Mitigation List
UIC	UIC Listing
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List
RGA LUST	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/11/2017 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
INTEGRATED CARE SYST	*2315 W FOOTHILL BLVD*	*E 0 - 1/8 (0.082 mi.)*	*8*	*13*
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
INLAND CHEVRON	*699 E FOOTHILL BLVD*	*W 0 - 1/8 (0.097 mi.)*	*B11*	*16*

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 01/30/2018 has revealed that there are 2 ENVIROSTOR sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CABLE AIRPORT Facility Id: 60002592 Status: Active	*1749 W 13TH ST*	*ENE 1/2 - 1 (0.763 mi.)*	*24*	*52*
Lower Elevation	**Address**	**Direction / Distance**	**Map ID**	**Page**
CLAREMONT COLLEGE Facility Id: 19350476 Status: Refer: 1248 Local Agency	*301 E. FIRST STREET*	*SSW 1/2 - 1 (0.952 mi.)*	*25*	*54*

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

A review of the SWF/LF list, as provided by EDR, has revealed that there are 4 SWF/LF sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CITY OF CLAREMONT CO	1616 NORTH MONTE VIS	NE 0 - 1/8 (0.032 mi.)	A3	8
Database: SWF/LF (SWIS), Date of Government Version: 11/13/2017 Facility ID: 36-AA-0425 Operational Status: Active Regulation Status: Permitted				
CITY OF CLAREMONT/CO	***1616 MONTE VISTA AVE***	***NNE 1/4 - 1/2 (0.332 mi.)***	***18***	***35***
Database: LOS ANGELES CO. LF, Date of Government Version: 01/16/2018 Site ID: 222 Status: Active				

Lower Elevation	Address	Direction / Distance	Map ID	Page
CLAREMONT COLLEGES	NE&SE COR CLAREMONT	SW 1/4 - 1/2 (0.265 mi.)	14	27
Database: SWF/LF (SWIS), Date of Government Version: 11/13/2017 Facility ID: 19-AA-5075 Facility ID: 19-AJ-0001 Operational Status: Closed Regulation Status: Unpermitted				
CLAREMONT COLLEGES D	***1100 NORTH MILLS AVE***	***WSW 1/4 - 1/2 (0.343 mi.)***	***19***	***38***
Database: LOS ANGELES CO. LF, Date of Government Version: 01/16/2018 Site ID: 1903 Status: Closed				

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

A review of the LUST list, as provided by EDR, has revealed that there are 7 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DINEEN TRUCKING INC.	***1284 AIRPORT DR***	***ENE 1/4 - 1/2 (0.484 mi.)***	***F22***	***43***
Database: LUST REG 8, Date of Government Version: 02/14/2005 Facility Status: Case Closed Global ID: T0607100057				
DINEEN TRUCKING	***1284 AIRPORT DR***	***ENE 1/4 - 1/2 (0.484 mi.)***	***F23***	***47***
Database: LUST, Date of Government Version: 03/12/2018 Status: Completed - Case Closed				

Global Id: T0607100057

Lower Elevation	Address	Direction / Distance	Map ID	Page
INLAND CHEVRON	***699 E FOOTHILL BLVD***	***W 0 - 1/8 (0.097 mi.)***	***B11***	***16***
Database: LUST, Date of Government Version: 03/12/2018 Database: LUST REG 4, Date of Government Version: 09/07/2004 Status: Completed - Case Closed Facility Id: R-21176 Global Id: T0603705326 Global ID: T0603705326 Status: Case Closed				
CONOCOPHILLIPS COMPA	601 FOOTHILL BLVD,E	W 1/4 - 1/2 (0.302 mi.)	D16	31
Database: LUST, Date of Government Version: 03/12/2018 Status: Completed - Case Closed Global Id: T0603707967				
76 PRODUCTS STATION	***601 FOOTHILL BLVD E***	***W 1/4 - 1/2 (0.302 mi.)***	***D17***	***32***
Database: LUST, Date of Government Version: 03/12/2018 Database: LUST REG 4, Date of Government Version: 09/07/2004 Status: Completed - Case Closed Facility Id: R-10271 Global Id: T0603704922 Global ID: T0603704922 Status: Leak being confirmed				
WESTON E. MONTGOMERY	***2085 W 11TH ST***	***SE 1/4 - 1/2 (0.400 mi.)***	***E20***	***40***
Database: LUST, Date of Government Version: 03/12/2018 Status: Completed - Case Closed Global Id: T0607100397				
WESTON E. MONTGOMERY	***2085 11TH ST***	***SE 1/4 - 1/2 (0.400 mi.)***	***E21***	***42***
Database: LUST REG 8, Date of Government Version: 02/14/2005 Facility Status: Case Closed Global ID: T0607100397				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ARCO J&K AMPM	***701 E FOOTHILL BLVD***	***W 0 - 1/8 (0.052 mi.)***	***B5***	***10***
Database: UST, Date of Government Version: 12/11/2017 Facility Id: LACoFA0046075 Facility Id: LACoFA0011443 Facility Id: 36875				
H&S #6	699 E FOOTHILL BLVD	W 0 - 1/8 (0.097 mi.)	B10	16
Database: UST, Date of Government Version: 12/11/2017				

EXECUTIVE SUMMARY

Facility Id: LACoFA0011381
Facility Id: 36778

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: The Waste Management Unit Database System is used for program tracking and inventory of waste management units. The source is the State Water Resources Control Board.

A review of the WMUDS/SWAT list, as provided by EDR, and dated 04/01/2000 has revealed that there are 3 WMUDS/SWAT sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CONROCK-CLAREMONT (R	FOOTHILL & CLAREMONT	WSW 0 - 1/8 (0.084 mi.)	B9	15
CLAREMONT LANDFILL	***ARROW ROUTE & CLAREM***	***S 1/4 - 1/2 (0.275 mi.)***	***15***	***28***
CLAREMONT COLLEGES D	***1100 NORTH MILLS AVE***	***WSW 1/4 - 1/2 (0.343 mi.)***	***19***	***38***

Local Lists of Registered Storage Tanks

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
A B A & SONS CONSTRU Status: A Comp Number: 13507	767 MARYLAND AVE	NE 0 - 1/8 (0.042 mi.)	4	9

Lower Elevation	Address	Direction / Distance	Map ID	Page
EXXON CO USA #7-6222 Status: A Tank Status: A Comp Number: 13388	699 E FOOTHILL BLVD	W 0 - 1/8 (0.097 mi.)	B12	20

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or

dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/11/2017 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MINNESOTA RUBBER AND	***2377 W FOOTHILL BLVD***	***ESE 0 - 1/8 (0.062 mi.)***	***C7***	***11***

US MINES: Mines Master Index File. The source of this database is the Dept. of Labor, Mine Safety and Health Administration.

A review of the US MINES list, as provided by EDR, has revealed that there is 1 US MINES site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HOLLIDAY ROCK COMPAN Database: US MINES, Date of Government Version: 10/29/2017		ESE 1/8 - 1/4 (0.208 mi.)	13	21

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 4 HIST CORTESE sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DINEEN TRUCKING INC. Reg Id: 083600599T	***1284 AIRPORT DR***	***ENE 1/4 - 1/2 (0.484 mi.)***	***F22***	***43***

Lower Elevation	Address	Direction / Distance	Map ID	Page
INLAND CHEVRON Reg Id: R-21176	***699 E FOOTHILL BLVD***	***W 0 - 1/8 (0.097 mi.)***	***B11***	***16***
76 PRODUCTS STATION Reg Id: R-10271	***601 FOOTHILL BLVD E***	***W 1/4 - 1/2 (0.302 mi.)***	***D17***	***32***
WESTON E. MONTGOMERY Reg Id: 083602753T	***2085 11TH ST***	***SE 1/4 - 1/2 (0.400 mi.)***	***E21***	***42***

San Bern. Co. Permit: San Bernardino County Fire Department Hazardous Materials Division.

A review of the San Bern. Co. Permit list, as provided by EDR, and dated 11/30/2017 has revealed that there are 3 San Bern. Co. Permit sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
WORKERS DISEASE DETE Facility Status: INACTIVE Facility Id: FA0007334	1336 N MONTE VISTA A	NE 0 - 1/8 (0.017 mi.)	A1	8
RSI ASSOCIATES, INC	1302 MONTE VISTA STE	ENE 0 - 1/8 (0.022 mi.)	A2	8

Facility Status: INACTIVE
Facility Id: FA0007889

Lower Elevation	Address	Direction / Distance	Map ID	Page
J B'S POOL SERVICE Facility Status: ACTIVE Facility Id: FA0004055	2186 W FOOTHILL BLVD	ESE 0 - 1/8 (0.054 mi.)	C6	11

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 12/14/2017 has revealed that there is 1 Notify 65 site within approximately 1 mile of the target property.

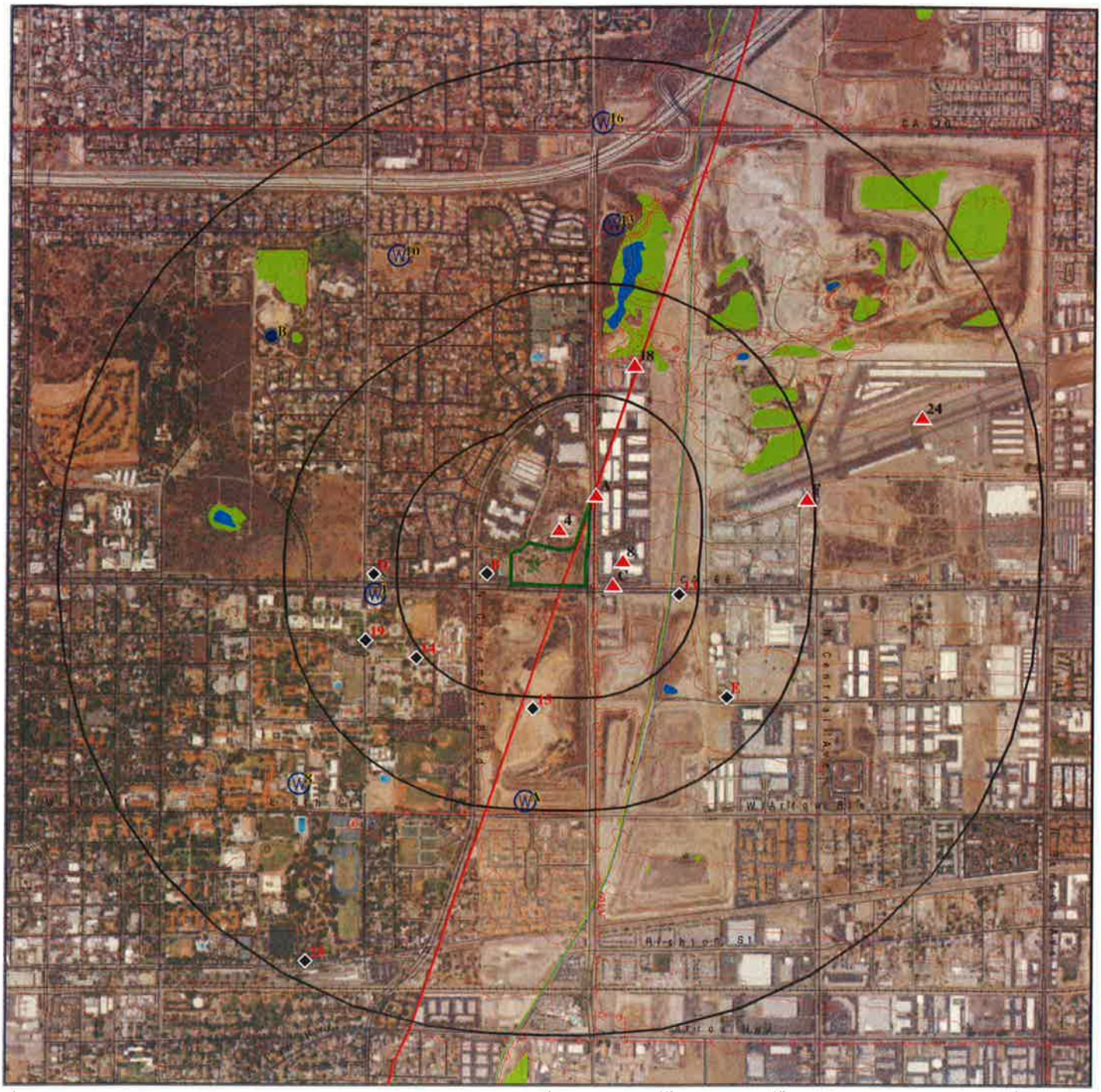
Lower Elevation	Address	Direction / Distance	Map ID	Page
CLAREMONT COLLEGE	***301 E. FIRST STREET***	***SSW 1/2 - 1 (0.952 mi.)***	***25***	***54***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 7 records.

Site Name	Database(s)
TERRY'S SHELL	LUST, HIST CORTESE
FOOTHILL BLVD. WIDENING	NPDES
	CDL
	CDL
	CDL
DEMPSEY PROPERTY	SEMS
THRIFTY OIL # / ARCO # 9691	LUST

OVERVIEW MAP - 5230729.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites

0 1/4 1/2 1 Miles

- Indian Reservations BIA
- County Boundary
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

- Upgradient Area
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 735 Foothill Blvd. ADDRESS: 735 Foothill Blvd. Claremont CA 91711 LAT/LONG: 34.107598 / 117.700637	CLIENT: PIC Environmental Services CONTACT: Tim Hersch INQUIRY #: 5230729.2s DATE: March 22, 2018 1:21 pm

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DETAIL MAP - 5230729.2S



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 735 Foothill Blvd. ADDRESS: 735 Foothill Blvd. Claremont CA 91711 LAT/LONG: 34.107598 / 117.700637	CLIENT: PIC Environmental Services CONTACT: Tim Hersch INQUIRY #: 5230729.2s DATE: March 22, 2018 1:23 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		2	0	NR	NR	NR	2
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	2	NR	2
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		1	0	3	NR	NR	4
State and tribal leaking storage tank lists								
LUST	0.500		1	0	6	NR	NR	7

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		2	0	NR	NR	NR	2
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		1	0	2	NR	NR	3
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
AOCONCERN	1.000		0	0	0	0	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		2	0	NR	NR	NR	2
HIST UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	0	NR	NR	NR	1
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	1	NR	NR	NR	1
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		1	0	3	NR	NR	4
LOS ANGELES CO. HMS	0.001		0	NR	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.001		0	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
San Bern. Co. Permit	0.250		3	0	NR	NR	NR	3
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	1	NR	1
LA Co. Site Mitigation	0.001		0	NR	NR	NR	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	14	1	14	3	0	32

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NE
< 1/8
0.017 mi.
91 ft.

WORKERS DISEASE DETECTION
1336 N MONTE VISTA AVE 22
UPLAND, CA 91786

San Bern. Co. Permit | **S104772449**
N/A

Site 1 of 3 in cluster A

Relative:
Higher

Actual:
1369 ft.

San Bern. Co. Permit:
Region: SAN BERNARDINO
Facility ID: FA0007334
Owner: WDDS
Permit Number: PT0007431
Permit Category: SPECIAL GENERATOR
Facility Status: INACTIVE
Expiration Date: 07/31/2005

A2
ENE
< 1/8
0.022 mi.
114 ft.

RSI ASSOCIATES, INC
1302 MONTE VISTA STE 12
UPLAND, CA 91786

San Bern. Co. Permit | **S108217699**
N/A

Site 2 of 3 in cluster A

Relative:
Higher

Actual:
1359 ft.

San Bern. Co. Permit:
Region: SAN BERNARDINO
Facility ID: FA0007889
Owner: SCOTT, GARLAND
Permit Number: PT0013919
Permit Category: SPECIAL HANDLER
Facility Status: INACTIVE
Expiration Date: 09/30/2005

Region: SAN BERNARDINO
Facility ID: FA0007889
Owner: SCOTT, GARLAND
Permit Number: PT0013920
Permit Category: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Facility Status: INACTIVE
Expiration Date: 09/30/2005

A3
NE
< 1/8
0.032 mi.
168 ft.

CITY OF CLAREMONT COMMUNITY SERVICES DEP
1616 NORTH MONTE VISTA AVE
UPLAND, CA

SWF/LF | **S106800137**
N/A

Site 3 of 3 in cluster A

Relative:
Higher

Actual:
1375 ft.

SWF/LF (SWIS):
Region: STATE
Facility ID: 36-AA-0425
Lat/Long: 34.11372 / -117.69682
Owner Name: City of Claremont
Owner Telephone: 9093995431
Owner Address: Mark Harmon, Director -Community Service
Owner Address2: P.O. Box 880 / 215 Cornell Ave.
Owner City,St,Zip: Claremont, CA 91711-4604
Operational Status: Active
Operator: City of Claremont
Operator Phone: 9093995431
Operator Address: Mark Harmon, Director -Community Service
Operator Address2: P.O. Box 880 / 215 Cornell Ave.

CITY OF CLAREMONT COMMUNITY SERVICES DEP (Continued) **S106800137**

Operator City,St,Zip:	Claremont, CA 91711-4604
Permit Date:	08/02/2013
Permit Status:	Permitted
Permitted Acreage:	$4.80
Activity:	Medium Volume Transfer/Proc Fac
Regulation Status:	Permitted
Landuse Name:	Not reported
GIS Source:	GPS
Category:	Transfer/Processing
Unit Number:	01
Inspection Frequency:	Monthly
Accepted Waste:	Construction/demolition,Green Materials,Mixed municipal
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	Not reported
SWIS Num:	36-AA-0425
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	99
Actual Throughput with Units:	Tons/day
Permitted Capacity with Units:	26000
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Tons/year
Lat/Long:	34.11372 / -117.69682

4
NE
< 1/8
0.042 mi.
224 ft.

A B A & SONS CONSTRUCTION **SWEEPS UST** **S106922304**
767 MARYLAND AVE **N/A**
CLAREMONT, CA

Relative:
Higher

Actual:
1354 ft.

SWEEPS UST:

Status:	Active
Comp Number:	13507
Number:	9
Board Of Equalization:	Not reported
Referral Date:	06-30-89
Action Date:	Not reported
Created Date:	06-30-89
Owner Tank Id:	Not reported
SWRCB Tank Id:	Not reported
Tank Status:	Not reported
Capacity:	Not reported
Active Date:	Not reported
Tank Use:	Not reported
STG:	Not reported
Content:	Not reported
Number Of Tanks:	Not reported

B5
West
< 1/8
0.052 mi.
276 ft.

ARCO J&K AMPM
701 E FOOTHILL BLVD
CLAREMONT, CA 91711

UST **U003938119**
LOS ANGELES CO. HMS **N/A**

Site 1 of 5 in cluster B

Relative:
Lower

Actual:
1332 ft.

UST:

Facility ID:	LACoFA0011443
Permitting Agency:	Los Angeles County Fire Department
Latitude:	34.10735
Longitude:	-117.70242

Facility ID:	36875
Permitting Agency:	LOS ANGELES COUNTY
Latitude:	34.1085538
Longitude:	-117.701168

Facility ID:	LACoFA0046075
Permitting Agency:	Los Angeles County Fire Department
Latitude:	34.10734
Longitude:	-117.70242

LOS ANGELES CO. HMS:

Region:	LA
Permit Category:	Not reported
Facility Id:	017186-057068
Facility Type:	Not reported
Facility Status:	OPEN
Area:	6G
Permit Number:	Not reported
Permit Status:	Not reported

Region:	LA
Permit Category:	T
Facility Id:	017186-036875
Facility Type:	0
Facility Status:	Permit
Area:	6G
Permit Number:	000329849
Permit Status:	Permit

Region:	LA
Permit Category:	T
Facility Id:	017186-024253
Facility Type:	0
Facility Status:	Closed
Area:	6G
Permit Number:	000184673
Permit Status:	Closed

C6 **J B'S POOL SERVICE** **San Bern. Co. Permit** **S102042548**
ESE **2186 W FOOTHILL BLVD** **N/A**
< 1/8 **UPLAND, CA 91786**
0.054 mi.
286 ft. **Site 1 of 2 in cluster C**

Relative: **Lower**
Actual: **1333 ft.**

San Bern. Co. Permit:
Region: SAN BERNARDINO
Facility ID: FA0004055
Owner: DAVID ALLEN WRIGHT
Permit Number: PT0003896
Permit Category: HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status: ACTIVE
Expiration Date: 09/30/2018

C7 **MINNESOTA RUBBER AND QMR PLASTICS** **RCRA NonGen / NLR** **1001404372**
ESE **2377 W FOOTHILL BLVD UNIT 14** **FINDS** **CAR000046797**
< 1/8 **UPLAND, CA 91786** **ECHO**
0.062 mi.
325 ft. **Site 2 of 2 in cluster C**

Relative: **Higher**
Actual: **1339 ft.**

RCRA NonGen / NLR:
Date form received by agency: 06/16/2006
Facility name: MINNESOTA RUBBER AND QMR PLASTICS
Facility address: 2377 W FOOTHILL BLVD UNIT 14
UPLAND, CA 91786
EPA ID: CAR000046797
Mailing address: 1100 XENIUM LANE NORTH
MINNEAPOLIS, MN 55441
Contact: DARRELL HANSON
Contact address: 1100 XENIUM LANE NORTH
MINNEAPOLIS, MN 55441
Contact country: US
Contact telephone: 952-927-2264
Contact email: DHANSON@MNRUBBER.COM
EPA Region: 09
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: QUADION CORP
Owner/operator address: 5957 W 37TH ST
ST LOUIS PARK, MN 55416
Owner/operator country: Not reported
Owner/operator telephone: 612-927-1400
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No

MINNESOTA RUBBER AND QMR PLASTICS (Continued) **1001404372**

Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/04/1998
Site name: MINNESOTA RUBBER AND QMR PLASTICS
Classification: Small Quantity Generator

. Waste code: D000
. Waste name: Not Defined

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLORETHYLENE

. Waste code: F002
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL

MINNESOTA RUBBER AND QMR PLASTICS (Continued) **1001404372**

BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

FINDS:

Registry ID: 110002925568

Environmental Interest/Information System
California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001404372
Registry ID: 110002925568
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110002925568

8
East
< 1/8
0.082 mi.
434 ft.

INTEGRATED CARE SYSTEMS
2315 W FOOTHILL BLVD STE 4
UPLAND, CA 91786

RCRA-SQG **1000202570**
FINDS **CAD982521890**
ECHO

Relative:
Higher

Actual:
1349 ft.

RCRA-SQG:
Date form received by agency: 11/21/1989
Facility name: INTEGRATED CARE SYSTEMS
Facility address: 2315 W FOOTHILL BLVD STE 4
UPLAND, CA 91786
EPA ID: CAD982521890
Mailing address: W FOOTHILL BLVD STE 4
UPLAND, CA 91786
Contact: ENVIRONMENTAL MANAGER
Contact address: 2315 W FOOTHILL BLVD STE 4
UPLAND, CA 91786
Contact country: US

INTEGRATED CARE SYSTEMS (Continued) **1000202570**

Contact telephone: 714-855-5525
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NEW ENGLAND
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: 415-555-1212
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

INTEGRATED CARE SYSTEMS (Continued) **1000202570**

FINDS:

Registry ID: 110002841006

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000202570
Registry ID: 110002841006
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110002841006

B9 **CONROCK-CLAREMONT (REGION 4)** **WMUDS/SWAT** **S103441455**
WSW **FOOTHILL & CLAREMONT BLVDS** **N/A**
< 1/8 **CLAREMONT, CA**
0.084 mi.
443 ft. **Site 2 of 5 in cluster B**

Relative: WMUDS/SWAT:
Lower
Actual: Edit Date: Not reported
1324 ft. Complexity: Not reported
Primary Waste: Not reported
Primary Waste Type: Not reported
Secondary Waste: Not reported
Secondary Waste Type: Not reported
Base Meridian: Not reported
NPID: Not reported
Tonnage: 0
Regional Board ID: Not reported
Municipal Solid Waste: False
Superorder: False
Open To Public: False
Waste List: False
Agency Type: Not reported
Agency Name: CONROCK
Agency Department: Not reported
Agency Address: Not reported
Agency City,St,Zip: Not reported
Agency Contact: Not reported
Agency Telephone: Not reported
Land Owner Name: Not reported
Land Owner Address: Not reported
Land Owner City,St,Zip: CA
Land Owner Contact: Not reported
Land Owner Phone: Not reported
Region: 4
Facility Type: Not reported
Facility Description: Not reported

CONROCK-CLAREMONT (REGION 4) (Continued) **S103441455**

Facility Telephone:	Not reported
SWAT Facility Name:	Not reported
Primary SIC:	Not reported
Secondary SIC:	Not reported
Comments:	Not reported
Last Facility Editors:	Not reported
Waste Discharge System:	False
Solid Waste Assessment Test Program:	True
Toxic Pits Cleanup Act Program:	False
Resource Conservation Recovery Act:	False
Department of Defence:	False
Solid Waste Assessment Test Program:	CONROCK
Threat to Water Quality:	Not reported
Sub Chapter 15:	False
Regional Board Project Officer:	LT
Number of WMUDS at Facility:	1
Section Range:	Not reported
RCRA Facility:	Not reported
Waste Discharge Requirements:	Not reported
Self-Monitoring Rept. Frequency:	Not reported
Waste Discharge System ID:	4 190204NUR
Solid Waste Information ID:	Not reported

B10 **H&S #6** **UST** **U003777391**
West **699 E FOOTHILL BLVD** **N/A**
< 1/8 **CLAREMONT, CA 91711**
0.097 mi.
513 ft. **Site 3 of 5 in cluster B**

Relative: UST:
Lower

Actual: Facility ID:	LACoFA0011381
1325 ft. Permitting Agency:	Los Angeles County Fire Department
Latitude:	34.10736
Longitude:	-117.70331
Facility ID:	36778
Permitting Agency:	LOS ANGELES COUNTY
Latitude:	34.1085252
Longitude:	-117.7019578

B11 **INLAND CHEVRON** **RCRA-SQG** **1000820179**
West **699 E FOOTHILL BLVD** **LUST** **CAD983662065**
< 1/8 **CLAREMONT, CA 91711** **FINDS**
0.097 mi. **HIST CORTESE**
513 ft. **Site 4 of 5 in cluster B**

Relative: RCRA-SQG:
Lower

Date form received by agency:	03/18/1993
Actual: Facility name:	CHEVRON STATION 20 2024
1325 ft. Facility address:	699 E FOOTHILL CLAREMONT, CA 91711
EPA ID:	CAD983662065
Mailing address:	PO BOX 2833 LA HABRA, CA 90632
Contact:	DESIREE CLOSS
Contact address:	PO BOX 2833

INLAND CHEVRON (Continued) **1000820179**

LA HABRA, CA 90632
Contact country: US
Contact telephone: 310-694-7452
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: CHEVRON U S A PRODUCTS CO
Owner/operator address: PO BOX 2833
LA HABRA, CA 90632
Owner/operator country: Not reported
Owner/operator telephone: 310-694-7452
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Violation Status: No violations found

LUST:
Lead Agency: LOS ANGELES COUNTY
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603705326
Global Id: T0603705326
Latitude: 34.107365
Longitude: -117.703311
Status: Completed - Case Closed ← 8
Status Date: 07/24/1996
Case Worker: JOA
RB Case Number: R-21176
Local Agency: LOS ANGELES COUNTY

INLAND CHEVRON (Continued) **1000820179**

File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Soil
Potential Contaminants of Concern: Aviation
Site History: Not reported

LUST:
Global Id: T0603705326
Contact Type: Local Agency Caseworker
Contact Name: JOHN AWUJO
Organization Name: LOS ANGELES COUNTY
Address: 900 S FREMONT AVE
City: ALHAMBRA
Email: jawujo@dpw.lacounty.gov
Phone Number: 6264583507

Global Id: T0603705326
Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

LUST:
Global Id: T0603705326
Action Type: Other
Date: 07/24/1996
Action: Leak Reported

LUST:
Global Id: T0603705326
Status: Completed - Case Closed
Status Date: 07/24/1996

Global Id: T0603705326
Status: Open - Case Begin Date
Status Date: 07/24/1996

LUST REG 4:
Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: R-21176
Status: Case Closed
Substance: 1
Substance Quantity: Not reported
Local Case No: Not reported
Case Type: Soil
Abatement Method Used at the Site: Not reported
Global ID: T0603705326
W Global ID: Not reported
Staff: UNK
Local Agency: 19000

INLAND CHEVRON (Continued) **1000820179**

Cross Street:	Not reported	
Enforcement Type:	Not reported	
Date Leak Discovered:	Not reported	
Date Leak First Reported:		7/24/1996
Date Leak Record Entered:	8/23/1996	
Date Confirmation Began:	Not reported	
Date Leak Stopped:	Not reported	
Date Case Last Changed on Database:		7/24/1996
Date the Case was Closed:		7/24/1996
How Leak Discovered:	Not reported	
How Leak Stopped:	Not reported	
Cause of Leak:	Not reported	
Leak Source:	Not reported	
Operator:	Not reported	
Water System:	Not reported	
Well Name:	Not reported	
Approx. Dist To Production Well (ft):		1117.092233233395737116805491 2
Source of Cleanup Funding:		Not reported
Preliminary Site Assessment Workplan Submitted:		Not reported
Preliminary Site Assessment Began:		Not reported
Pollution Characterization Began:		Not reported
Remediation Plan Submitted:		Not reported
Remedial Action Underway:		Not reported
Post Remedial Action Monitoring Began:		Not reported
Enforcement Action Date:		Not reported
Historical Max MTBE Date:		Not reported
Hist Max MTBE Conc in Groundwater:		Not reported
Hist Max MTBE Conc in Soil:		Not reported
Significant Interim Remedial Action Taken:		Not reported
GW Qualifier:	Not reported	
Soil Qualifier:	Not reported	
Organization:	Not reported	
Owner Contact:	Not reported	
Responsible Party:	CHEVRON USS INC	
RP Address:	1300 S BEACH BLVD., LA HABRA CA 90632-6300	
Program:	LUST	
Lat/Long:	34.1071134 / -1	
Local Agency Staff:	Not reported	
Beneficial Use:	Not reported	
Priority:	Not reported	
Cleanup Fund Id:	Not reported	
Suspended:	Not reported	
Assigned Name:	Not reported	
Summary:	Not reported	

FINDS:

Registry ID: 110055791175

Environmental Interest/Information System
STATE MASTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

INLAND CHEVRON (Continued) **1000820179**

HIST CORTESE:
Region: CORTESE
Facility County Code: 19
Reg By: LTNKA
Reg Id: R-21176

B12 **EXXON CO USA #7-6222** **SWEEPS UST** **S102056735**
West **699 E FOOTHILL BLVD** **N/A**
< 1/8 **CLAREMONT, CA**
0.097 mi.
513 ft. **Site 5 of 5 in cluster B**

Relative: SWEEPS UST:
Lower
Actual: Status: Active
1325 ft. Comp Number: 13388
Number: 9
Board Of Equalization: 44-000285
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-013388-000001
Tank Status: A
Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: 3

Status: Active
Comp Number: 13388
Number: 9
Board Of Equalization: 44-000285
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-013388-000002
Tank Status: A
Capacity: Not reported
Active Date: 06-30-89
Tank Use: UNKNOWN
STG: W
Content: Not reported
Number Of Tanks: Not reported

Status: Active
Comp Number: 13388
Number: 9
Board Of Equalization: 44-000285
Referral Date: 06-30-89
Action Date: Not reported
Created Date: 06-30-89
Owner Tank Id: Not reported
SWRCB Tank Id: 19-000-013388-000003
Tank Status: A

EXXON CO USA #7-6222 (Continued) **S102056735**

Capacity:	Not reported
Active Date:	06-30-89
Tank Use:	UNKNOWN
STG:	W
Content:	Not reported
Number Of Tanks:	Not reported

---

13 **HOLLIDAY ROCK COMPANY INC** **US MINES** **1016468023**
ESE **N/A**
1/8-1/4 **SAN BERNARDINO (County), CA**
0.208 mi.
1098 ft.

Relative: **Lower**

Actual: **1334 ft.**

US MINES:

Mine ID:	0401808
SIC code(s):	144200 000000 000000 000000 000000 000000
Entity name:	UPLAND PIT AND MILL
Company:	HOLLIDAY ROCK COMPANY INC
Status:	1
Status date:	20150515
Operation Class:	non-Coal Mining
Number of shops:	0
Number of plants:	0
Latitude:	35 10 24
Longitude:	117 40 45

Violations Details:

Violation Number:	8995451
Date Issued:	8/2/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(g)(1)
Date Abated:	8/9/2017
Citation/Order:	Order
Sig and Sub Designation:	Y
Proposed Penalty:	1815
Paid Penalty:	1815
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	1815
Year:	2017

Violation Number:	8995449
Date Issued:	8/1/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	8/1/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Violation Number:	8995450
Date Issued:	8/1/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	8/2/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017

Violation Number:	8995273
Date Issued:	7/26/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	7/26/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017

Violation Number:	8995275
Date Issued:	7/26/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(g)(1)
Date Abated:	7/28/2017
Citation/Order:	Order
Sig and Sub Designation:	Y
Proposed Penalty:	1676
Paid Penalty:	1676
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	1676
Year:	2017

Violation Number:	8995276
Date Issued:	7/26/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	9/7/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Assessment Amount:	116
Year:	2017
Violation Number:	8995272
Date Issued:	7/26/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	7/26/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017
Violation Number:	8995274
Date Issued:	7/26/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	9/7/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017
Violation Number:	8788942
Date Issued:	2/15/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	2/15/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116
Paid Penalty:	116
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	116
Year:	2017
Violation Number:	8788943
Date Issued:	2/15/2017
Mine Status:	Active
Status Date:	5/15/2015
Action Type:	104(a)
Date Abated:	2/15/2017
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	116

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Paid Penalty: 116
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 116
Year: 2017

Violation Number: 6485387
Date Issued: 12/10/2009
Mine Status: Active
Status Date: 05/15/2015
Action Type: 104(a)
Date Abated: 12/14/2009
Citation/Order: Citation
Sig and Sub Designation: Y
Proposed Penalty: 207.00
Paid Penalty: 207.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 207.00
Year: 2009

Violation Number: 6485386
Date Issued: 12/10/2009
Mine Status: Active
Status Date: 05/15/2015
Action Type: 104(a)
Date Abated: 12/10/2009
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2009

Violation Number: 6485388
Date Issued: 12/10/2009
Mine Status: Active
Status Date: 05/15/2015
Action Type: 104(a)
Date Abated: 12/10/2009
Citation/Order: Citation
Sig and Sub Designation: N
Proposed Penalty: 100.00
Paid Penalty: 100.00
Assessment Status code: Closed
Assess. Case Status code: Proposed
Assessment Amount: 100.00
Year: 2009

Violation Number: 6485385
Date Issued: 12/10/2009
Mine Status: Active
Status Date: 05/15/2015
Action Type: 104(a)
Date Abated: 12/10/2009

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2009

Violation Number:	8788092
Date Issued:	11/23/2015
Mine Status:	Active
Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	11/24/2015
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2015

Violation Number:	8788091
Date Issued:	11/23/2015
Mine Status:	Active
Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	11/24/2015
Citation/Order:	Citation
Sig and Sub Designation:	Y
Proposed Penalty:	285.00
Paid Penalty:	285.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	285.00
Year:	2015

Violation Number:	8788090
Date Issued:	11/23/2015
Mine Status:	Active
Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	11/24/2015
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	100.00
Paid Penalty:	100.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	100.00
Year:	2015

Violation Number:	8788089
Date Issued:	11/20/2015
Mine Status:	Active

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	11/24/2015
Citation/Order:	Citation
Sig and Sub Designation:	Y
Proposed Penalty:	334.00
Paid Penalty:	334.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	334.00
Year:	2015

Violation Number:	6354835
Date Issued:	11/04/2003
Mine Status:	Active
Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	11/04/2003
Citation/Order:	Citation
Sig and Sub Designation:	N
Proposed Penalty:	60
Paid Penalty:	60
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	60
Year:	2003

Violation Number:	8781533
Date Issued:	10/30/2014
Mine Status:	Active
Status Date:	05/15/2015
Action Type:	104(a)
Date Abated:	10/31/2014
Citation/Order:	Citation
Sig and Sub Designation:	Y
Proposed Penalty:	176.00
Paid Penalty:	176.00
Assessment Status code:	Closed
Assess. Case Status code:	Proposed
Assessment Amount:	176.00
Year:	2014

HOLLIDAY ROCK COMPANY INC (Continued) **1016468023**

Click this hyperlink while viewing on your computer to access
59 additional US_MINES: record(s) in the EDR Site Report.

14
SW
1/4-1/2
0.265 mi.
1400 ft.

CLAREMONT COLLEGES **SWF/LF** **S106079131**
NE&SE COR CLAREMONT BL/6TH ST-ARROW RTE **N/A**
CLAREMONT, CA

Relative:
Lower

Actual:
1291 ft.

SWF/LF (SWIS):

Region:	STATE
Facility ID:	19-AA-5075
Lat/Long:	34.10462 / -117.70511
Owner Name:	Claremont College
Owner Telephone:	7146218441
Owner Address:	Not reported
Owner Address2:	303 East First Street
Owner City,St,Zip:	Claremeont, CA 91711
Operational Status:	Closed
Operator:	Claremont College
Operator Phone:	7146218441
Operator Address:	Not reported
Operator Address2:	303 East First Street
Operator City,St,Zip:	Claremeont, CA 91711
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	Not reported
Activity:	Solid Waste Disposal Site
Regulation Status:	Unpermitted
Landuse Name:	Residential,Commercial
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	Annual
Accepted Waste:	Inert
Closure Date:	12/31/1985
Closure Type:	Estimated
Disposal Acreage:	$30.00
SWIS Num:	19-AA-5075
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	34.10462 / -117.70511

Region:	STATE
Facility ID:	19-AJ-0001
Lat/Long:	34.10081 / -117.70494
Owner Name:	Arrow Claremont Venture, Inc
Owner Telephone:	0000000000
Owner Address:	Not reported
Owner Address2:	811 West Seventh St, Ste 1200
Owner City,St,Zip:	Los Angeles, CA 90017
Operational Status:	Closed
Operator:	Glavnick K

CLAREMONT COLLEGES (Continued) **S106079131**

Operator Phone:	7148872137
Operator Address:	Not reported
Operator Address2:	P.O. Box 57
Operator City,St,Zip:	Lytle Creek, CA 92358
Permit Date:	Not reported
Permit Status:	Not reported
Permitted Acreage:	$0.00
Activity:	Solid Waste Disposal Site
Regulation Status:	Unpermitted
Landuse Name:	Not reported
GIS Source:	Map
Category:	Disposal
Unit Number:	01
Inspection Frequency:	None
Accepted Waste:	Not reported
Closure Date:	Not reported
Closure Type:	Not reported
Disposal Acreage:	$0.00
SWIS Num:	19-AJ-0001
Waste Discharge Requirement Num:	Not reported
Program Type:	Not reported
Permitted Throughput with Units:	Not reported
Actual Throughput with Units:	Not reported
Permitted Capacity with Units:	Not reported
Remaining Capacity:	Not reported
Remaining Capacity with Units:	Not reported
Lat/Long:	34.10081 / -117.70494

15
South
1/4-1/2
0.275 mi.
1454 ft.

CLAREMONT LANDFILL **WMUDS/SWAT** **S103438598**
ARROW ROUTE & CLAREMONT BLVD. **LDS** **N/A**
CLAREMONT CA, CA 91711 **WDS**

Relative:
Lower

Actual:
1241 ft.

WMUDS/SWAT:

Edit Date:	Not reported
Complexity:	Category B - Any facility having a physical, chemical, or biological waste treatment system (except for septic systems with subsurface disposal), or any Class II or III disposal site, or facilities without treatment systems that are complex, such as marinas with petroleum products, solid wastes, and sewage pump out facilities.
Primary Waste:	SLDWST
Primary Waste Type:	Inert/Influent or Solid Wastes that do not contain soluble pollutants or organic wastes and have little adverse impact on water quality. Such wastes could cause turbidity and siltation. Uncontaminated soils, rubble and concrete are examples of this category.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	66-16
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	Private
Agency Name:	CLAREMONT COLLEGE

CLAREMONT LANDFILL (Continued) **S103438598**

Agency Department:	Not reported
Agency Address:	303 E. FIRST ST
Agency City,St,Zip:	CLAREMONT CA 917114487
Agency Contact:	DALE KLEIN
Agency Telephone:	9096218441
Land Owner Name:	CONROCK COMPANY
Land Owner Address:	P.O. BOX 2950 TERMINAL ANNEX
Land Owner City,St,Zip:	LOS ANGELES, CA 90051
Land Owner Contact:	Not reported
Land Owner Phone:	2132582777
Region:	4
Facility Type:	Other - Does not fall into the category of Municipal/Domestic, Industrial, Agricultural or Solid Waste (Class I, II or III)
Facility Description:	Not reported
Facility Telephone:	9096218441
SWAT Facility Name:	CLAREMONT CLASS III DISPOSAL SITE
Primary SIC:	4953
Secondary SIC:	Not reported
Comments:	Not reported
Last Facility Editors:	Not reported
Waste Discharge System:	True
Solid Waste Assessment Test Program:	True
Toxic Pits Cleanup Act Program:	False
Resource Conservation Recovery Act:	False
Department of Defence:	False
Solid Waste Assessment Test Program:	CONROCK COMPANY
Threat to Water Quality:	Moderate Threat to Water Quality. A violation could have a major adverse impact on receiving biota, can cause aesthetic impairment to a significant human population, or render unusable a potential domestic or municipal water supply. Awsthetic impairment would include nuisance from a waste treatment facility.
Sub Chapter 15:	True
Regional Board Project Officer:	Not reported
Number of WMUDS at Facility:	1
Section Range:	Not reported
RCRA Facility:	No
Waste Discharge Requirements:	A
Self-Monitoring Rept. Frequency:	Quarterly Submittal
Waste Discharge System ID:	4B190314001
Solid Waste Information ID:	19-AJ-0001

LDS:

Global Id:	L10002913798
Latitude:	34.10299
Longitude:	-117.7006
Case Type:	Land Disposal Site
Status:	Open - Verification Monitoring
Status Date:	05/25/2000
Lead Agency:	LOS ANGELES RWQCB (REGION 4)
Caseworker:	EC
Local Agency:	Not reported
RB Case Number:	CI-5766
LOC Case Number:	Not reported
File Location:	Regional Board
Potential Media Affect:	Not reported
EDR Link ID:	L10002913798

CLAREMONT LANDFILL (Continued) **S103438598**

Potential Contaminants of Concern: Not reported
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

WDS:

Facility ID:	Los Angeles River 190314001
Facility Type:	Other - Does not fall into the category of Municipal/Domestic, Industrial, Agricultural or Solid Waste (Class I, II or III)
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	4
Facility Telephone:	9096218441
Facility Contact:	Bob Willis
Agency Name:	CLAREMONT UNIV. CONSORTIUM
Agency Address:	Not reported
Agency City,St,Zip:	0
Agency Contact:	Not reported
Agency Telephone:	Not reported
Agency Type:	Private
SIC Code:	4953
SIC Code 2:	Not reported
Primary Waste Type:	Inert/Influent or Solid Wastes that do not contain soluble pollutants or organic wastes and have little adverse impact on water quality. Such wastes could cause turbidity and siltation. Uncontaminated soils, rubble and concrete are examples of this category.
Primary Waste:	SLDWST
Waste Type2:	Not reported
Waste2:	Solid Wastes
Primary Waste Type:	Inert/Influent or Solid Wastes that do not contain soluble pollutants or organic wastes and have little adverse impact on water quality. Such wastes could cause turbidity and siltation. Uncontaminated soils, rubble and concrete are examples of this category.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

D16 **CONOCOPHILLIPS COMPANY #253824** **LUST** **S107863200**
West **601 FOOTHILL BLVD,E** **N/A**
1/4-1/2 **CLAREMONT, CA 91711**
0.302 mi.
1594 ft. **Site 1 of 2 in cluster D**

Relative:
Lower

Actual:
1314 ft.

LUST:

Lead Agency:	LOS ANGELES COUNTY
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603707967
Global Id:	T0603707967
Latitude:	34.107341
Longitude:	-117.706612
Status:	Completed - Case Closed
Status Date:	10/22/2007
Case Worker:	RVI
RB Case Number:	Not reported
Local Agency:	LOS ANGELES COUNTY
File Location:	Not reported
Local Case Number:	038361
Potential Media Affect:	Under Investigation
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

LUST:

Global Id:	T0603707967
Contact Type:	Local Agency Caseworker
Contact Name:	MANUEL R REGALADO
Organization Name:	LOS ANGELES COUNTY
Address:	900 S. FREMONT AVE.
City:	ALHAMBRA
Email:	mregalad@dpw.lacounty.gov
Phone Number:	Not reported

Global Id:	T0603707967
Contact Type:	Regional Board Caseworker
Contact Name:	YUE RONG
Organization Name:	LOS ANGELES RWQCB (REGION 4)
Address:	320 W. 4TH ST., SUITE 200
City:	Los Angeles
Email:	yrong@waterboards.ca.gov
Phone Number:	Not reported

LUST:

Global Id:	T0603707967
Action Type:	Other
Date:	06/27/2005
Action:	Leak Reported

Global Id:	T0603707967
Action Type:	ENFORCEMENT
Date:	10/22/2007
Action:	Closure/No Further Action Letter

Global Id:	T0603707967
Action Type:	REMEDIATION
Date:	06/27/2005
Action:	Not reported

CONOCOPHILLIPS COMPANY #253824 (Continued) **S107863200**

Global Id: T0603707967
Action Type: Other
Date: 06/17/2005
Action: Leak Discovery

LUST:
Global Id: T0603707967
Status: Open - Case Begin Date
Status Date: 06/17/2005

Global Id: T0603707967
Status: Open - Site Assessment
Status Date: 06/27/2005

Global Id: T0603707967
Status: Open - Site Assessment
Status Date: 10/16/2006

Global Id: T0603707967
Status: Completed - Case Closed
Status Date: 10/22/2007

D17 **76 PRODUCTS STATION #3824** **LUST S102439925**
West **601 FOOTHILL BLVD E** **HIST CORTESE N/A**
1/4-1/2 **CLAREMONT, CA 91711**
0.302 mi.
1594 ft. **Site 2 of 2 in cluster D**

Relative:
Lower

Actual:
1314 ft.

LUST:
Lead Agency: LOS ANGELES COUNTY
Case Type: LUST Cleanup Site
Geo Track: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0603704922
Global Id: T0603704922
Latitude: 34.1071684
Longitude: -117.7069573
Status: Completed - Case Closed
Status Date: 10/22/2007
Case Worker: JOA
RB Case Number: R-10271
Local Agency: LOS ANGELES COUNTY
File Location: Not reported
Local Case Number: Not reported
Potential Media Affect: Soil
Potential Contaminants of Concern: Gasoline
Site History: Not reported

LUST:
Global Id: T0603704922
Contact Type: Local Agency Caseworker
Contact Name: JOHN AWUJO
Organization Name: LOS ANGELES COUNTY
Address: 900 S FREMONT AVE
City: ALHAMBRA
Email: jawujo@dpw.lacounty.gov
Phone Number: 6264583507

Global Id: T0603704922

76 PRODUCTS STATION #3824 (Continued) **S102439925**

Contact Type: Regional Board Caseworker
Contact Name: YUE RONG
Organization Name: LOS ANGELES RWQCB (REGION 4)
Address: 320 W. 4TH ST., SUITE 200
City: Los Angeles
Email: yrong@waterboards.ca.gov
Phone Number: Not reported

LUST:
Global Id: T0603704922
Action Type: Other
Date: 09/16/1994
Action: Leak Reported

Global Id: T0603704922
Action Type: Other
Date: 09/13/1994
Action: Leak Stopped

Global Id: T0603704922
Action Type: ENFORCEMENT
Date: 10/22/2007
Action: Closure/No Further Action Letter

Global Id: T0603704922
Action Type: Other
Date: 09/13/1994
Action: Leak Discovery

LUST:
Global Id: T0603704922
Status: Open - Case Begin Date
Status Date: 09/13/1994

Global Id: T0603704922
Status: Open - Site Assessment
Status Date: 09/15/1994

Global Id: T0603704922
Status: Open - Site Assessment
Status Date: 10/16/2006

Global Id: T0603704922
Status: Completed - Case Closed
Status Date: 10/22/2007

LUST REG 4:
Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: R-10271
Status: Leak being confirmed
Substance: Gasoline
Substance Quantity: Not reported
Local Case No: Not reported

76 PRODUCTS STATION #3824 (Continued) **S102439925**

Case Type:	Soil	
Abatement Method Used at the Site:		Not reported
Global ID:	T0603704922	
W Global ID:	Not reported	
Staff:	UNK	
Local Agency:	19000	
Cross Street:	MILLS	
Enforcement Type:	Not reported	
Date Leak Discovered:	9/13/1994	
Date Leak First Reported:		9/16/1994
Date Leak Record Entered:	11/2/1995	
Date Confirmation Began:	9/15/1994	
Date Leak Stopped:	9/13/1994	
Date Case Last Changed on Database:		2/3/1999
Date the Case was Closed:		Not reported
How Leak Discovered:	OM	
How Leak Stopped:	Not reported	
Cause of Leak:	UNK	
Leak Source:	UNK	
Operator:	Not reported	
Water System:	Not reported	
Well Name:	Not reported	
Approx. Dist To Production Well (ft):		367.89462963264018079384811202
Source of Cleanup Funding:		UNK
Preliminary Site Assessment Workplan Submitted:		Not reported
Preliminary Site Assessment Began:		Not reported
Pollution Characterization Began:		Not reported
Remediation Plan Submitted:		Not reported
Remedial Action Underway:		Not reported
Post Remedial Action Monitoring Began:		Not reported
Enforcement Action Date:		Not reported
Historical Max MTBE Date:		Not reported
Hist Max MTBE Conc in Groundwater:		Not reported
Hist Max MTBE Conc in Soil:		Not reported
Significant Interim Remedial Action Taken:		Not reported
GW Qualifier:	Not reported	
Soil Qualifier:	Not reported	
Organization:	Not reported	
Owner Contact:	Not reported	
Responsible Party:	TOSCO/76 PRODUCTS TEAM	
RP Address:	555 ANTON, COSTA MESA, CA 92626	
Program:	LUST	
Lat/Long:	34.1071684 / -1	
Local Agency Staff:	Not reported	
Beneficial Use:	Not reported	
Priority:	Not reported	
Cleanup Fund Id:	Not reported	
Suspended:	Not reported	
Assigned Name:	Not reported	
Summary:	OLD CASE #951102-07	

HIST CORTESE:

Region:	CORTESE
Facility County Code:	19
Reg By:	LTNKA
Reg Id:	R-10271

18
NNE
1/4-1/2
0.332 mi.
1751 ft.

CITY OF CLAREMONT/CORP YARD
1616 MONTE VISTA AVE
CLAREMONT, CA 91711

SWF/LF **S108211581**
NPDES **N/A**
San Bern. Co. Permit

Relative:
Higher

Actual:
1432 ft.

LOS ANGELES CO. LF:

Site ID:	222
Alt. Address:	Not reported
Site Contact:	Not reported
Site Contact Phone:	(909) 399-5431
Site Email:	Not reported
Site Website:	Not reported
Site Type:	Waste Hauler
Site SWIS Number:	19-AS-0063
Beginning Operation Date:	Not reported
Ending Operation Date:	Not reported
Local Enforcement Agency:	Not reported
Maximun Depth Fill(Ft):	Not reported
Permitted Capacity:	Not reported
Present Use:	Not reported
Remaining Capacity(Million):	Not reported
Status:	Active
Waste Accepted:	Not reported
Hours of Operation:	Not reported
Disposal Area (Acre):	Not reported

Detail As Of 01/2014:

Operator Name:	Claremont Department of Community Services
Operator Address:	1616 Monte Vista AVE.
Operator City/State/Zip:	Claremont, CA 91711
Operator Contact:	stacey Neimeyer
Operator Telephone:	(909) 399-5431
Operator Email:	mharmon@ci.claremont.ca.us
Owner Name:	Unknown
Owner Address:	Not reported
Owner City/State/Zip:	Not reported
Owner Contact:	Not reported
Owner Telephone:	Not reported
Owner Email:	Not reported

NPDES:

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	4
Regulatory Measure Id:	459539
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	4 19I026253
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	10/29/2015
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	City of Claremont Community Services Yard
Discharge Address:	1616 Monte Vista Ave
Discharge City:	Claremont

CITY OF CLAREMONT/CORP YARD (Continued) **S108211581**

Discharge State:	California
Discharge Zip:	91711
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported

CITY OF CLAREMONT/CORP YARD (Continued) **S108211581**

TERTIARY SIC:	Not reported
Npdes Number:	Not reported
Facility Status:	Not reported
Agency Id:	Not reported
Region:	4
Regulatory Measure Id:	459539
Order No:	Not reported
Regulatory Measure Type:	Industrial
Place Id:	Not reported
WDID:	4 19I026253
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	10/29/2015
PROCESSED DATE:	10/29/2015
STATUS CODE NAME:	Active
STATUS DATE:	10/29/2015
PLACE SIZE:	4.8
PLACE SIZE UNIT:	Acres
FACILITY CONTACT NAME:	Colin Tudor
FACILITY CONTACT TITLE:	Assistant City Manager
FACILITY CONTACT PHONE:	909-399-5466
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	ctudor@ci.claremont.ca.us
OPERATOR NAME:	City of Claremont Community Services Yard
OPERATOR ADDRESS:	1616 Monte Vista Ave
OPERATOR CITY:	Claremont
OPERATOR STATE:	California
OPERATOR ZIP:	91711
OPERATOR CONTACT NAME:	Colin Tudor
OPERATOR CONTACT TITLE:	Assistant City Manager
OPERATOR CONTACT PHONE:	909-399-5466
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	ctudor@ci.claremont.ca.us
OPERATOR TYPE:	City/Town Agency
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	California
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	909-399-5460
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported

CITY OF CLAREMONT/CORP YARD (Continued) **S108211581**

CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	N
RECEIVING WATER NAME:	Chino Creek
CERTIFIER NAME:	Colin Tudor
CERTIFIER TITLE:	Community Services Manager
CERTIFICATION DATE:	20-APR-16
PRIMARY SIC:	4212-Local Trucking Without Storage
SECONDARY SIC:	4953-Refuse Systems
TERTIARY SIC:	Not reported

San Bern. Co. Permit:

Region:	SAN BERNARDINO
Facility ID:	FA0010228
Owner:	CITY OF CLAREMONT
Permit Number:	PT0017399
Permit Category:	HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status:	INACTIVE
Expiration Date:	02/28/2015

Region:	SAN BERNARDINO
Facility ID:	FA0010228
Owner:	CITY OF CLAREMONT
Permit Number:	PT0017400
Permit Category:	APSA 10,001-100,000 GAL FAC CAPACITY
Facility Status:	INACTIVE
Expiration Date:	02/28/2015

19
WSW
1/4-1/2
0.343 mi.
1813 ft.

CLAREMONT COLLEGES DISPOSAL SITE **SWF/LF** **S104156333**
1100 NORTH MILLS AVENUE **WMUDS/SWAT** **N/A**
CLAREMONT, CA 91711

Relative:
Lower

Actual:
1288 ft.

LOS ANGELES CO. LF:

Site ID:	1903
Alt. Address:	705 East 6th Street, Claremont, CA; 1050 North Mills Avenue, Claremont, CA 91711
Site Contact:	Not reported
Site Contact Phone:	Not reported
Site Email:	Not reported
Site Website:	Not reported
Site Type:	Designated Waste Landfill
Site SWIS Number:	19-AA-5075
Beginning Operation Date:	1954
Ending Operation Date:	Dec-85
Local Enforcement Agency:	County Public Health
Maximun Depth Fill(Ft):	80

CLAREMONT COLLEGES DISPOSAL SITE (Continued) **S104156333**

Permitted Capacity:	Not reported
Present Use:	Harvey Mudd College
Remaining Capacity(Million):	Not reported
Status:	Closed
Waste Accepted:	Inert
Hours of Operation:	Not reported
Disposal Area (Acre):	30

Detail As Of 01/2014:

Operator Name:	Claremont College
Operator Address:	303 EAST FIRST STREET
Operator City/State/Zip:	CLAREMONT, CA 91711
Operator Contact:	Not reported
Operator Telephone:	(714) 621-8441
Operator Email:	Not reported
Owner Name:	Claremont College
Owner Address:	303 East First Street
Owner City/State/Zip:	CLAREMONT, CA 91711
Owner Contact:	Not reported
Owner Telephone:	(714) 621-8441
Owner Email:	Not reported

WMUDS/SWAT:

Edit Date:	Not reported
Complexity:	Not reported
Primary Waste:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Base Meridian:	Not reported
NPID:	Not reported
Tonnage:	0
Regional Board ID:	Not reported
Municipal Solid Waste:	False
Superorder:	False
Open To Public:	False
Waste List:	False
Agency Type:	Not reported
Agency Name:	CLAREMONT COLLEGES
Agency Department:	Not reported
Agency Address:	Not reported
Agency City,St,Zip:	Not reported
Agency Contact:	Not reported
Agency Telephone:	Not reported
Land Owner Name:	Not reported
Land Owner Address:	Not reported
Land Owner City,St,Zip:	CA
Land Owner Contact:	Not reported
Land Owner Phone:	Not reported
Region:	4
Facility Type:	Not reported
Facility Description:	Not reported
Facility Telephone:	Not reported
SWAT Facility Name:	Not reported
Primary SIC:	Not reported
Secondary SIC:	Not reported
Comments:	Not reported

CLAREMONT COLLEGES DISPOSAL SITE (Continued) **S104156333**

Last Facility Editors:	Not reported
Waste Discharge System:	False
Solid Waste Assessment Test Program:	True
Toxic Pits Cleanup Act Program:	False
Resource Conservation Recovery Act:	False
Department of Defence:	False
Solid Waste Assessment Test Program:	CLAREMONT COLLEGES
Threat to Water Quality:	Not reported
Sub Chapter 15:	False
Regional Board Project Officer:	LT
Number of WMUDS at Facility:	1
Section Range:	Not reported
RCRA Facility:	Not reported
Waste Discharge Requirements:	Not reported
Self-Monitoring Rept. Frequency:	Not reported
Waste Discharge System ID:	4 190149NUR
Solid Waste Information ID:	Not reported

E20 **WESTON E. MONTGOMERY FUEL** **LUST U001570646**
SE **2085 W 11TH ST** **HIST UST N/A**
1/4-1/2 **UPLAND, CA 91786**
0.400 mi.
2110 ft. **Site 1 of 2 in cluster E**

Relative: **Lower**

Actual: **1301 ft.**

LUST:

Lead Agency:	SAN BERNARDINO COUNTY
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607100397
Global Id:	T0607100397
Latitude:	34.1032976
Longitude:	-117.6908148
Status:	Completed - Case Closed
Status Date:	01/08/1996
Case Worker:	JC
RB Case Number:	083602753T
Local Agency:	SAN BERNARDINO COUNTY
File Location:	Local Agency
Local Case Number:	95058
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

LUST:

Global Id:	T0607100397
Contact Type:	Local Agency Caseworker
Contact Name:	JACKSON CRUTSINGER
Organization Name:	SAN BERNARDINO COUNTY
Address:	620 SOUTH E STREET
City:	SAN BERNARDINO
Email:	jcrutsinger@sbcfire.org
Phone Number:	Not reported

LUST:

Global Id:	T0607100397
Action Type:	Other
Date:	09/28/1995
Action:	Leak Discovery

WESTON E. MONTGOMERY FUEL (Continued) **U001570646**

Global Id: T0607100397
Action Type: Other
Date: 10/25/1995
Action: Leak Reported

LUST:
Global Id: T0607100397
Status: Open - Case Begin Date
Status Date: 09/28/1995

Global Id: T0607100397
Status: Completed - Case Closed
Status Date: 01/08/1996

HIST UST:
File Number: 0002AA60
URL: http://geotracker.waterboards.ca.gov/ustpdfs/pdf/0002AA60.pdf
Region: STATE
Facility ID: 00000038926
Facility Type: Gas Station
Other Type: Not reported
Contact Name: MONTY MONTGOMERY
Telephone: 7146268614
Owner Name: WESTON E. MONTGOMERY
Owner Address: 3232 PADAU AVE.
Owner City,St,Zip: CLAREMONT, CA 91711
Total Tanks: 0003

Tank Num: 001
Container Num: 1
Year Installed: Not reported
Tank Capacity: 00008000
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: 2
Year Installed: 1983
Tank Capacity: 00020000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 5/16
Leak Detection: Stock Inventor

Tank Num: 003
Container Num: 3
Year Installed: 1983
Tank Capacity: 00020000
Tank Used for: PRODUCT
Type of Fuel: DIESEL
Container Construction Thickness: 5/16
Leak Detection: Stock Inventor

WESTON E. MONTGOMERY FUEL (Continued) **U001570646**

Click here for Geo Tracker PDF:

E21
SE
1/4-1/2
0.400 mi.
2110 ft.

WESTON E. MONTGOMERY FUEL **LUST S102441224**
2085 11TH ST **HIST CORTESE N/A**
UPLAND, CA 91786

Site 2 of 2 in cluster E

Relative:
Lower

Actual:
1301 ft.

LUST REG 8:

Region:	8
County:	San Bernardino
Regional Board:	Santa Ana Region
Facility Status:	Case Closed ← ↓
Case Number:	083602753T
Local Case Num:	95058
Case Type:	Soil only
Substance:	Diesel
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	Not reported
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Not reported
How Stopped:	Not reported
Leak Cause:	Not reported
Leak Source:	Not reported
Global ID:	T0607100397
How Stopped Date:	Not reported
Enter Date:	12/19/1995
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	9/28/1995
Enforcement Date:	Not reported
Close Date:	1/8/1996
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	12/19/1995
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	34.1032976
Longitude:	-117.6908148
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	0
MTBE Tested:	Not Required to be Tested.
MTBE Class:	*
Staff:	WDM
Staff Initials:	JC3
Lead Agency:	Local Agency

WESTON E. MONTGOMERY FUEL (Continued) **S102441224**

Local Agency:	36000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported
Summary:	Not reported

HIST CORTESE:

Region:	CORTESE
Facility County Code:	36
Reg By:	LTNKA
Reg Id:	083602753T

F22 **DINEEN TRUCKING INC.** **LUST** **S101619062**
ENE **1284 AIRPORT DR** **SWEEPS UST** **N/A**
1/4-1/2 **UPLAND, CA 91786** **CA FID UST**
0.484 mi. **HIST CORTESE**
2558 ft. **Site 1 of 2 in cluster F** **WDS**

Relative: **Higher**

Actual: **1391 ft.**

LUST REG 8:

Region:	8
County:	San Bernardino
Regional Board:	Santa Ana Region
Facility Status:	Case Closed
Case Number:	083600599T
Local Case Num:	87064
Case Type:	Soil only
Substance:	Diesel
Qty Leaked:	Not reported
Abate Method:	Not reported
Cross Street:	FOOTHILL
Enf Type:	Not reported
Funding:	Not reported
How Discovered:	Tank Test
How Stopped:	Not reported
Leak Cause:	Not reported
Leak Source:	Not reported
Global ID:	T0607100057
How Stopped Date:	Not reported
Enter Date:	8/28/1987
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	Not reported
Enforcement Date:	Not reported
Close Date:	5/27/1988
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	8/28/1987
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	8/28/1987
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported

DINEEN TRUCKING INC. (Continued) **S101619062**

Oversite Program:	LUST
Latitude:	34.1090184
Longitude:	-117.6910699
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	0
MTBE Tested:	Not Required to be Tested.
MTBE Class:	*
Staff:	VJJ
Staff Initials:	DR
Lead Agency:	Local Agency
Local Agency:	36000L
Hydr Basin #:	UPPER SANTA ANA VALL
Beneficial:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

SWEEPS UST:

Status:	Active
Comp Number:	9733
Number:	9
Board Of Equalization:	44-020220
Referral Date:	07-07-88
Action Date:	07-07-88
Created Date:	02-29-88
Owner Tank Id:	2
SWRCB Tank Id:	36-000-009733-000001
Tank Status:	A
Capacity:	5000
Active Date:	07-07-88
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	4

Status:	Active
Comp Number:	9733
Number:	9
Board Of Equalization:	44-020220
Referral Date:	07-07-88
Action Date:	07-07-88
Created Date:	02-29-88
Owner Tank Id:	3
SWRCB Tank Id:	36-000-009733-000002
Tank Status:	A
Capacity:	8000
Active Date:	07-07-88
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	Not reported

Status: Active

DINEEN TRUCKING INC. (Continued) **S101619062**

Comp Number: 9733
Number: 9
Board Of Equalization: 44-020220
Referral Date: 07-07-88
Action Date: 07-07-88
Created Date: 02-29-88
Owner Tank Id: 4
SWRCB Tank Id: 36-000-009733-000003
Tank Status: A
Capacity: 4000
Active Date: 07-07-88
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Status: Active
Comp Number: 9733
Number: 9
Board Of Equalization: 44-020220
Referral Date: 07-07-88
Action Date: 07-07-88
Created Date: 02-29-88
Owner Tank Id: 5
SWRCB Tank Id: 36-000-009733-000004
Tank Status: A
Capacity: 5000
Active Date: 07-07-88
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

CA FID UST:
Facility ID: 36000259
Regulated By: UTNKA
Regulated ID: 00009733
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: Not reported
Mail To: Not reported
Mailing Address: 1284 AIRPORT DR
Mailing Address 2: Not reported
Mailing City,St,Zip: UPLAND 91786
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

HIST CORTESE:
Region: CORTESE
Facility County Code: 36
Reg By: LTNKA

DINEEN TRUCKING INC. (Continued) **S101619062**

Reg Id: 083600599T

WDS:

Facility ID:	Santa Ana River 36I018208
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	CAS000001 The 1st 2 characters designate the state. The remaining 7 are assigned by the Regional Board
Subregion:	8
Facility Telephone:	9099859718
Facility Contact:	Ken Beck
Agency Name:	DINEEN TRUCKING INC
Agency Address:	1284 Airport Dr
Agency City,St,Zip:	Upland 917862156
Agency Contact:	Ken Beck
Agency Telephone:	9099859718
Agency Type:	?
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Not reported
Primary Waste:	Not reported
Waste Type2:	Not reported
Waste2:	Not reported
Primary Waste Type:	Not reported
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	Not reported
POTW:	Not reported
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category C - Facilities having no waste treatment systems, such as cooling water dischargers or thosewho must comply through best management practices, facilities with passive waste treatment and disposal systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds.

F23 **DINEEN TRUCKING** **LUST** **U001570666**
ENE **1284 AIRPORT DR** **HIST UST** **N/A**
1/4-1/2 **UPLAND, CA 91786** **NPDES**
0.484 mi. **San Bern. Co. Permit**
2558 ft. **Site 2 of 2 in cluster F**

Relative:
Higher

Actual:
1391 ft.

LUST:

Lead Agency:	SAN BERNARDINO COUNTY
Case Type:	LUST Cleanup Site
Geo Track:	http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0607100057
Global Id:	T0607100057
Latitude:	34.1090184
Longitude:	-117.6910699
Status:	Completed - Case Closed
Status Date:	05/27/1988
Case Worker:	Not reported
RB Case Number:	083600599T
Local Agency:	Not reported
File Location:	Local Agency
Local Case Number:	87064
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Diesel
Site History:	Not reported

LUST:

Global Id:	T0607100057
Contact Type:	Regional Board Caseworker
Contact Name:	VALERIE JAHN-BULL
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	valerie.jahn-bull@waterboards.ca.gov
Phone Number:	9517824903

LUST:

Global Id:	T0607100057
Action Type:	Other
Date:	07/24/1987
Action:	Leak Reported

LUST:

Global Id:	T0607100057
Status:	Open - Case Begin Date
Status Date:	07/24/1987
Global Id:	T0607100057
Status:	Open - Site Assessment
Status Date:	08/28/1987
Global Id:	T0607100057
Status:	Completed - Case Closed
Status Date:	05/27/1988

HIST UST:

File Number:	00029DB1
URL:	http://geotracker.waterboards.ca.gov/ustpdfs/pdf/00029DB1.pdf
Region:	STATE

DINEEN TRUCKING (Continued) **U001570666**

Facility ID:	00000009733
Facility Type:	Other
Other Type:	TRUCKING
Contact Name:	Not reported
Telephone:	7149859718
Owner Name:	DINEEN TRUCKING INC.
Owner Address:	1284 AIRPORT DR.
Owner City,St,Zip:	UPLAND, CA 91786
Total Tanks:	0004
Tank Num:	001
Container Num:	002
Year Installed:	1976
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	002
Container Num:	003
Year Installed:	1976
Tank Capacity:	00008000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	003
Container Num:	004
Year Installed:	1976
Tank Capacity:	00004000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual
Tank Num:	004
Container Num:	005
Year Installed:	1976
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Visual

Click here for Geo Tracker PDF:

NPDES:

Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	8
Regulatory Measure Id:	213710
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported

DINEEN TRUCKING (Continued) **U001570666**

WDID:	8 36I018208
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	06/24/2003
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Dineen Trucking Inc
Discharge Address:	1284 Airport Dr
Discharge City:	Upland
Discharge State:	California
Discharge Zip:	91786
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported

DINEEN TRUCKING (Continued) **U001570666**

CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported
Npdes Number:	Not reported
Facility Status:	Not reported
Agency Id:	Not reported
Region:	8
Regulatory Measure Id:	213710
Order No:	Not reported
Regulatory Measure Type:	Industrial
Place Id:	Not reported
WDID:	8 36I018208
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	05/09/2008
PROCESSED DATE:	06/24/2003
STATUS CODE NAME:	Active
STATUS DATE:	11/12/2015
PLACE SIZE:	2
PLACE SIZE UNIT:	Acres
FACILITY CONTACT NAME:	Brenda Beck
FACILITY CONTACT TITLE:	CEO
FACILITY CONTACT PHONE:	909-985-9718
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	b.dineen@hotmail.com
OPERATOR NAME:	Dineen Trucking Inc
OPERATOR ADDRESS:	1284 Airport Dr
OPERATOR CITY:	Upland
OPERATOR STATE:	California
OPERATOR ZIP:	91786
OPERATOR CONTACT NAME:	Brenda Beck
OPERATOR CONTACT TITLE:	CEO
OPERATOR CONTACT PHONE:	909-985-9718
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	b.dineen@hotmail.com
OPERATOR TYPE:	Other
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	California
DEVELOPER ZIP:	Not reported

DINEEN TRUCKING (Continued) **U001570666**

DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	909-985-9718
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	N
RECEIVING WATER NAME:	San Gabriel River
CERTIFIER NAME:	Brenda McClendon
CERTIFIER TITLE:	CEO
CERTIFICATION DATE:	15-JUL-15
PRIMARY SIC:	4212-Local Trucking Without Storage
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

San Bern. Co. Permit:

Region:	SAN BERNARDINO
Facility ID:	FA0002744
Owner:	DINEEN TRUCKING INC
Permit Number:	PT0027030
Permit Category:	APSA 1,320-10,000 GAL FAC CAPACITY
Facility Status:	ACTIVE
Expiration Date:	08/31/2018

Region:	SAN BERNARDINO
Facility ID:	FA0002744
Owner:	DINEEN TRUCKING INC
Permit Number:	PT0002527
Permit Category:	HAZARDOUS MATERIALS 4-10 CHEMICALS
Facility Status:	ACTIVE
Expiration Date:	08/31/2018

Region:	SAN BERNARDINO
Facility ID:	FA0002744
Owner:	DINEEN TRUCKING INC
Permit Number:	PT0002528
Permit Category:	SMALL QUANTITY GENERATOR
Facility Status:	ACTIVE
Expiration Date:	08/31/2018

24
ENE
1/2-1
0.763 mi.
4027 ft.

CABLE AIRPORT
1749 W 13TH ST
UPLAND, CA 91786

ENVIROSTOR **S113747981**
EMI **N/A**

Relative:
Higher

Actual:
1422 ft.

ENVIROSTOR:

Facility ID:	60002592
Status:	Active
Status Date:	12/18/2017
Site Code:	401805
Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	0.5
NPL:	NO
Regulatory Agencies:	SMBRP
Lead Agency:	SMBRP
Program Manager:	Joseph Cully
Supervisor:	Patrick Hsieh
Division Branch:	Cleanup Cypress
Assembly:	Not reported
Senate:	Not reported
Special Program:	EPA - PASI
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	EPA Grant
Latitude:	0
Longitude:	0
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	401805
Alias Type:	Project Code (Site Code)
Alias Name:	60002592
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

EMI:

Year:	2009
County Code:	36
Air Basin:	SC

CABLE AIRPORT (Continued) **S113747981**

Facility ID:	180020
Air District Name:	SC
SIC Code:	4581
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	6.7317905869999999
Reactive Organic Gases Tons/Yr:	5.9749534689999999
Carbon Monoxide Emissions Tons/Yr:	261.46298473000002
NOX - Oxides of Nitrogen Tons/Yr:	3.1396116310000002
SOX - Oxides of Sulphur Tons/Yr:	0.63356890300000002
Particulate Matter Tons/Yr:	5.9636397033960398
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5.4575887999999999

Year:	2010
County Code:	36
Air Basin:	SC
Facility ID:	180020
Air District Name:	SC
SIC Code:	4581
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	27.024047599999999
Reactive Organic Gases Tons/Yr:	24.084601200000002
Carbon Monoxide Emissions Tons/Yr:	185.97851360000001
NOX - Oxides of Nitrogen Tons/Yr:	3.5800116000000002
SOX - Oxides of Sulphur Tons/Yr:	0.46497880000000003
Particulate Matter Tons/Yr:	3.6012570084717699
Part. Matter 10 Micrometers and Smllr Tons/Yr:	3.2320904000000001

Year:	2011
County Code:	36
Air Basin:	SC
Facility ID:	180020
Air District Name:	SC
SIC Code:	4581
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	6.731790587
Reactive Organic Gases Tons/Yr:	5.974953469
Carbon Monoxide Emissions Tons/Yr:	261.46298473
NOX - Oxides of Nitrogen Tons/Yr:	3.139611631
SOX - Oxides of Sulphur Tons/Yr:	0.633568903
Particulate Matter Tons/Yr:	5.9636397034
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5.4575888

Year:	2012
County Code:	36
Air Basin:	SC
Facility ID:	180020
Air District Name:	SC
SIC Code:	4581
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported

CABLE AIRPORT (Continued) **S113747981**

Total Organic Hydrocarbon Gases Tons/Yr:	6.7318
Reactive Organic Gases Tons/Yr:	5.9749
Carbon Monoxide Emissions Tons/Yr:	261.463
NOX - Oxides of Nitrogen Tons/Yr:	3.1396
SOX - Oxides of Sulphur Tons/Yr:	0.6336
Particulate Matter Tons/Yr:	5.963655701
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5.4576

Year:	2014
County Code:	36
Air Basin:	SC
Facility ID:	180020
Air District Name:	SC
SIC Code:	4581
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Y
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	6.732
Reactive Organic Gases Tons/Yr:	5.975
Carbon Monoxide Emissions Tons/Yr:	261.463
NOX - Oxides of Nitrogen Tons/Yr:	3.14
SOX - Oxides of Sulphur Tons/Yr:	0.633
Particulate Matter Tons/Yr:	5.963639703
Part. Matter 10 Micrometers and Smllr Tons/Yr:	5.458

25
SSW
1/2-1
0.952 mi.
5026 ft.

CLAREMONT COLLEGE
301 E. FIRST STREET
CLAREMONT, CA 91711

ENVIROSTOR **S100177986**
Notify 65 **N/A**

Relative:
Lower

Actual:
1172 ft.

ENVIROSTOR:

Facility ID:	19350476
Status:	Refer: 1248 Local Agency
Status Date:	05/15/2003
Site Code:	Not reported
Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Cypress
Assembly:	41
Senate:	25
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not Applicable
Latitude:	34.09679
Longitude:	-117.7078
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED

CLAREMONT COLLEGE (Continued) **S100177986**

Alias Name: 19350476
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

NOTIFY 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Issue Date: Not reported
Incident Description: Not reported

Count: 7 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
CLAREMONT	S107537805		BEHIND 1025 FOOTHILL BLVD	91711	CDL
MONTCLAIR	1018148649	DEMPSEY PROPERTY	10777-10787 MONTE VISTA AVE.	91763	SEMS
UPLAND	S119085132	FOOTHILL BLVD. WIDENING	FOOTHILL BLVD	91786	NPDES
UPLAND	S104748811	TERRY'S SHELL	183 FOOTHILL BLVD	91786	LUST, HIST CORTESE
UPLAND	S103464093	THRIFTY OIL # / ARCO # 9691	775 FOOTHILL BLVD	91786	LUST
UPLAND	S107536164		745 W FOOTHILL BLVD, IN VEHICL	91786	CDL
UPLAND	S107536163		745 W FOOTHILL BLVD	91786	CDL

Upland

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 06/13/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 94

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/09/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/18/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 01/30/2018
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 47

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 01/30/2018
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 47

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 23

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 31

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 03/21/2018
Next Scheduled EDR Contact: 07/09/2018
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 134

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/23/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Semi-Annually

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 03/21/2018
Next Scheduled EDR Contact: 07/09/2018
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 01/30/2018
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 47

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 12/22/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 36

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 01/19/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/21/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/09/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 39

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/09/2018
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/30/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 02/02/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 01/19/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 16

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database
The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 01/30/2018
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 47

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/18/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 34

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 16

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 02/27/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database
A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 11/27/2017
Date Data Arrived at EDR: 11/29/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 19

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database
The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/30/2017
Date Data Arrived at EDR: 12/01/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/08/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 0

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/21/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 57

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 02/20/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 03/12/2018
Date Data Arrived at EDR: 03/14/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 7

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/26/2017
Date Made Active in Reports: 02/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/13/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/16/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 01/11/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/25/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 21

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/09/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 21

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/12/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 03/09/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/26/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/02/2017
Date Data Arrived at EDR: 10/05/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 11/10/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 63

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 03/19/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/19/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 02/06/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 24

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 02/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 10/29/2017
Date Data Arrived at EDR: 11/28/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 45

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/25/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 24

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/23/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 9

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 02/23/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/13/2018
Date Data Arrived at EDR: 01/19/2018
Date Made Active in Reports: 03/02/2018
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2016
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 73

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 06/27/2017
Date Data Arrived at EDR: 11/21/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 03/02/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 53

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 02/08/2018
Date Data Arrived at EDR: 02/08/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 0

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/01/2017
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/16/2018
Number of Days to Update: 42

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 54

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 55

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data
Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/08/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

ICE: ICE
Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/08/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 02/06/2018
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 31

Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/29/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 02/14/2018
Date Data Arrived at EDR: 02/14/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 29

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 42

Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 03/05/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 35

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 32

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 36

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/12/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 03/21/2018
Next Scheduled EDR Contact: 07/09/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/11/2018
Date Made Active in Reports: 02/22/2018
Number of Days to Update: 42

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 10

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 01/25/2018
Date Data Arrived at EDR: 01/26/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 47

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/20/2017
Next Scheduled EDR Contact: 10/09/2017
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 02/26/2018
Date Data Arrived at EDR: 03/01/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 14

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/29/2017
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 51

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/05/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 40

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/06/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 21

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/05/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 9

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 08/03/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/26/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 47

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

INYO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/08/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 08/04/2017
Number of Days to Update: 56

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/20/2017
Number of Days to Update: 43

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/14/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 28

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 02/06/2018
Date Data Arrived at EDR: 02/09/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 56

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/16/2018
Date Data Arrived at EDR: 01/16/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 29

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 04/21/2017
Date Made Active in Reports: 10/09/2017
Number of Days to Update: 171

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 01/17/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/17/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 13

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 10/26/2017
Date Data Arrived at EDR: 10/27/2017
Date Made Active in Reports: 11/06/2017
Number of Days to Update: 10

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/02/2018
Date Data Arrived at EDR: 01/05/2018
Date Made Active in Reports: 01/17/2018
Number of Days to Update: 12

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/11/2018
Date Data Arrived at EDR: 01/12/2018
Date Made Active in Reports: 02/08/2018
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 02/22/2018
Date Data Arrived at EDR: 02/27/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 15

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Varies

MONTEREY COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 01/09/2018
Date Data Arrived at EDR: 01/11/2018
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 20

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/20/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 11/22/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 22

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 01/31/2018
Date Data Arrived at EDR: 02/01/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 41

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/09/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 28

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/05/2018
Date Data Arrived at EDR: 02/13/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 35

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/07/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/08/2017
Date Data Arrived at EDR: 12/12/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 50

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/15/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/15/2018
Number of Days to Update: 50

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/18/2018
Date Data Arrived at EDR: 01/23/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 56

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/19/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/19/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 01/03/2018
Date Made Active in Reports: 02/05/2018
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 01/03/2018
Date Made Active in Reports: 02/14/2018
Number of Days to Update: 42

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA Facility List

Cupa facility list

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 11/17/2017
Number of Days to Update: 14

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/30/2017
Date Data Arrived at EDR: 12/01/2017
Date Made Active in Reports: 01/16/2018
Number of Days to Update: 46

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/05/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 12/04/2017
Date Data Arrived at EDR: 12/05/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 37

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/20/2017
Date Data Arrived at EDR: 12/21/2017
Date Made Active in Reports: 02/01/2018
Number of Days to Update: 42

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 07/02/2018
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/16/2017
Date Data Arrived at EDR: 11/17/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 31

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 12/12/2017
Date Data Arrived at EDR: 12/14/2017
Date Made Active in Reports: 01/11/2018
Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2017
Date Data Arrived at EDR: 12/14/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 29

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/07/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 02/20/2018
Date Data Arrived at EDR: 02/20/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 02/22/2018
Next Scheduled EDR Contact: 06/11/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/04/2018
Date Data Arrived at EDR: 02/06/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 42

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/15/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 28

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/14/2017
Date Data Arrived at EDR: 12/15/2017
Date Made Active in Reports: 01/18/2018
Number of Days to Update: 34

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/20/2017
Date Data Arrived at EDR: 12/21/2017
Date Made Active in Reports: 01/31/2018
Number of Days to Update: 41

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/04/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 02/06/2018
Number of Days to Update: 28

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 02/06/2018
Date Data Arrived at EDR: 02/07/2018
Date Made Active in Reports: 03/16/2018
Number of Days to Update: 37

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/01/2017
Date Data Arrived at EDR: 12/04/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 15

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 02/28/2018
Next Scheduled EDR Contact: 06/18/2018
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA Facility List
Cupa facilities

Date of Government Version: 01/26/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 47

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 02/01/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/25/2018
Date Made Active in Reports: 03/19/2018
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

TULARE COUNTY:

CUPA Facility List
Cupa program facilities

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 09/28/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 18

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 03/06/2018
Next Scheduled EDR Contact: 05/21/2018
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/25/2018
Date Made Active in Reports: 03/16/2018
Number of Days to Update: 50

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 12/26/2017
Date Data Arrived at EDR: 01/25/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 48

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/08/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: Quarterly

Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 12/26/2017
Date Data Arrived at EDR: 01/25/2018
Date Made Active in Reports: 03/20/2018
Number of Days to Update: 54

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/22/2018
Next Scheduled EDR Contact: 05/07/2018
Data Release Frequency: Quarterly

Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/27/2017
Date Data Arrived at EDR: 12/13/2017
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/14/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 01/02/2018
Date Data Arrived at EDR: 01/09/2018
Date Made Active in Reports: 01/19/2018
Number of Days to Update: 10

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/01/2018
Date Data Arrived at EDR: 02/02/2018
Date Made Active in Reports: 03/21/2018
Number of Days to Update: 47

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/29/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/11/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 34

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/14/2018
Next Scheduled EDR Contact: 05/28/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 01/31/2018
Date Made Active in Reports: 03/09/2018
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 01/31/2018
Next Scheduled EDR Contact: 05/14/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/16/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/21/2018
Next Scheduled EDR Contact: 06/04/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/08/2018
Next Scheduled EDR Contact: 06/25/2018
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.
Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.
Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

735 FOOTHILL BLVD.
735 FOOTHILL BLVD.
CLAREMONT, CA 91711

TARGET PROPERTY COORDINATES

Latitude (North):	34.107598 - 34° 6' 27.35"
Longitude (West):	117.700637 - 117° 42' 2.29"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	435377.3
UTM Y (Meters):	3774113.0
Elevation:	1338 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5619074 ONTARIO, CA
Version Date:	2012
North Map:	5630625 MOUNT BALDY, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

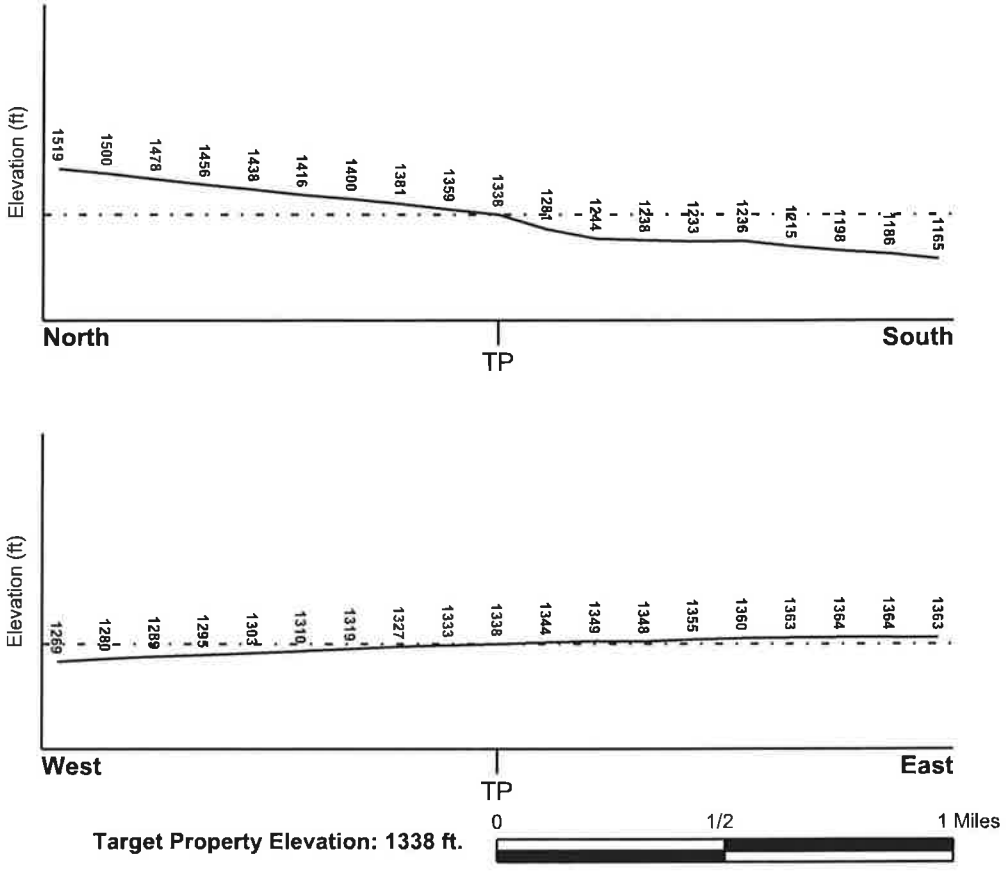
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C8605H	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06037C1750F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ONTARIO	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	URBAN LAND
Soil Surface Texture:	variable
Hydrologic Group:	Not reported
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 10 inches
Depth to Bedrock Max:	> 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures:
gravelly - loamy sand
coarse sandy loam
stony - loamy sand
fine sand
silt loam
fine sandy loam
sandy loam
gravelly - sandy loam
loamy fine sand
clay loam

Surficial Soil Types:
gravelly - loamy sand
coarse sandy loam
stony - loamy sand
fine sand
silt loam
fine sandy loam
sandy loam
gravelly - sandy loam
loamy fine sand
clay loam

Shallow Soil Types:
fine sandy loam
gravelly - loam

Deeper Soil Types:
gravelly - fine sandy loam
sand
silty clay loam
gravelly - sandy loam
loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS40000141163	1/4 - 1/2 Mile West
10	USGS40000141405	1/2 - 1 Mile NNW
B11	USGS40000141351	1/2 - 1 Mile NW
B12	USGS40000141357	1/2 - 1 Mile NW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

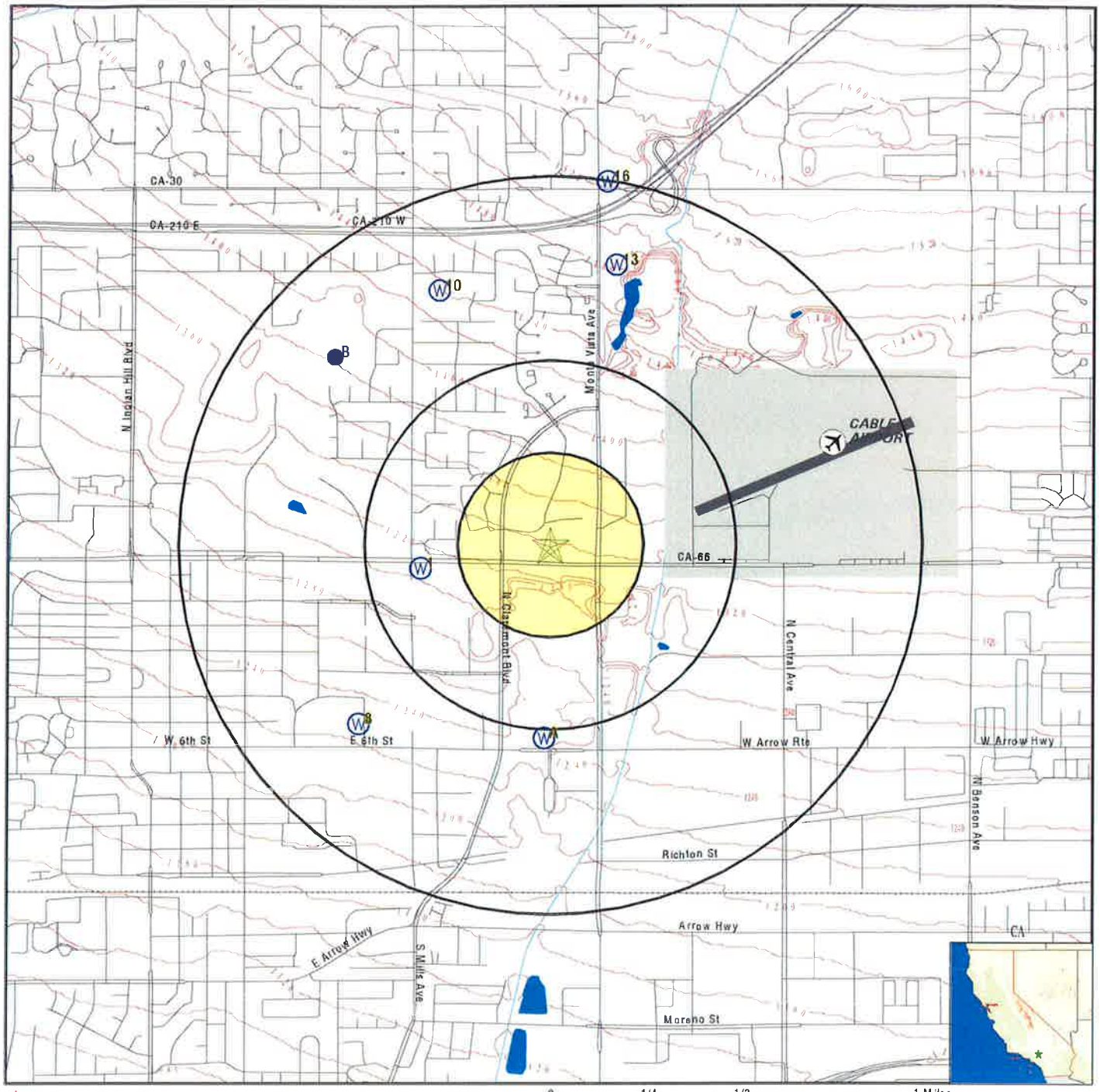
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	1109	1/2 - 1 Mile South
A3	1106	1/2 - 1 Mile South
A4	1105	1/2 - 1 Mile South
A5	3162	1/2 - 1 Mile South
A6	1151	1/2 - 1 Mile South
A7	1146	1/2 - 1 Mile South
8	CADW60000005595	1/2 - 1 Mile SW
B9	1108	1/2 - 1 Mile NW
13	14204	1/2 - 1 Mile NNE
B14	CADW60000010256	1/2 - 1 Mile NW
B15	1107	1/2 - 1 Mile NW
16	CADW60000015498	1/2 - 1 Mile North

PHYSICAL SETTING SOURCE MAP - 5230729.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: 735 Foothill Blvd.	CLIENT: PIC Environmental Services
ADDRESS: 735 Foothill Blvd.	CONTACT: Tim Hersch
Claremont CA 91711	INQUIRY #: 5230729.2s
LAT/LONG: 34.107598 / 117.700637	DATE: March 22, 2018 1:24 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **West** **1/4 - 1/2 Mile** **Lower**		**FED USGS**	**USGS40000141163**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340624117422101		
Monloc name:	001S008W10B001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1066761
Longitude:	-117.7067226	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	800
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

		Database	EDR ID Number
A2 **South** **1/2 - 1 Mile** **Lower**		**CA WELLS**	**1109**

Water System Information:

Prime Station Code:	01S/08W-03G02 S	User ID:	MET
FRDS Number:	1910024020	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	MILL WELL 01		
System Number:	1910024		
System Name:	SCWC - CLAREMONT		
Organization That Operates System:			
	P.O. BOX 9016		
	SAN DIMAS, CA 91773		
Pop Served:	34028	Connections:	10187
Area Served:	CLAREMONT		
Sample Collected:	22-FEB-12	Findings:	14. MG/L
Chemical:	NITRATE (AS NO3)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	15-MAY-12	Findings:	9.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	21-AUG-12	Findings:	11. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-NOV-12	Findings:	10. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	19-FEB-13	Findings:	13. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-AUG-13	Findings:	3. UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	20-AUG-13	Findings:	9.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-AUG-13	Findings:	3. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	18-SEP-13	Findings:	420. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	18-SEP-13	Findings:	7.65
Chemical:	PH, LABORATORY		
Sample Collected:	18-SEP-13	Findings:	200. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	18-SEP-13	Findings:	240. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	18-SEP-13	Findings:	210. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	18-SEP-13	Findings:	62. MG/L
Chemical:	CALCIUM		
Sample Collected:	18-SEP-13	Findings:	13. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	18-SEP-13	Findings:	8. MG/L
Chemical:	SODIUM		
Sample Collected:	18-SEP-13	Findings:	2.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	18-SEP-13	Findings:	19. MG/L
Chemical:	CHLORIDE		
Sample Collected:	18-SEP-13	Findings:	27. MG/L
Chemical:	SULFATE		
Sample Collected:	18-SEP-13	Findings:	0.29 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	18-SEP-13	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	18-SEP-13	Findings:	0.3
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	18-SEP-13	Findings:	10. MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	18-SEP-13	Findings:	0.41 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	18-SEP-13	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	18-SEP-13	Findings:	2300. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	19-DEC-13	Findings:	13. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-FEB-14	Findings:	27. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-MAY-14	Findings:	9.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	13-AUG-14	Findings:	0.48 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	20-AUG-14	Findings:	2.6 UG/L
Chemical:	BROMODICHLOROMETHANE (THM)		
Sample Collected:	20-AUG-14	Findings:	2.3 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	20-AUG-14	Findings:	3.9 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	20-AUG-14	Findings:	2.8 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	20-AUG-14	Findings:	12. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-AUG-14	Findings:	12. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	18-NOV-14	Findings:	9.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-DEC-14	Findings:	1.9 UG/L
Chemical:	CHROMIUM, HEXAVALENT		

A3
South
1/2 - 1 Mile
Lower

CA WELLS **1106**

Water System Information:

Prime Station Code:	01S/08W-03F03 S	User ID:	MET
FRDS Number:	1910126032	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	WELL T-03		
System Number:	1910126		
System Name:	POMONA-CITY, WATER DEPT.		
Organization That Operates System:			
	P O BOX 660		
	POMONA, CA 91769		
Pop Served:	131723	Connections:	27808
Area Served:	POMONA		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected: Chemical:	07-FEB-13 COLOR	Findings:	3. UNITS
Sample Collected: Chemical:	07-FEB-13 SPECIFIC CONDUCTANCE	Findings:	400. US
Sample Collected: Chemical:	07-FEB-13 PH, LABORATORY	Findings:	7.9
Sample Collected: Chemical:	07-FEB-13 ALKALINITY (TOTAL) AS CACO3	Findings:	150. MG/L
Sample Collected: Chemical:	07-FEB-13 BICARBONATE ALKALINITY	Findings:	190. MG/L
Sample Collected: Chemical:	07-FEB-13 HARDNESS (TOTAL) AS CACO3	Findings:	180. MG/L
Sample Collected: Chemical:	07-FEB-13 CALCIUM	Findings:	58. MG/L
Sample Collected: Chemical:	07-FEB-13 MAGNESIUM	Findings:	8.7 MG/L
Sample Collected: Chemical:	07-FEB-13 SODIUM	Findings:	13. MG/L
Sample Collected: Chemical:	07-FEB-13 POTASSIUM	Findings:	2. MG/L
Sample Collected: Chemical:	07-FEB-13 CHLORIDE	Findings:	9.6 MG/L
Sample Collected: Chemical:	07-FEB-13 SULFATE	Findings:	25. MG/L
Sample Collected: Chemical:	07-FEB-13 FLUORIDE (F) (NATURAL-SOURCE)	Findings:	0.3 MG/L
Sample Collected: Chemical:	07-FEB-13 CHLOROFORM (THM)	Findings:	1.8 UG/L
Sample Collected: Chemical:	07-FEB-13 TOTAL DISSOLVED SOLIDS	Findings:	240. MG/L
Sample Collected: Chemical:	07-FEB-13 LANGELIER INDEX @ 60 C	Findings:	0.89
Sample Collected: Chemical:	07-FEB-13 NITRATE (AS NO3)	Findings:	8.8 MG/L
Sample Collected: Chemical:	07-FEB-13 TURBIDITY, LABORATORY	Findings:	0.25 NTU
Sample Collected: Chemical:	07-FEB-13 TOTAL TRIHALOMETHANES	Findings:	1.8 UG/L
Sample Collected: Chemical:	07-FEB-13 AGGRSSIVE INDEX (CORROSIVITY)	Findings:	12.
Sample Collected: Chemical:	07-FEB-13 NITRATE + NITRITE (AS N)	Findings:	2000. MG/L
Sample Collected: Chemical:	02-JUL-14 SPECIFIC CONDUCTANCE	Findings:	390. US

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	02-JUL-14	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	02-JUL-14	Findings:	140. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	02-JUL-14	Findings:	160. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	02-JUL-14	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	02-JUL-14	Findings:	55. MG/L
Chemical:	CALCIUM		
Sample Collected:	02-JUL-14	Findings:	8. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	02-JUL-14	Findings:	13. MG/L
Chemical:	SODIUM		
Sample Collected:	02-JUL-14	Findings:	2. MG/L
Chemical:	POTASSIUM		
Sample Collected:	02-JUL-14	Findings:	8.6 MG/L
Chemical:	CHLORIDE		
Sample Collected:	02-JUL-14	Findings:	25. MG/L
Chemical:	SULFATE		
Sample Collected:	02-JUL-14	Findings:	0.31 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	02-JUL-14	Findings:	4.9 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	02-JUL-14	Findings:	3.2 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	02-JUL-14	Findings:	1.5 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	02-JUL-14	Findings:	2.3 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	02-JUL-14	Findings:	1.
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	02-JUL-14	Findings:	8. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-JUL-14	Findings:	0.12 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	02-JUL-14	Findings:	2.3 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	02-JUL-14	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	02-JUL-14	Findings:	1800. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	02-JUL-14	Findings:	3. PCI/L
Chemical:	GROSS ALPHA MDA95		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected: Chemical:	29-JUL-14 RADIUM 226 COUNTING ERROR	Findings:	0.15 PCI/L
Sample Collected: Chemical:	29-JUL-14 TOTAL DISSOLVED SOLIDS	Findings:	250. MG/L
Sample Collected: Chemical:	29-JUL-14 RADIUM 226 MDA95	Findings:	0.41 PCI/L
Sample Collected: Chemical:	29-JUL-14 RADIUM 228 MDA95	Findings:	0.84 PCI/L
Sample Collected: Chemical:	08-JUL-15 SPECIFIC CONDUCTANCE	Findings:	410. US
Sample Collected: Chemical:	08-JUL-15 PH, LABORATORY	Findings:	8.2
Sample Collected: Chemical:	08-JUL-15 ALKALINITY (TOTAL) AS CACO3	Findings:	150. MG/L
Sample Collected: Chemical:	08-JUL-15 BICARBONATE ALKALINITY	Findings:	180. MG/L
Sample Collected: Chemical:	08-JUL-15 HARDNESS (TOTAL) AS CACO3	Findings:	170. MG/L
Sample Collected: Chemical:	08-JUL-15 CALCIUM	Findings:	54. MG/L
Sample Collected: Chemical:	08-JUL-15 MAGNESIUM	Findings:	8.1 MG/L
Sample Collected: Chemical:	08-JUL-15 SODIUM	Findings:	23. MG/L
Sample Collected: Chemical:	08-JUL-15 POTASSIUM	Findings:	1.5 MG/L
Sample Collected: Chemical:	08-JUL-15 CHLORIDE	Findings:	13. MG/L
Sample Collected: Chemical:	08-JUL-15 SULFATE	Findings:	30. MG/L
Sample Collected: Chemical:	08-JUL-15 FLUORIDE (F) (NATURAL-SOURCE)	Findings:	0.48 MG/L
Sample Collected: Chemical:	08-JUL-15 CHLOROFORM (THM)	Findings:	3.6 UG/L
Sample Collected: Chemical:	08-JUL-15 TOTAL DISSOLVED SOLIDS	Findings:	250. MG/L
Sample Collected: Chemical:	08-JUL-15 LANGELIER INDEX @ 60 C	Findings:	1.2
Sample Collected: Chemical:	08-JUL-15 NITRATE (AS NO3)	Findings:	10. MG/L
Sample Collected: Chemical:	08-JUL-15 TOTAL TRIHALOMETHANES	Findings:	3.6 UG/L
Sample Collected: Chemical:	08-JUL-15 AGGRSSIVE INDEX (CORROSIVITY)	Findings:	13.

Sample Collected:	08-JUL-15	Findings:	2300. MG/L
Chemical:	NITRATE + NITRITE (AS N)		

A4
South
1/2 - 1 Mile
Lower

CA WELLS **1105**

Water System Information:

Prime Station Code:	01S/08W-03F02 S	User ID:	MET
FRDS Number:	1910126031	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	WELL T-01		
System Number:	1910126		
System Name:	POMONA-CITY, WATER DEPT.		
Organization That Operates System:	P O BOX 660 POMONA, CA 91769		
Pop Served:	131723	Connections:	27808
Area Served:	POMONA		
Sample Collected:	10-JAN-12	Findings:	6.5 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	10-JAN-12	Findings:	9.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-JUL-12	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	23-JUL-12	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	23-JUL-12	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	23-JUL-12	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	23-JUL-12	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	23-JUL-12	Findings:	57. MG/L
Chemical:	CALCIUM		
Sample Collected:	23-JUL-12	Findings:	9.2 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	23-JUL-12	Findings:	16. MG/L
Chemical:	SODIUM		
Sample Collected:	23-JUL-12	Findings:	1.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	23-JUL-12	Findings:	10. MG/L
Chemical:	CHLORIDE		
Sample Collected:	23-JUL-12	Findings:	27. MG/L
Chemical:	SULFATE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	23-JUL-12	Findings:	0.41 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	23-JUL-12	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	23-JUL-12	Findings:	1.1
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	23-JUL-12	Findings:	9.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-JUL-12	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	23-JUL-12	Findings:	2100. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	09-JAN-13	Findings:	3.8 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	09-JAN-13	Findings:	9.7 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JAN-13	Findings:	3.8 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	17-JUL-13	Findings:	3. UNITS
Chemical:	COLOR		
Sample Collected:	17-JUL-13	Findings:	410. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	17-JUL-13	Findings:	2.
Chemical:	PH, LABORATORY		
Sample Collected:	17-JUL-13	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	17-JUL-13	Findings:	790. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	17-JUL-13	Findings:	160. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	17-JUL-13	Findings:	53. MG/L
Chemical:	CALCIUM		
Sample Collected:	17-JUL-13	Findings:	7.6 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	17-JUL-13	Findings:	20. MG/L
Chemical:	SODIUM		
Sample Collected:	17-JUL-13	Findings:	1.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	17-JUL-13	Findings:	12. MG/L
Chemical:	CHLORIDE		
Sample Collected:	17-JUL-13	Findings:	29. MG/L
Chemical:	SULFATE		
Sample Collected:	17-JUL-13	Findings:	0.46 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	17-JUL-13	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	17-JUL-13	Findings:	- 4.3
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	17-JUL-13	Findings:	9.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-JUL-13	Findings:	0.21 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	17-JUL-13	Findings:	7.1
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	17-JUL-13	Findings:	2200. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	02-JAN-14	Findings:	3.6 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	02-JAN-14	Findings:	9.9 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	02-JAN-14	Findings:	3.6 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	30-JUN-14	Findings:	410. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	30-JUN-14	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	30-JUN-14	Findings:	140. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	30-JUN-14	Findings:	170. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	30-JUN-14	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	30-JUN-14	Findings:	55. MG/L
Chemical:	CALCIUM		
Sample Collected:	30-JUN-14	Findings:	7.4 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	30-JUN-14	Findings:	22. MG/L
Chemical:	SODIUM		
Sample Collected:	30-JUN-14	Findings:	1.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	30-JUN-14	Findings:	12. MG/L
Chemical:	CHLORIDE		
Sample Collected:	30-JUN-14	Findings:	29. MG/L
Chemical:	SULFATE		
Sample Collected:	30-JUN-14	Findings:	0.51 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	30-JUN-14	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	30-JUN-14	Findings:	1.
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	30-JUN-14	Findings:	10. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	30-JUN-14	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	30-JUN-14	Findings:	2200. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	23-MAR-15	Findings:	6.5 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	23-MAR-15	Findings:	8.3 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	23-MAR-15	Findings:	7. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	20-MAY-15	Findings:	420. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	20-MAY-15	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	20-MAY-15	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	20-MAY-15	Findings:	180. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	20-MAY-15	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	20-MAY-15	Findings:	58. MG/L
Chemical:	CALCIUM		
Sample Collected:	20-MAY-15	Findings:	9. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	20-MAY-15	Findings:	11. MG/L
Chemical:	SODIUM		
Sample Collected:	20-MAY-15	Findings:	1.8 MG/L
Chemical:	POTASSIUM		
Sample Collected:	20-MAY-15	Findings:	10. MG/L
Chemical:	CHLORIDE		
Sample Collected:	20-MAY-15	Findings:	32. MG/L
Chemical:	SULFATE		
Sample Collected:	20-MAY-15	Findings:	0.32 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	20-MAY-15	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	20-MAY-15	Findings:	0.97
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	20-MAY-15	Findings:	8.5 MG/L
Chemical:	NITRATE (AS NO3)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected: Chemical:	20-MAY-15 AGGRSSIVE INDEX (CORROSIVITY)	Findings:	12.
Sample Collected: Chemical:	20-MAY-15 NITRATE + NITRITE (AS N)	Findings:	1900. MG/L
Sample Collected: Chemical:	12-JAN-16 NITRATE (AS N)	Findings:	2.2 MG/L
Sample Collected: Chemical:	12-JAN-16 GROSS ALPHA COUNTING ERROR	Findings:	2.7 PCI/L
Sample Collected: Chemical:	12-JAN-16 CHLOROFORM (THM)	Findings:	4.5 UG/L
Sample Collected: Chemical:	12-JAN-16 TOTAL TRIHALOMETHANES	Findings:	4.5 UG/L
Sample Collected: Chemical:	12-JAN-16 GROSS ALPHA MDA95	Findings:	3. PCI/L
Sample Collected: Chemical:	16-MAY-16 SPECIFIC CONDUCTANCE	Findings:	410. US
Sample Collected: Chemical:	16-MAY-16 PH, LABORATORY	Findings:	8.2
Sample Collected: Chemical:	16-MAY-16 ALKALINITY (TOTAL) AS CACO3	Findings:	150. MG/L
Sample Collected: Chemical:	16-MAY-16 BICARBONATE ALKALINITY	Findings:	180. MG/L
Sample Collected: Chemical:	16-MAY-16 NITRATE (AS N)	Findings:	2.2 MG/L
Sample Collected: Chemical:	16-MAY-16 HARDNESS (TOTAL) AS CACO3	Findings:	150. MG/L
Sample Collected: Chemical:	16-MAY-16 CALCIUM	Findings:	49. MG/L
Sample Collected: Chemical:	16-MAY-16 MAGNESIUM	Findings:	7.3 MG/L
Sample Collected: Chemical:	16-MAY-16 SODIUM	Findings:	26. MG/L
Sample Collected: Chemical:	16-MAY-16 POTASSIUM	Findings:	1.7 MG/L
Sample Collected: Chemical:	16-MAY-16 CHLORIDE	Findings:	11. MG/L
Sample Collected: Chemical:	16-MAY-16 SULFATE	Findings:	30. MG/L
Sample Collected: Chemical:	16-MAY-16 FLUORIDE (F) (NATURAL-SOURCE)	Findings:	0.55 MG/L
Sample Collected: Chemical:	16-MAY-16 TOTAL DISSOLVED SOLIDS	Findings:	250. MG/L
Sample Collected: Chemical:	16-MAY-16 LANGELIER INDEX @ 60 C	Findings:	1.2

Sample Collected:	16-MAY-16	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	16-MAY-16	Findings:	2.2 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	11-OCT-16	Findings:	1.2 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	03-JAN-17	Findings:	2.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	03-JAN-17	Findings:	5.2 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	03-JAN-17	Findings:	5.2 UG/L
Chemical:	TOTAL TRIHALOMETHANES		

A5
South
1/2 - 1 Mile
Lower

CA WELLS **3162**

Water System Information:

Prime Station Code:	036/029-001	User ID:	TAN
FRDS Number:	3610029016	County:	San Beernardino
District Number:	13	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Inactive Raw
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	WELL 22 - INACTIVE		
System Number:	3610029		
System Name:	MONTE VISTA CWD		
Organization That Operates System:			
	PO BOX 71		
	MONTCLAIR, CA 91763		
Pop Served:	38000	Connections:	10837
Area Served:	MONTCLAIR		

A6
South
1/2 - 1 Mile
Lower

CA WELLS **1151**

Water System Information:

Prime Station Code:	01S/08W-11D01 S	User ID:	TAN
FRDS Number:	3610029015	County:	San Beernardino
District Number:	13	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Inactive Raw
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	WELL 21 - INACTIVE		
System Number:	3610029		
System Name:	MONTE VISTA CWD		
Organization That Operates System:			
	PO BOX 71		
	MONTCLAIR, CA 91763		
Pop Served:	38000	Connections:	10837
Area Served:	MONTCLAIR		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A7 **South** **1/2 - 1 Mile** **Lower**	**CA WELLS**	**1146**

Water System Information:

Prime Station Code:	01S/08W-10B01 S	User ID:	MET
FRDS Number:	1910024011	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	340600.0 1174200.0	Precision:	Undefined
Source Name:	FAIR OAKS WELL 01		
System Number:	1910024		
System Name:	SCWC - CLAREMONT		
Organization That Operates System:			
	P.O. BOX 9016		
	SAN DIMAS, CA 91773		
Pop Served:	34028	Connections:	10187
Area Served:	CLAREMONT		
Sample Collected:	20-MAY-14	Findings:	1.6 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	20-MAY-14	Findings:	24. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-MAY-14	Findings:	1.42 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	20-MAY-14	Findings:	1.62 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	20-AUG-14	Findings:	1.5 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	20-AUG-14	Findings:	1.8 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	20-AUG-14	Findings:	24. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-NOV-14	Findings:	2.2 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	18-NOV-14	Findings:	2.5 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	18-NOV-14	Findings:	24. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-DEC-14	Findings:	8.4 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	17-FEB-15	Findings:	2. UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-FEB-15	Findings:	0.51 UG/L
Chemical:	TRICHLOROETHYLENE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	17-FEB-15	Findings:	20. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-JUN-15	Findings:	1.7 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	09-JUN-15	Findings:	2.3 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	09-JUN-15	Findings:	21. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-AUG-15	Findings:	1.3 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-AUG-15	Findings:	1.8 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	17-AUG-15	Findings:	23. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-NOV-15	Findings:	2.9 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-NOV-15	Findings:	18. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	25-NOV-15	Findings:	1.2 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-FEB-16	Findings:	4.2 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	17-FEB-16	Findings:	2.1 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-FEB-16	Findings:	1.4 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	17-MAY-16	Findings:	5.5 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	17-MAY-16	Findings:	1.1 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	17-MAY-16	Findings:	2.2 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	21-SEP-16	Findings:	380. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	21-SEP-16	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	21-SEP-16	Findings:	140. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	21-SEP-16	Findings:	180. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	21-SEP-16	Findings:	4.4 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	21-SEP-16	Findings:	140. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	21-SEP-16	Findings:	50. MG/L
Chemical:	CALCIUM		
Sample Collected:	21-SEP-16	Findings:	4.3 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	21-SEP-16	Findings:	22. MG/L
Chemical:	SODIUM		
Sample Collected:	21-SEP-16	Findings:	1.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	21-SEP-16	Findings:	9.2 MG/L
Chemical:	CHLORIDE		
Sample Collected:	21-SEP-16	Findings:	34. MG/L
Chemical:	SULFATE		
Sample Collected:	21-SEP-16	Findings:	0.13 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	21-SEP-16	Findings:	2.5 UG/L
Chemical:	ARSENIC		
Sample Collected:	21-SEP-16	Findings:	13. UG/L
Chemical:	CHROMIUM (TOTAL)		
Sample Collected:	21-SEP-16	Findings:	2. UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	21-SEP-16	Findings:	0.61 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	21-SEP-16	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	21-SEP-16	Findings:	0.55
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	21-SEP-16	Findings:	0.23 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	21-SEP-16	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	21-SEP-16	Findings:	4.4 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	15-NOV-16	Findings:	5.3 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	15-NOV-16	Findings:	1.3 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	15-NOV-16	Findings:	2.4 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	21-FEB-17	Findings:	5.9 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	21-FEB-17	Findings:	0.88 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	21-FEB-17	Findings:	4.9 UG/L
Chemical:	TRICHLOROETHYLENE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	27-APR-17	Findings:	0.52 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	27-APR-17	Findings:	7.3e-002 UG/L
Chemical:	1,2,3-TRICHLOROPROPANE		
Sample Collected:	27-APR-17	Findings:	0.37 PCI/L
Chemical:	RADIUM 226 MDA95		
Sample Collected:	27-APR-17	Findings:	0.74 PCI/L
Chemical:	RADIUM 228 MDA95		
Sample Collected:	19-MAY-17	Findings:	7.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	19-MAY-17	Findings:	0.62 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	19-MAY-17	Findings:	11. UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	04-SEP-13	Findings:	2.8 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	04-SEP-13	Findings:	0.77 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	04-SEP-13	Findings:	2.7 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	04-SEP-13	Findings:	31. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-SEP-13	Findings:	2.8 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	18-SEP-13	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	18-SEP-13	Findings:	7.83
Chemical:	PH, LABORATORY		
Sample Collected:	18-SEP-13	Findings:	130. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	18-SEP-13	Findings:	160. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	18-SEP-13	Findings:	130. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	18-SEP-13	Findings:	44. MG/L
Chemical:	CALCIUM		
Sample Collected:	18-SEP-13	Findings:	5.9 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	18-SEP-13	Findings:	33. MG/L
Chemical:	SODIUM		
Sample Collected:	18-SEP-13	Findings:	1.8 MG/L
Chemical:	POTASSIUM		
Sample Collected:	18-SEP-13	Findings:	15. MG/L
Chemical:	CHLORIDE		

Sample Collected:	18-SEP-13	Findings:	37. MG/L
Chemical:	SULFATE		
Sample Collected:	18-SEP-13	Findings:	0.15 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	18-SEP-13	Findings:	2.9 UG/L
Chemical:	ARSENIC		
Sample Collected:	18-SEP-13	Findings:	16. UG/L
Chemical:	CHROMIUM (TOTAL)		
Sample Collected:	18-SEP-13	Findings:	270. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	18-SEP-13	Findings:	0.18
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	18-SEP-13	Findings:	28. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-SEP-13	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	18-SEP-13	Findings:	6300. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	25-NOV-13	Findings:	2.4 UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	25-NOV-13	Findings:	1.5 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	25-NOV-13	Findings:	25. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	18-FEB-14	Findings:	2. UG/L
Chemical:	1,1-DICHLOROETHYLENE		
Sample Collected:	18-FEB-14	Findings:	1.7 UG/L
Chemical:	TRICHLOROETHYLENE		
Sample Collected:	18-FEB-14	Findings:	25. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-MAY-14	Findings:	1.5 UG/L
Chemical:	1,1-DICHLOROETHYLENE		

8
SW
1/2 - 1 Mile
Lower

CA WELLS **CADW60000005595**

Objectid:	5595
Latitude:	34.100561
Longitude:	-117.709603
Site code:	341006N1177096W001
State well numbe:	Not Reported
Local well name:	'6BWM-11'
Well use id:	1
Well use descrip:	Observation
County id:	19
County name:	Los Angeles

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Basin code:	'4-13'
Basin desc:	San Gabriel Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000005595

B9
NW
1/2 - 1 Mile
Higher

CA WELLS **1108**

Water System Information:

Prime Station Code:	01S/08W-03F05 S	User ID:	MET
FRDS Number:	1910126035	County:	Los Angeles
District Number:	15	Station Type:	WELL/ABNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	340654.0 1174233.6	Precision:	1,000 Feet (10 Seconds)
Source Name:	TUNNEL WELL 04		
System Number:	1910126		
System Name:	POMONA-CITY, WATER DEPT.		
Organization That Operates System:	P O BOX 660 POMONA, CA 91769		
Pop Served:	131723	Connections:	27808
Area Served:	POMONA		
Sample Collected:	27-MAR-12	Findings:	1.2 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	27-MAR-12	Findings:	1.7 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	23-JUL-12	Findings:	11. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-SEP-12	Findings:	420. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	06-SEP-12	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	06-SEP-12	Findings:	140. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	06-SEP-12	Findings:	170. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	06-SEP-12	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	06-SEP-12	Findings:	52. MG/L
Chemical:	CALCIUM		
Sample Collected:	06-SEP-12	Findings:	9.3 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	06-SEP-12	Findings:	24. MG/L
Chemical:	SODIUM		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	06-SEP-12	Findings:	1.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	06-SEP-12	Findings:	12. MG/L
Chemical:	CHLORIDE		
Sample Collected:	06-SEP-12	Findings:	28. MG/L
Chemical:	SULFATE		
Sample Collected:	06-SEP-12	Findings:	0.53 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	06-SEP-12	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	06-SEP-12	Findings:	0.94
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	06-SEP-12	Findings:	11. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	06-SEP-12	Findings:	0.13 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	06-SEP-12	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	06-SEP-12	Findings:	2500. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	15-OCT-13	Findings:	2. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	15-OCT-13	Findings:	390. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	15-OCT-13	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	15-OCT-13	Findings:	160. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	15-OCT-13	Findings:	200. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	15-OCT-13	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	15-OCT-13	Findings:	55. MG/L
Chemical:	CALCIUM		
Sample Collected:	15-OCT-13	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	15-OCT-13	Findings:	9.4 MG/L
Chemical:	SODIUM		
Sample Collected:	15-OCT-13	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	15-OCT-13	Findings:	6.3 MG/L
Chemical:	CHLORIDE		
Sample Collected:	15-OCT-13	Findings:	24. MG/L
Chemical:	SULFATE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	15-OCT-13	Findings:	0.32 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	15-OCT-13	Findings:	230. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	15-OCT-13	Findings:	0.99
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	15-OCT-13	Findings:	6. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	15-OCT-13	Findings:	0.18 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	15-OCT-13	Findings:	0.6 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	15-OCT-13	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	15-OCT-13	Findings:	1400. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	21-OCT-13	Findings:	1.4 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	09-DEC-14	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	09-DEC-14	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	09-DEC-14	Findings:	160. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	09-DEC-14	Findings:	200. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	09-DEC-14	Findings:	190. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	09-DEC-14	Findings:	58. MG/L
Chemical:	CALCIUM		
Sample Collected:	09-DEC-14	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	09-DEC-14	Findings:	9.6 MG/L
Chemical:	SODIUM		
Sample Collected:	09-DEC-14	Findings:	2.2 MG/L
Chemical:	POTASSIUM		
Sample Collected:	09-DEC-14	Findings:	7.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	09-DEC-14	Findings:	24. MG/L
Chemical:	SULFATE		
Sample Collected:	09-DEC-14	Findings:	0.32 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	09-DEC-14	Findings:	3. UG/L
Chemical:	CHLOROFORM (THM)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	09-DEC-14	Findings:	220. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	09-DEC-14	Findings:	1.
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	09-DEC-14	Findings:	7.6 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-DEC-14	Findings:	0.15 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	09-DEC-14	Findings:	3. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	09-DEC-14	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	09-DEC-14	Findings:	1700. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	20-OCT-15	Findings:	390. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	20-OCT-15	Findings:	7.9
Chemical:	PH, LABORATORY		
Sample Collected:	20-OCT-15	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	20-OCT-15	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	20-OCT-15	Findings:	1.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	20-OCT-15	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	20-OCT-15	Findings:	53. MG/L
Chemical:	CALCIUM		
Sample Collected:	20-OCT-15	Findings:	10. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	20-OCT-15	Findings:	11. MG/L
Chemical:	SODIUM		
Sample Collected:	20-OCT-15	Findings:	2. MG/L
Chemical:	POTASSIUM		
Sample Collected:	20-OCT-15	Findings:	8.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	20-OCT-15	Findings:	26. MG/L
Chemical:	SULFATE		
Sample Collected:	20-OCT-15	Findings:	0.34 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	20-OCT-15	Findings:	1.1 UG/L
Chemical:	CHROMIUM, HEXAVALENT		
Sample Collected:	20-OCT-15	Findings:	6.2 UG/L
Chemical:	CHLOROFORM (THM)		

Sample Collected:	20-OCT-15	Findings:	0.11 MG/L
Chemical:	FOAMING AGENTS (MBAS)		
Sample Collected:	20-OCT-15	Findings:	230. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	20-OCT-15	Findings:	0.9
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	20-OCT-15	Findings:	8. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-OCT-15	Findings:	0.25 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	20-OCT-15	Findings:	7.6 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	20-OCT-15	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	20-OCT-15	Findings:	1800. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	12-JAN-16	Findings:	5.5 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	12-JAN-16	Findings:	3.4 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12-JAN-16	Findings:	3. PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12-APR-16	Findings:	2.8 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12-APR-16	Findings:	1.9 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	12-APR-16	Findings:	3. PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	12-APR-16	Findings:	0.32 PCI/L
Chemical:	RADIUM 226 MDA95		
Sample Collected:	12-APR-16	Findings:	0.62 PCI/L
Chemical:	RADIUM 228 MDA95		

10
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40000141405**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340703117421901		
Monloc name:	001S008W03G002S		
Monloc type:	Well		
Monloc desc:	NAWQA DATA ENTRY COM + VER 06/21/2000 SNHAMLIN		
Huc code:	18070106	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1176111
Longitude:	-117.705886	Sourcemap scale:	24000

Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	1432
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Cenozoic Erathem		
Aquifer type:	Unconfined single aquifer		
Construction date:	Not Reported	Welldepth:	309
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 2

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-06-28	169		2000-04-28	139	

B11
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000141351**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340652117423601		
Monloc name:	001S008W03F003S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1144536
Longitude:	-117.7108894	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	Not Reported
Vert measure units:	Not Reported	Vertacc measure val:	Not Reported
Vert accmeasure units:	Not Reported		
Vertcollection method:	Not Reported		
Vert coord refsys:	Not Reported	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	309
Welldepth units:	ft	Wellholedepth:	309
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

B12
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40000141357**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-340653117423701		
Monloc name:	001S008W03F002S		
Monloc type:	Well		
Monloc desc:	GAMA ULAB FAST		
Huc code:	18070203	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.1146944
Longitude:	-117.7108889	Sourcemap scale:	24000
Horiz Acc measure:	.5	Horiz Acc measure units:	seconds
Horiz Collection method:	Global positioning system (GPS), uncorrected		
Horiz coord refsys:	NAD83	Vert measure val:	1376
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	1904	Welldepth:	300
Welldepth units:	ft	Wellholedepth:	300
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

13
NNE
1/2 - 1 Mile
Higher

CA WELLS **14204**

Water System Information:

Prime Station Code:	1910024-030	User ID:	MET
FRDS Number:	1910024030	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Treated
Source Lat/Long:	340707.0 1174148.0	Precision:	100 Feet (one Second)
Source Name:	MT. VIEW WELL - TREATED		
System Number:	1910024		
System Name:	SCWC - CLAREMONT		
Organization That Operates System:	P.O. BOX 9016 SAN DIMAS, CA 91773		
Pop Served:	34028	Connections:	10187
Area Served:	CLAREMONT		
Sample Collected:	04-NOV-14	Findings:	460. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	04-NOV-14	Findings:	8.05
Chemical:	PH, LABORATORY		
Sample Collected:	04-NOV-14	Findings:	180. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	04-NOV-14	Findings:	220. MG/L
Chemical:	BICARBONATE ALKALINITY		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	04-NOV-14	Findings:	220. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	04-NOV-14	Findings:	67. MG/L
Chemical:	CALCIUM		
Sample Collected:	04-NOV-14	Findings:	13. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	04-NOV-14	Findings:	8.1 MG/L
Chemical:	SODIUM		
Sample Collected:	04-NOV-14	Findings:	2.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	04-NOV-14	Findings:	18. MG/L
Chemical:	CHLORIDE		
Sample Collected:	04-NOV-14	Findings:	28. MG/L
Chemical:	SULFATE		
Sample Collected:	04-NOV-14	Findings:	0.25 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	04-NOV-14	Findings:	2.1 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	04-NOV-14	Findings:	1.1 UG/L
Chemical:	BROMODICHLOROMETHANE (THM)		
Sample Collected:	04-NOV-14	Findings:	2.9 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	04-NOV-14	Findings:	280. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	04-NOV-14	Findings:	0.52
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	04-NOV-14	Findings:	12. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	04-NOV-14	Findings:	0.18 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	04-NOV-14	Findings:	4. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	04-NOV-14	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	04-NOV-14	Findings:	2600. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	04-NOV-14	Findings:	1.45 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	04-NOV-14	Findings:	1.21 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	04-NOV-14	Findings:	1.69 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	04-NOV-14	Findings:	0.4 PCI/L
Chemical:	RADIUM 228 MDA95		

Sample Collected:	04-NOV-14	Findings:	0.199 PCI/L
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.		
Sample Collected:	04-NOV-14	Findings:	0.418 PCI/L
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Sample Collected:	17-AUG-15	Findings:	3.4 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	17-AUG-15	Findings:	12. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	17-AUG-15	Findings:	4.1 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	23-AUG-16	Findings:	2.8 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	23-AUG-16	Findings:	10. UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	23-AUG-16	Findings:	10. UG/L
Chemical:	TOTAL TRIHALOMETHANES		

B14
NW
1/2 - 1 Mile
Higher

CA WELLS **CADW60000010256**

Objectid:	10256
Latitude:	34.114969
Longitude:	-117.711454
Site code:	341150N1177115W001
State well numbe:	Not Reported
Local well name:	'6BWM-7'
Well use id:	4
Well use descrip:	Residential
County id:	19
County name:	Los Angeles
Basin code:	'4-13'
Basin desc:	San Gabriel Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000010256

B15
NW
1/2 - 1 Mile
Higher

CA WELLS **1107**

Water System Information:

Prime Station Code:	01S/08W-03F04 S	User ID:	MET
FRDS Number:	1910126036	County:	Los Angeles
District Number:	15	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	340657.5 1174235.4	Precision:	1,000 Feet (10 Seconds)
Source Name:	TUNNEL WELL 02		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number: 1910126
System Name: POMONA-CITY, WATER DEPT.
Organization That Operates System:
P O BOX 660
POMONA, CA 91769
Pop Served: 131723 Connections: 27808
Area Served: POMONA

Sample Collected:	12-JAN-16	Findings:	2. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	12-JAN-16	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	12-JAN-16	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	12-JAN-16	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	12-JAN-16	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	12-JAN-16	Findings:	1.1 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	12-JAN-16	Findings:	190. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	12-JAN-16	Findings:	56. MG/L
Chemical:	CALCIUM		
Sample Collected:	12-JAN-16	Findings:	12. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	12-JAN-16	Findings:	9. MG/L
Chemical:	SODIUM		
Sample Collected:	12-JAN-16	Findings:	2. MG/L
Chemical:	POTASSIUM		
Sample Collected:	12-JAN-16	Findings:	6.7 MG/L
Chemical:	CHLORIDE		
Sample Collected:	12-JAN-16	Findings:	33. MG/L
Chemical:	SULFATE		
Sample Collected:	12-JAN-16	Findings:	0.34 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	12-JAN-16	Findings:	3. PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	12-JAN-16	Findings:	1.4 UG/L
Chemical:	BROMODICHLOROMETHANE (THM)		
Sample Collected:	12-JAN-16	Findings:	17. UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	12-JAN-16	Findings:	240. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	12-JAN-16	Findings:	1.1
Chemical:	LANGELIER INDEX @ 60 C		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	12-JAN-16	Findings:	0.19 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	12-JAN-16	Findings:	18. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	12-JAN-16	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	12-JAN-16	Findings:	1.1 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	12-JAN-16	Findings:	3. PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	17-MAY-17	Findings:	380. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	17-MAY-17	Findings:	8.2
Chemical:	PH, LABORATORY		
Sample Collected:	17-MAY-17	Findings:	160. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	17-MAY-17	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	17-MAY-17	Findings:	2. MG/L
Chemical:	CARBONATE ALKALINITY		
Sample Collected:	17-MAY-17	Findings:	0.85 MG/L
Chemical:	NITRATE (AS N)		
Sample Collected:	17-MAY-17	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	17-MAY-17	Findings:	55. MG/L
Chemical:	CALCIUM		
Sample Collected:	17-MAY-17	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	17-MAY-17	Findings:	8.6 MG/L
Chemical:	SODIUM		
Sample Collected:	17-MAY-17	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	17-MAY-17	Findings:	5.4 MG/L
Chemical:	CHLORIDE		
Sample Collected:	17-MAY-17	Findings:	27. MG/L
Chemical:	SULFATE		
Sample Collected:	17-MAY-17	Findings:	0.31 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	17-MAY-17	Findings:	9.9 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	17-MAY-17	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	17-MAY-17	Findings:	1.3
Chemical:	LANGELIER INDEX @ 60 C		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	17-MAY-17	Findings:	9.9 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	17-MAY-17	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	17-MAY-17	Findings:	0.85 MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	10-JAN-12	Findings:	5.3 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	10-JAN-12	Findings:	7.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-MAR-12	Findings:	370. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	27-MAR-12	Findings:	8.3
Chemical:	PH, LABORATORY		
Sample Collected:	27-MAR-12	Findings:	90. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	27-MAR-12	Findings:	110. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	27-MAR-12	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	27-MAR-12	Findings:	52. MG/L
Chemical:	CALCIUM		
Sample Collected:	27-MAR-12	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	27-MAR-12	Findings:	8.2 MG/L
Chemical:	SODIUM		
Sample Collected:	27-MAR-12	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	27-MAR-12	Findings:	7.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	27-MAR-12	Findings:	25. MG/L
Chemical:	SULFATE		
Sample Collected:	27-MAR-12	Findings:	0.52 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	27-MAR-12	Findings:	230. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	27-MAR-12	Findings:	1.
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	27-MAR-12	Findings:	7.8 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	27-MAR-12	Findings:	0.12 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	27-MAR-12	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	27-MAR-12	Findings:	1800. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	07-FEB-13	Findings:	3. UNITS
Chemical:	COLOR		
Sample Collected:	07-FEB-13	Findings:	400. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	07-FEB-13	Findings:	7.8
Chemical:	PH, LABORATORY		
Sample Collected:	07-FEB-13	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	07-FEB-13	Findings:	180. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	07-FEB-13	Findings:	190. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	07-FEB-13	Findings:	56. MG/L
Chemical:	CALCIUM		
Sample Collected:	07-FEB-13	Findings:	12. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	07-FEB-13	Findings:	8.4 MG/L
Chemical:	SODIUM		
Sample Collected:	07-FEB-13	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	07-FEB-13	Findings:	9.5 MG/L
Chemical:	CHLORIDE		
Sample Collected:	07-FEB-13	Findings:	25. MG/L
Chemical:	SULFATE		
Sample Collected:	07-FEB-13	Findings:	0.32 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	07-FEB-13	Findings:	7.3 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	07-FEB-13	Findings:	230. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	07-FEB-13	Findings:	0.83
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	07-FEB-13	Findings:	9. MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-FEB-13	Findings:	9. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	07-FEB-13	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	07-FEB-13	Findings:	2000. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	26-MAR-14	Findings:	410. US
Chemical:	SPECIFIC CONDUCTANCE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	26-MAR-14	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	26-MAR-14	Findings:	150. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	26-MAR-14	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	26-MAR-14	Findings:	190. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	26-MAR-14	Findings:	56. MG/L
Chemical:	CALCIUM		
Sample Collected:	26-MAR-14	Findings:	12. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	26-MAR-14	Findings:	8.5 MG/L
Chemical:	SODIUM		
Sample Collected:	26-MAR-14	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	26-MAR-14	Findings:	9.3 MG/L
Chemical:	CHLORIDE		
Sample Collected:	26-MAR-14	Findings:	25. MG/L
Chemical:	SULFATE		
Sample Collected:	26-MAR-14	Findings:	0.33 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	26-MAR-14	Findings:	7.3 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	26-MAR-14	Findings:	230. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	26-MAR-14	Findings:	1.1
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	26-MAR-14	Findings:	8.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-MAR-14	Findings:	0.14 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	26-MAR-14	Findings:	7.3 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	26-MAR-14	Findings:	13.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	26-MAR-14	Findings:	1900. MG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	26-FEB-15	Findings:	2. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	26-FEB-15	Findings:	380. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	26-FEB-15	Findings:	8.
Chemical:	PH, LABORATORY		

Sample Collected:	26-FEB-15	Findings:	160. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	26-FEB-15	Findings:	190. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	26-FEB-15	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	26-FEB-15	Findings:	54. MG/L
Chemical:	CALCIUM		
Sample Collected:	26-FEB-15	Findings:	11. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	26-FEB-15	Findings:	8.2 MG/L
Chemical:	SODIUM		
Sample Collected:	26-FEB-15	Findings:	2.1 MG/L
Chemical:	POTASSIUM		
Sample Collected:	26-FEB-15	Findings:	6.9 MG/L
Chemical:	CHLORIDE		
Sample Collected:	26-FEB-15	Findings:	26. MG/L
Chemical:	SULFATE		
Sample Collected:	26-FEB-15	Findings:	0.34 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	26-FEB-15	Findings:	1.4 UG/L
Chemical:	BROMODICHLOROMETHANE (THM)		
Sample Collected:	26-FEB-15	Findings:	14. UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	26-FEB-15	Findings:	260. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	26-FEB-15	Findings:	1.
Chemical:	LANGELIER INDEX @ 60 C		
Sample Collected:	26-FEB-15	Findings:	5.2 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	26-FEB-15	Findings:	16. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	26-FEB-15	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	26-FEB-15	Findings:	1200. MG/L
Chemical:	NITRATE + NITRITE (AS N)		

16
North
1/2 - 1 Mile
Higher

CA WELLS **CADW60000015498**

Objectid:	15498
Latitude:	34.121903
Longitude:	-117.698024
Site code:	341219N1176980W001
State well numbe:	Not Reported
Local well name:	'6BWM-4'
Well use id:	1
Well use descrip:	Observation
County id:	19
County name:	Los Angeles

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Basin code:	'4-13'
Basin desc:	San Gabriel Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000015498

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
91711	36	0

Federal EPA Radon Zone for LOS ANGELES County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 91711

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.600 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX H:

CHJ "PHASE I REPORT"
DATED FEBRUARY 18, 1998

C•H•J• INCORPORATED

P.O. Box 231 • 1355 E. Cooley Dr., Colton, CA 92324 • Phone (909) 824-7210 • Fax (909) 824-7209

February 18, 1998

Columbia Group
9595 Wilshire Boulevard
Beverly Hills, California 90212
Attention: Mr. Richard Newbre

Job No. 98044-9

Dear Mr. Newbre:

Attached is the Preliminary Environmental Site Assessment (Phase I) Update report prepared for the subject site, located on the northeast corner of Foothill Boulevard and Claremont Boulevard in Claremont, California.

This report was based upon the scope of services generally outlined in our proposal letter dated January 20, 1998.

We appreciate the opportunity to provide environmental assessment services for this project. If you should have any questions or comments concerning this report, please contact this firm at your convenience.

Respectfully submitted,
C.H.J., INCORPORATED

Mark D. Walters
Environmental Projects Manager

MDW:km/sp

Distribution: Columbia Group (4)

C·M·J·

PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT UPDATE APPROXIMATELY 13.0 ACRE SITE NORTHEAST CORNER OF FOOTHILL BOULEVARD AND CLAREMONT BOULEVARD CLAREMONT, CALIFORNIA

PREPARED FOR
COLUMBIA GROUP
JOB NO. 98044-9

2 / 18 / 1998

C·M·J·

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- "A-2" - Site Map
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C·H·J·

PRELIMINARY ENVIRONMENTAL
SITE ASSESSMENT UPDATE
APPROXIMATELY 13.0 ACRE SITE
NORTHEAST CORNER OF FOOTHILL BOULEVARD
AND CLAREMONT BOULEVARD
CLAREMONT, CALIFORNIA
PREPARED FOR
COLUMBIA GROUP
JOB NO. 98044-9

1.0 INTRODUCTION

During February of 1998, a Preliminary Environmental Site Assessment (Phase I) Update was performed by C.H.J., Incorporated (CHJ) for the subject site located on the northeast corner of Foothill Boulevard and Claremont Boulevard in Claremont, California. The purpose of this investigation was to update information contained in a Phase I Environmental Site Assessment prepared by CHJ, Inc. in August of 1989 (Job No. 89-01-046) for the subject site.

As outlined in our proposal letter dated January 20, 1998, this update includes a review and summary of the original Phase I document and any other available previous investigations; a reconnaissance of the site; a review of federal, state, and local lists and records of known or suspected sites having contamination in the vicinity of the subject site; and a review of the Los Angeles County Health Services Agency files identifying any potential environmental concerns at the site.

2.0 SITE DESCRIPTION

The subject site is an irregularly-shaped, approximately 13.0 acre site generally located northeast of the intersection of Claremont Boulevard and Foothill Boulevard in Claremont, California. (An Arco gasoline station (adjacent property) was under construction on a 1.0 acre parcel located immediately adjacent to the northeast of the intersection of Foothill Boulevard and Claremont Boulevard). The Los Angeles-San Bernardino County line crosses the eastern portion of the subject site. The subject site is bounded by Foothill Boulevard to the south, Claremont Boulevard to the

west, and Monte Vista Avenue to the east. East to west trending Marylind Avenue forms the northern property line of the portion of the site located east of the County line. The northern property line terminates at Andrew Drive which forms the northwestern property line. An Index Map and Site Map are provided as Enclosures "A-1" and "A-2", respectively.

2.1 Site Reconnaissance

At the time of our site reconnaissance, January 29, 1998, the subject site was generally vacant. The topography of the subject site was very irregular with many end-piles of boulders, broken concrete, asphaltic concrete and minor amounts of construction debris. The site sloped to the south at an approximately 3 to 5 percent grade. An ephemeral, north to south trending drainage was located in the eastern portion of the subject site. Vegetation consisted of grasses and weeds to 3 feet in height. Several large Eucalyptus trees were located along the southern property line.

Three concrete building slabs were located in the central portion of the subject site. The central of these three slabs was observed to contain the remains of an underground hydraulic lift. There were no indications of staining or leakage such as stained soils or discolored vegetation observed in the vicinity of this hoist. A large pile of boulders was located between the Arco station and the westernmost slab. Additional piles of boulders mixed with asphaltic concrete and broken concrete were located adjacent to the northwest of this slab and several large piles of broken concrete were located adjacent to the south of this slab. Minor amounts of lumber and other construction debris was also apparent in this debris area. Additional piles of concrete, boulders, lumber and asphaltic concrete and large tree stumps were located along the northern property line. A moderate amount of miscellaneous debris such as paper, plastic, glass and cardboard was also observed to have been scattered throughout the site.

The portion of the site located east of the County line also had a very irregular topography due to a north to south trending drainage in that area. Boulders and broken concrete were scattered throughout this area as were minor amounts of paper, plastic, glass, and cardboard. Several piles

of boulders, broken concrete,construction and organic debris were located along the northern property line. Several empty and broken, plastic and metal, 5-gallon buckets were observed to have been mixed in with this debris. An area of stained soil, approximately 5 feet in length by 3 feet in width, was observed during our site reconnaissance in this area. The stain appeared to be surficial in nature and no additional areas of significant staining were noted.

2.2 Adjacent Property Land Use

Andrew Drive, bordered the northwestern portion of the subject site. The Claremont Business Park was located further to the northwest beyond Andrew Drive. The property located to the north of the central portion of the subject site was generally vacant. Numerous piles of debris consisting of boulders, concrete, asphaltic concrete, organic and household debris were observed in this area as well as a large, partially dismantled truck and two trailers.

Adjacent properties located to the north of Marylind Avenue were occupied by two businesses. Kramer's Wholesale Masonry Supply Store (771A East Marylind Avenue) and Conveyor Manufacturing and Service (formerly 3B Grinding) located at 771B East Marylind Avenue were located to the northeast of the subject site beyond Marylind Avenue.

Monte Vista Avenue bordered the subject site to the east. The property beyond Monte Vista Avenue to the east was occupied by the College Business Park.

The subject site was bordered by Foothill Boulevard to the south. A large excavation, which appeared to be an abandoned quarry was located beyond Foothill Boulevard to the south.

An Arco Gasoline Station was under construction adjacent to the southwest of the subject site on the northeastern corner of Claremont Boulevard and Foothill Boulevard.

The subject site was bordered to the west by Claremont Boulevard. A Chevron Gasoline Station was located further to the west of the subject site on the northwestern corner of Foothill Boulevard

and Claremont Boulevard. The Iron Works Gym and the College Center strip mall were also located to the west of the subject site beyond Claremont Boulevard. Residential properties (condominiums) were located to the northwest of the subject site beyond Claremont Boulevard.

3.0 PREVIOUS INVESTIGATIONS

Preliminary Environmental Site Assessment, CHJ, Inc. (8/11/89)

A Phase I Environmental Site Assessment report prepared by CHJ, Inc. and dated August 11, 1989 (CHJ Job No. 89-01-046) was reviewed as part of this investigation.

The Site Description section of this report indicated that the topography of the subject site was generally uneven with small boulders, cobbles and some concrete debris littering the site. The slope of the site was towards the south-southwest at approximately 2 to 3 percent and vegetation consisted of a moderate growth of native grasses, cactus and shrubs to 6 feet in height.

The subject site was generally vacant at the time of the site reconnaissance (August 3, 1989). The concrete foundations of three buildings observed during our site reconnaissance were described as well as the remnants of an underground hoist in the northernmost slab. No indications of leakage from this hoist were noted. End-dumped piles of boulders, broken concrete and lumber were observed around the building areas and along the northern property line. Waste products, described as concrete spillage from a previously existing concrete plant formerly located adjacent to the north of the subject site, were noted in the north-central portion of the property. It was suggested that approximately 1 to 2 feet of fill may have been present in the eastern and western portions of the subject site.

A metal fabricating/grinding shop (3B Grinding), several small office buildings, and a landscaping company were located along Marylind Avenue to the northeast of the site. Two above-ground propane tanks were observed adjacent the 3B Grinding facility. Numerous end-dumped piles of concrete debris were located at the west end of Marylind Drive, reported to be the former site of

a small concrete batch plant. Conversations with the occupants of adjacent properties at that time indicated that the concrete facility had been very small and no information was available concerning the presence or absence of USTs at that site.

An office building complex and additional warehouse/office buildings were located beyond Padua Avenue to the east of the site.

The subject site was bordered by Claremont Boulevard to the west. An Exxon Service Station and commercial shopping plaza were located on the northwest corner of Claremont and Foothill Boulevards. Residential developments (apartments) were located beyond Claremont Boulevard further to the northwest.

Aerial photographs taken in 1938, 1953, 1955, 1965, 1969, 1970, 1972, 1976, 1978, and 1986 were reviewed during the original Phase I investigation. This review indicated that the subject property contained several small buildings in 1938 and several commercial buildings from 1955 until at least 1978. It was reported that the property appeared to have been vacant since the date of the 1986 photographs.

Records that included information regarding underground storage tanks, hazardous waste generators, hazardous materials handlers and emergency response records pertaining to the subject site were reviewed by the Los Angeles and San Bernardino County Environmental Health Services. These records covered the years between 1982 and 1989 and no known problems or information concerning the above were encountered on the subject property.

Telephone conversations conducted at that time with a former occupant of the property indicated that the "Planes of Fame" aircraft showroom and museum was previously located on site from the mid- 1950's until the late 1960's. The former occupant stated that, prior to his utilization of the site, the subject property had been a lumber yard.

Records on file with the City of Claremont Building and Safety (Planning) Department pertaining to the subject site were reviewed in order to assist in determining the past uses of the property. These records covered the years 1969 to 1984 and indicated that the address of the subject property in 1969 was 911 East Foothill Boulevard. An application was filed to convert one of the existing buildings to an automobile body shop in 1969. An occupancy inspection conducted in 1970 indicated that a building was being utilized for aircraft and automobile parts storage and as office space.

The subject property address was reported to have been changed to 743 East Foothill Boulevard in 1972 by the city of Claremont. These records also indicated that this address was listed as being utilized as a backpack store, furniture store and a plant nursery. These records did not indicate which of the previous on-site structures were being occupied for each use. An application was filed on August 30, 1984 for the demolition of all of the on-site structures.

No evidence was encountered during the investigation for the initial Phase I report which would indicate that the subject site contained or had problems associated with hazardous materials or substances.

4.0 POTENTIAL HAZARDOUS WASTE SITE LIST REVIEW

An environmental database firm (BBL of Solana Beach, California) was subcontracted to provide a list of sites within the vicinity of the subject site that are listed by regulatory agencies as having confirmed or potential significant contamination. Sites listed are within distances from the subject site as designated by the ASTM. A copy of the BBL search report, dated January 29, 1998, is provided as Enclosure "B". A summary of the potential or known contaminated locations in the site vicinity is presented below. See Enclosure "B" for an explanation of the lists reviewed.

Federal Sources

- **United States Environmental Protection Agency (U.S. EPA), National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites.** There were no sites listed within 1.0 mile of the subject site.

- **U.S. EPA Comprehensive Environmental Response, Compensation, and Liability Information System.** There were no sites listed within 1.0 mile of the subject site.

- **U.S. EPA No Further Remedial Action Planned Sites.** There were no sites listed within 1.0 mile of the subject site.

- **U.S. EPA Federal Facilities.** There were no sites listed within 1.0 mile of the subject site.

- **The Emergency Response Notification System.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA Site Enforcement Tracking System.** There were no sites listed within 1.0 mile of the subject site.

- **Enforcement Docket System and Consent Decree Tracking System.** There were no sites listed within 0.5 miles of the subject site.

- **Criminal Docket System.** There were no sites listed within 0.5 miles of the subject site.

- **RCRA Violators List.** There were no sites listed within 1.0 mile of the subject site.

- **U.S. EPA Federal Enforcement Dockets.** There were no sites listed within 1.0 mile of the subject site.

California State Sources

- **Cal-EPA Annual Work Plan.** There were no sites listed within 1.0 mile of the subject site.

- **Cal-EPA Department of Toxic Substances Control Historical Abandoned Site Survey Program (CALSITES).** There were no sites listed within 1.0 mile of the subject site.

- **Cal-EPA, Department of Toxic Substances Control (CALSITES)-No Further Action.** There were no sites listed within 0.5 miles of the subject site.

- **State of California Office of Planning and Research Cortese List pursuant to AB 3750.** There were no sites listed within 1.0 mile of the subject site.

- **Leaking Underground Storage Tanks Information System, State Water Resources Control Board pursuant to Section 25295 of the Health and Safety Code.** There were two sites listed within 0.5 miles of the subject and four sites listed between 0.5 and 1.0 miles. The nearest listed sites are a Chevron Station #202024, located adjacent to the west of the site at 699 East Foothill Boulevard and the Unocal Station #3824, located approximately 0.4 miles southwest of the site at 601 East Foothill Boulevard. The Chevron Station is listed with a "case closed" status and the Unocal site is listed with a "leak being confirmed" status.

- **California Integrated Solid Waste Management Board, Solid Waste Information System (SWIS).** The only listing was for the Claremont Class II Disposal Site located approximately 1.0 mile south-southwest at 101 North Mills Avenue. This site is listed as "inactive".

- **California Department of Health Services Well Investigation Program.** There were two contaminated well sites listed within 1.0 mile of the subject site. State Well No. 01S/08W-10B01 S, located approximately 0.1 miles southwest of the subject site, is reported to be contaminated with 1,1-DCE and State Well No. 01S/08W-03G02 S, located approximately 0.7 miles northwest of the subject site is reported to be contaminated with 1,1,1-TCA. Both of these substances are solvents utilized in large quantities for commercial, industrial and aerospace applications in the area.

- **California Department of Health Services Drinking Water Program.** There were nine sites listed within 1.0 mile of the subject site. This program provides for the collection of information on the quality of drinking water wells.

Regional Sources

- **California Regional Water Control Board (CRWQCB) Toxic Releases.** There were no sites listed within 1.0 mile of the subject site.

- **CRWQCB Toxic Pits Listing.** There were no sites listed within 1.0 mile of the subject site.

- **CRWQCB Solid Waste Assessment Test.** There were five sites listed within 1.0 mile of the subject site. The nearest listed site is Conrock-Claremont, located adjacent to the south of the subject site beyond Foothill Boulevard. This site is listed with a Priority Rank of 3 out of 15. This ranking required this disposal site to provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment by 1989. The remaining sites are located between 0.5 and 1.0 miles from the subject site.

Operating Permits

- **U.S. EPA RCRA Generators List.** There were six sites listed within 0.5 miles of the subject site. The nearest listed sites include the previously mentioned Chevron Station #202024, located adjacent to the west of the subject site, Integrated Care Systems, located approximately 0.3 miles southeast of the subject site at 2315 West Foothill Boulevard and Bates Unocal, located approximately 0.4 miles southwest of the subject site at 601 East Foothill Boulevard. The Chevron Station and the Integrated Care Systems sites are both listed as small quantity generators. No status was provided for the Unocal site.

- **U.S. EPA RCRA Treatment, Storage and Disposal Facilities.** There were no sites listed within 1.0 mile of the subject site.

- **Toxic Release Information System.** There were no sites listed within 0.5 miles of the subject site.

- **Nuclear Regulatory Commission Licensees.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA PCB Waste Handlers Database.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA NPDES Permit Compliance System.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA AIRS Facility System.** The only listing was for Holiday Rock, located approximately 0.4 miles east-southeast of the subject site at 2193 West Foothill Boulevard in Upland, California.

- **Section Seven Tracking System.** There were three sites listed within 0.5 miles of the subject site. These sites include Pat Dillon Products, Inc., located approximately

0.3 miles northeast of the subject site at 1318 North Padua Avenue, #2. Pomona Valley PoolChlor and Hockett & Sons, Inc., both of which are located approximately 0.5 miles southeast of the subject site at 2133 West Foothill Boulevard, are also included on this listing.

- **FIFRA/TSCA Tracking System/National Compliance Database.** The only listing was for the previously mentioned Pomona Valley PoolChlor.

- **Federal Facilities Information System.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA Chemicals in Commerce Information System.** There were no sites listed within 0.5 miles of the subject site.

- **U.S. EPA Facility Index System.** There were no sites listed within 0.5 miles of the subject site.

- **Cal-EPA Department of Toxic Substance Control Hazardous Waste Information System.** There were 22 sites listed within 0.5 miles of the subject site. The nearest of these sites include the previously listed Exxon and Chevron service stations located at 699 East Foothill Boulevard, and four businesses located beyond Padua (Monte Vista) Avenue east of the subject site.

- **California State Water Quality Control Board, Permitted Underground Storage Tanks.** There were six sites listed within 0.5 miles of the subject site. The nearest of theses sites includes the previously mention Exxon service station located adjacent to the west of the subject site and ABA & Sons, reported to be located east of the subject site at 767 East Marylind Avenue.

There were two sites of high priority environmental concern identified within 0.5 miles of the subject site and five additional sites located between 0.5 and 1.0 miles. The nearest sites include Conrock-Claremont, the former quarry site located adjacent to the south and State Well No. 01S/08W-10B01 S, located approximately 0.1 miles southwest of the subject site. The Conrock-Claremont site is included on the regional Solid Waste Assessment Test listing with a priority ranking of 3 out of 15. The Fair Oaks Well, State Well No. 01S/08W-10B01 S, is reported to be contaminated with solvents (1.20ppb of 1,1-DCE). The proximity of this contaminated well site indicates that groundwater contamination may exist beneath the subject site.

There were two sites of environmental concern located within 0.5 miles of the subject site and seven located between 0.5 and 1.0 miles. The two nearest sites were State Well No. 01S/08W-11D01 S, located approximately 0.3 miles southeast of the subject site and Bates Unocal 76 Station located approximately 0.4 miles southwest of the site. The well site is included on the California State Department of Health Services Drinking Water Program listing as "inactive". The Bates Unocal 76 site is listed as Unocal #3824. Bates Unocal 76 Service, Union Oil Service Station #3824 and Unocal Corp SS 3824 and is included on the California State Water Resources Boards' Leaking Underground Storage Tank listing with a "leak being confirmed" status, the California State Water Quality Control Board's Permitted Underground Storage Tank listing, the Cal-EPA's Generator listing of the Resource Conservation and Recovery Information System without a status and the California Department of Toxic Substance Control's Hazardous Waste Information System listing.

There was one site of environmental concern listed with a "no further action" status located within 0.5 miles of the subject site and two located between 0.5 and 1.0 miles. The nearest listing was for Chevron Station #202024 located adjacent to the west of the subject site at 699 East Foothill Boulevard. This address is listed as Exxon Station #7-622. This address is included on the California State Water Resource Control Board's Leaking Underground Storage Tank listing with a "case closed" status and the Permitted Underground Storage Tank listing, the Cal-EPA's Generator listing of the Resource Conservation and Recovery Information System with a "small quantity generator" status and the California Department of Toxic Substance Control's Hazardous Waste Information System listing.

There were 15 sites with operating permits only listed within 0.5 miles of the subject site. The nearest of these listed sites is ABA & Sons Construction, reported to be located within 0.1 miles of the subject site at 767 East Marylind Avenue.

Based on the BBL report and the regional groundwater flow direction, the potential for soil contamination of the subject site from surrounding facilities is, in our opinion, not significant.

However, the potential for the existence of contaminated groundwater beneath the subject site does exist.

5.0 AGENCY INQUIRIES

5.1 Regulatory Agencies

County of Los Angeles Department of Environmental Health

A request for records review specific to the subject site was submitted to the County of Los Angeles Department of Environmental Health on January 29, 1998. This review includes any information regarding underground storage tanks, hazardous waste generators, hazardous material handlers, and emergency response records specific to the subject site. The presence of underground tanks, hazardous waste generators and hazardous material handlers does not indicate the existence of contamination. However, this information may indicate if there are potential contamination sources in the site vicinity.

The County's response had not been made available to us by the time of the issuance of this report.

5.2 City of Los Angeles Fire Department

The California Health and Safety Code, Chapter 6.5, Section 25117.3 and 25117.4 defines hazardous waste property and border zone properties, respectively. The State Department of Health Services has the burden of proof for determination of hazardous waste and border zone properties, with formal designation of such properties issued by the Director of the State Department of Health Services (Section 25228). Pursuant to Government Code Section 65962.5, the State Department of Health Services compiles and updates a listing of all lands designated as hazardous waste or border zone properties. This listing is contained within the "Identified Hazardous Waste and Substances Sites" (Cortese List).

Based on the information contained within the available Cortese list, the subject site is not a designated hazardous waste or border zone property, and the potential for such designation is anticipated to be minimal.

6.0 CONCLUSIONS

At the time of our site reconnaissance, the subject site was a generally vacant, approximately 13.0 acre, irregularly-shaped parcel of land located northeast of the intersection of Foothill Boulevard and Claremont Boulevard in Claremont, California. The site contained three large concrete slabs from previous structures as well as numerous large piles of boulders, broken concrete asphaltic concrete and lumber. Remnants of a former hydraulic hoist were noted in one of the concrete foundations but no indications of leakage, soil staining or discolored vegetation were observed in proximity to this hoist. An approximately 20 square foot soil stain was observed along the northern property line of the eastern portion of the site. This stain appeared to be surficial in nature.

Remnants of an underground hydraulic lift were observed in the southwest portion of the centrally-located slab. Approximately 4 feet of the hoist was visible beneath the slab and no evidence of stained soils were identified in the vicinity of this hoist. Based on discussions with local County agencies and previous experience, the hydraulic fluid associated with these hoists is currently not regulated and that contamination associated with these hoists is typically limited to the surrounding soils.

This Phase I update investigation included a review of a previously conducted Preliminary Environmental Site Assessment prepared by C.H.J., Inc. in August 1989. No significant changes to the subject site or adjacent properties were observed since the initial investigation. Records on file with the Los Angeles and San Bernardino County Health Services for the subject site between 1982 and 1989 indicated no known problems with underground storage tanks, hazardous waste generators, hazardous materials handlers or emergency responses. A conversation with a former occupant of the subject property indicated that the subject site had been utilized as an aircraft museum from the mid- 1950's until the late 1960's. The former occupant indicated that he believed the subject site had originally been utilized as a lumber yard.

The subject site is not a hazardous waste or border zone property as defined by the California Health and Safety Code, Chapter 6.5, Sections 25117.3 and 25117.4.

Adjacent properties are generally commercial, vacant or residential. A significant potential for contamination of the site from surrounding properties is not indicated.

As per the conditions of our proposal, construction materials were not evaluated for this assessment.

No evidence was found in our reconnaissance of the site, review of previous investigations or review of records to indicate that the site currently has or has in the past had problems associated with hazardous wastes or materials.

6.1 Soil Contamination

No evidence of commercial dumping or waste disposal on the site was observed during our site reconnaissance or in available records.

No evidence was observed of on-site underground or above-ground tanks. The site reconnaissance revealed a significant amount of concrete, asphaltic concrete and construction debris, but no significantly stained soil or discolored vegetation. Potential soil contamination from adjacent land use is considered to be minimal.

An approximately 20 square foot area of stained soil was observed along the northern property line in the eastern portion of the subject site. This stain appeared to be surficial in nature.

6.2 Groundwater Contamination

A review of the California State Department of Health Services Well Investigation Program and Drinking Water Program Listing indicated that there are contaminated wells in the vicinity of the subject site and the potential for the existence of groundwater contamination beneath the subject site does exist. There is no evidence to indicate that the groundwater contamination originated from the subject site or is associated with any former or present activities conducted on the subject site.

7.0 RECOMMENDATIONS

If discolored soils or soils with an unusual odor are encountered during future development on the site, specifically during removal of the former hydraulic hoist, this firm or similarly qualified firm should be contacted and work discontinued in that particular area until an evaluation of the soils can be made.

On-site end-dumped piles of concrete, asphaltic concrete, domestic household debris and construction materials on-site should be removed and disposed of at a licensed Class III landfill for non-hazardous solid waste. In addition, the concrete slabs and hydraulic hoist remnants should be removed and disposed of properly.

8.0 LIMITATIONS

C.H.J., Incorporated has performed our services within the limits prescribed by our client with no vested interest in the property or in the subject matter contained in the report and with the usual thoroughness and competence of the engineering profession. C.H.J., Incorporated makes no other warranty or representation, either express or implied.

The conclusions and recommendations in this report are based upon the research and site reconnaissance described in this report. This site assessment was limited to surficial investigative methods, and does not address site specific subsurface conditions. Should conditions be encountered in the field that appear different than those described in this report, we should be contacted immediately in order that we might evaluate their effect. Site conditions are subject to change with time, and should be evaluated within this context. C.H.J., Incorporated shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed at the time the assessment was performed.

If this report or portions thereof are provided to others, it should be understood by all parties that

it is provided for information only, and should be used as such.

This report and its contents resulting from this investigation are not intended or represented to be suitable for reuse on extensions or modifications of the project or for use on any other projects.

9.0 CLOSURE

We appreciate this opportunity to provide environmental assessment services for this project. If you should have any questions or comments regarding this report, please contact this firm at your convenience.



Respectfully submitted,

C.H.J., INCORPORATED

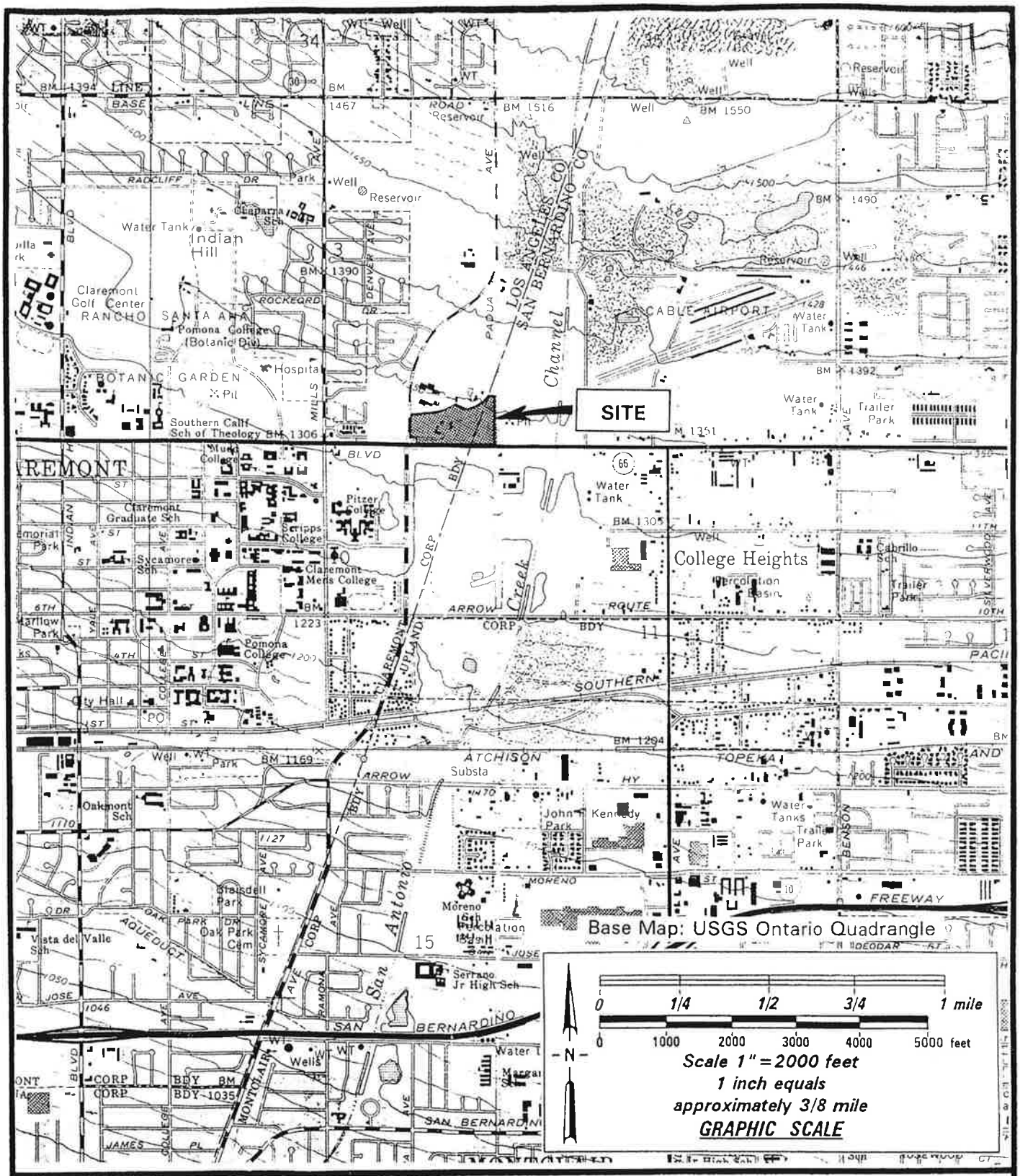
Kevin McCalley, R.E.A. 6219
Staff Scientist/Geologist



Mark Walters
Environmental Projects Manager

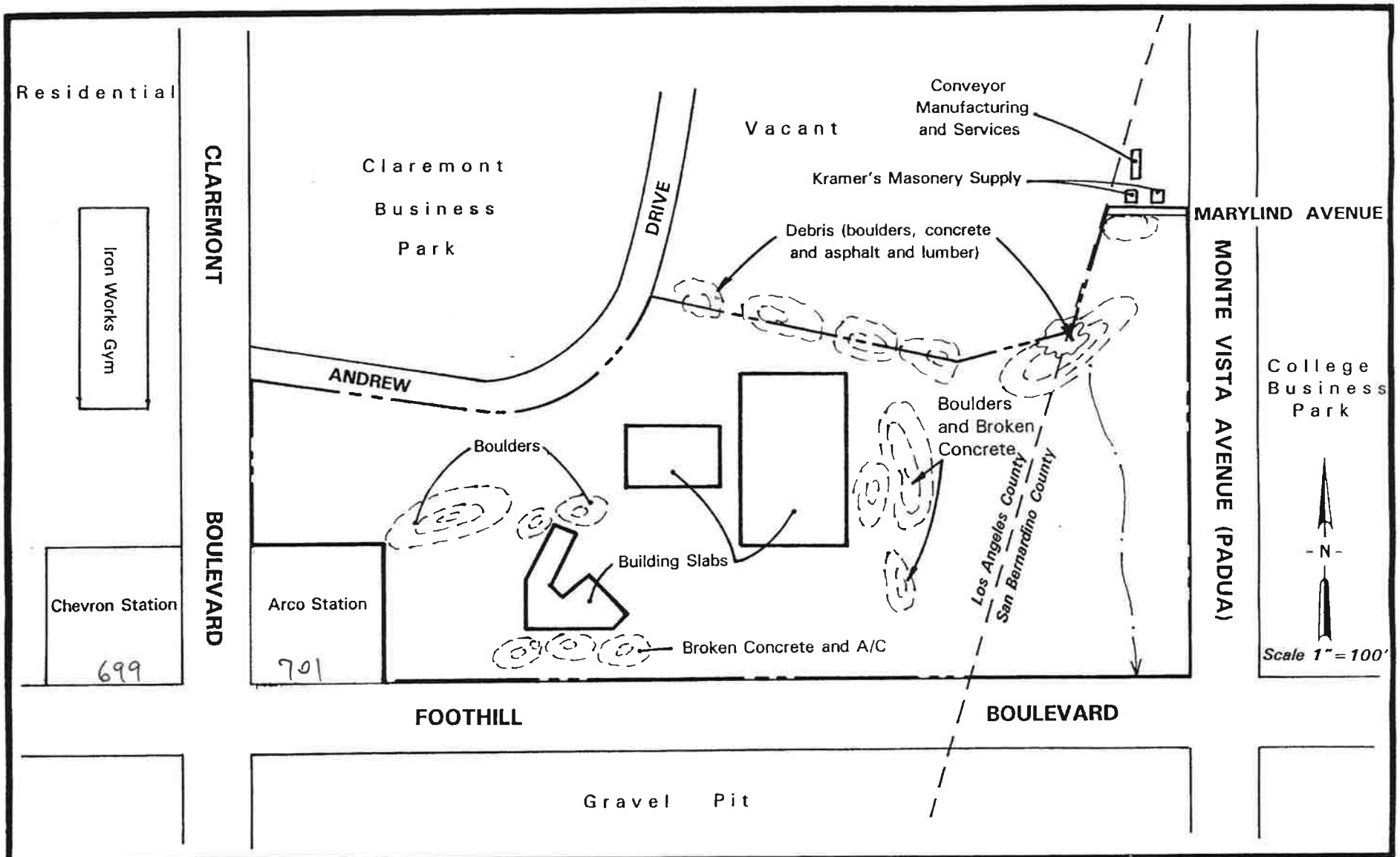
Robert J. Johnson, R.C.E. 27060
Senior Vice President

KM/MDW/RJJ:km/sp



FOR: COLUMBIA GROUP	13± ACRES NORTH SIDE OF FOOTHILL BOULEVARD BETWEEN CLAREMONT BOULEVARD AND MONTE VISTA AVENUE CLAREMONT, CALIFORNIA	ENCLOSURE "A-1"
DATE FEBRUARY 1998		JOB NUMBER 98044-9

C·H·J· INCORPORATED



PLAT

FOR: **COLUMBIA GROUP**	**13± ACRES** **NORTH SIDE OF FOOTHILL BOULEVARD** **BETWEEN CLAREMONT BOULEVARD AND MONTE VISTA AVENUE** **CLAREMONT, CALIFORNIA**	ENCLOSURE **"A-2"**
DATE: **FEBRUARY 1998**		JOB NUMBER **98044-9**

C·M·J· INCORPORATED

BBL

ENVIRONMENTAL RECORD SEARCH

for the site

COLUMBIA GROUP

NEC CLAREMONT & FOOTHILL BLVD, CLAREMONT/UPLAND

performed for

CHJ INCORPORATED

01-29-1998

444 S Cedros Avenue Suite 200, Solana Beach CA 92075 Tel: 619 793-0641

INTRODUCTION

This document, prepared on the request of CHJ INCORPORATED, reports the findings of BBL's investigation of environmental concerns in the vicinity of Nec Claremont & Foothill Blvd, Claremont/upland. It is divided in the following segments:

Summary - listing the identified sites by street names.

Final Report - describing the sources investigated and the resulting findings:

Federal sources

National Priority List	no sites	within 1 mile radius.
CERCLIS	no sites	within 1 mile radius.
NFRAP	no sites	within 1 mile radius.
Federal Facilities	no sites	within 1 mile radius.
Emergency Response Notification System	no sites	within half of a mile.
Site Enforcement Tracking System	no sites	within 1 mile radius.
Enforcement Docket System (DOCKET/CDETS)	no sites	within half of a mile.
C-Docket	no sites	within half of a mile.
RCRA Violators List	no sites	within 1 mile radius.
Federal Enforcement Dockets	no sites	within 1 mile radius.

California State sources

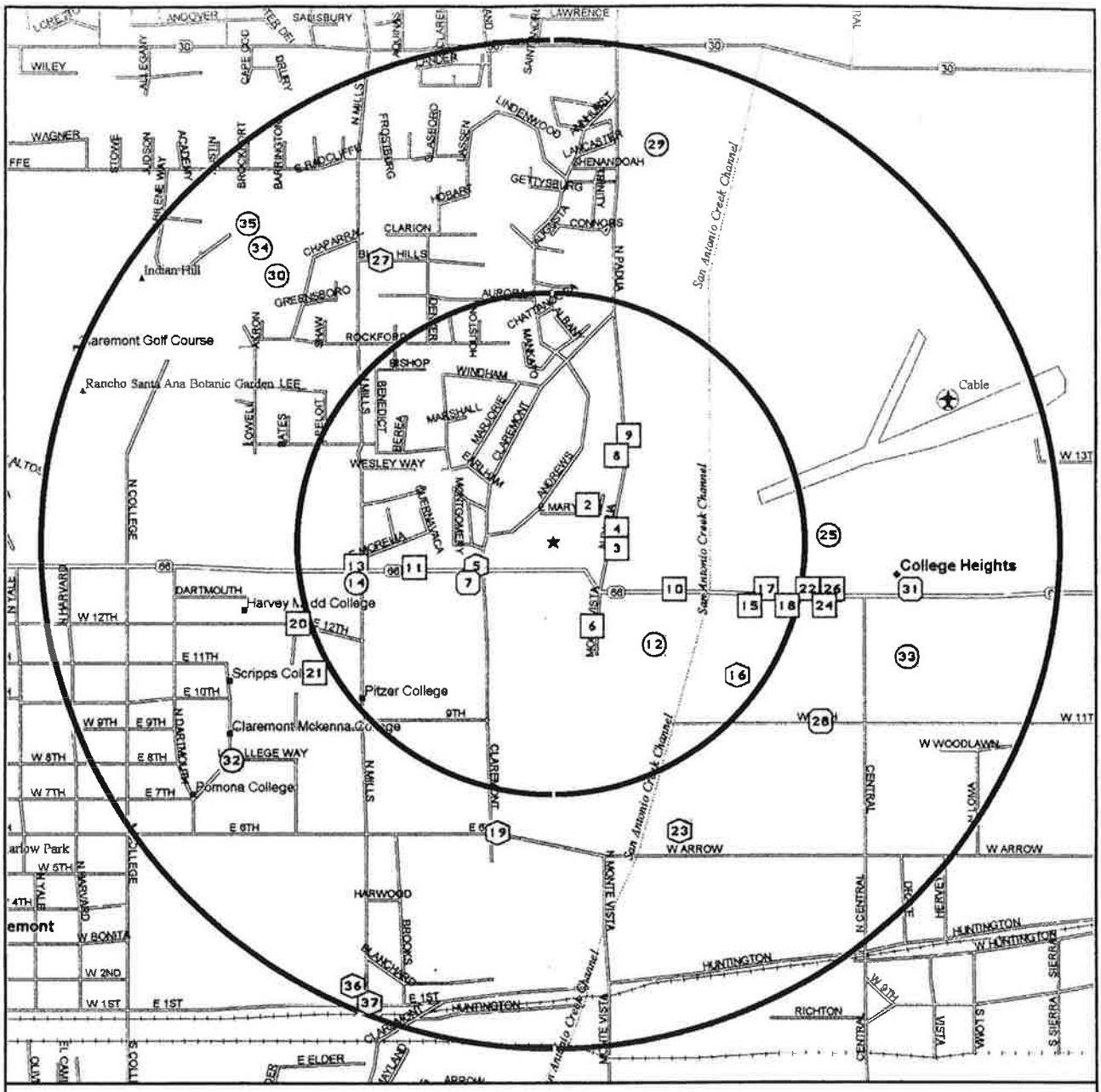
Annual Work Plan	no sites	within 1 mile radius.
CALSITES	no sites	within 1 mile radius.
CALSITES - No Further Action	no sites	within half of a mile.
Cortese	no sites	within 1 mile radius.
Leaking Underground Storage Tanks	6 sites	within 1 mile radius.
Solid Waste Information System	1 site	within 1 mile radius.
Well Investigation Program	2 sites	within 1 mile radius.
Drinking Water Program	8 sites	within 1 mile radius.

Regional sources

Toxic Releases	no sites	within 1 mile radius.
Toxic Pits	no sites	within 1 mile radius.
Solid Waste Assessment Test - Regional	5 sites	within 1 mile radius.

Operating permits

RCRA Generators	5 sites	within half of a mile.
RCRA - TSD Facilities	no sites	within 1 mile radius.
SARA Title III,section 313 (TRIS)	no sites	within half of a mile.
Nuclear Regulatory Commission Licensees	no sites	within half of a mile.
PCB Waste Handlers Database	no sites	within half of a mile.
Permit Compliance System (PCS)	no sites	within half of a mile.
AIRS Facility System (AFS)	1 site	within half of a mile.
Section Seven Tracking System	2 sites	within half of a mile.
FIFRA/TSCA tracking system	1 site	within half of a mile.
Federal Facilities Information System (FFIS)	no sites	within half of a mile.
Chemicals in Commerce Information System	no sites	within half of a mile.
FINDS EPA Facility Index System	no sites	within half of a mile.
Hazardous Waste Information System	17 sites	within half of a mile.
Underground Storage Tanks	5 sites	within half of a mile.



- ENVIRONMENTAL CONCERNS - HIGH PRIORITY
- ENVIRONMENTAL CONCERNS
- ENVIRONMENTAL CONCERNS - WITH A 'NO FURTHER ACTION' STATUS'
- OPERATING PERMITS ONLY

3.2 inches to 1 mile

APPROXIMATE LOCATION OF IDENTIFIED SITES IN THE VICINITY OF THE SUBJECT SITE
AT NEC CLAREMONT & FOOTHILL BLVD, CLAREMONT/UPLAND

2.	A B A & SONS CONSTRUCTION	767 E MARYLIND AVE
3.	LEADING EDGE MOTOR SPORTS	1232 N PADUA AVE
4.	LEMCO	1242 N PADUA AVE
5.	CONROCK - CLAREMONT	FOOTHILL & CLAREMONT BLVD
6.	SONLINC SPORTSWEAR	1164 N PADUA AVE,# 9
7.	CHEVRON SS #202024	699 E FOOTHILL BLVD
8.	WONDER WHY INC	1306 N PADUA AVE
9.	PAT DILLON PRODUCTS, INC	1318 N PADUA AVE,#2
10.	INTEGRATED CARE SYSTEMS	2315 W FOOTHILL BLVD,STE 4
11.	SHUTTERBUG PHOTO	665 E FOOTHILL BLVD, STE I
12.	MONTE VISTA CWD/	WELL 21 - INACTIVE
13.	UNOCAL STN #3824	FOOTHILL & MILLS AVE
14.	BATES UNOCAL 76 SERVICE	601 E FOOTHILL BLVD
15.	HOLIDAY ROCK CO	2193 W FOOTHILL BLVD
16.	SCWC - CLAREMONT/SOUTHERN CALI	FAIR OAKS WELL 01
17.	ALVERSONS SCOOTERS	2180 W FOOTHILL BLVD
18.	POMONA VALLEY POOLCHLOR	2133 W FOOTHILL BLVD
19.	6TH ST DUMP	705 E 6TH ST
20.	HARVEY MUDD COLLEGE	385 E 12TH ST
21.	THE CLAREMONT COLLEGES	PHYSICAL PLANT
22.	ANGELES WEST	2085 W FOOTHILL BLVD
23.	CONROCK-CLAREMONT/REGION 8 (12	15700 ARROW ROUTE, CLAREMONT/UPLAND
24.	AMERICAN AUTOMOTIVE CENTER	2080 W FOOTHILL BLVD
25.	DINEEN TRUCKING	1284 AIRPORT DR
26.	CAR WASH USA	2070 W FOOTHILL BLVD
27.	SCWC - CLAREMONT/SOUTHERN CALI	MILL WELL 01
28.	WESTON E. MONTGOMERY FUEL	2085 W 11TH ST
29.	1910024	MT. VIEW WELL - TREATED
30.	1910126	TUNNEL WELL 04
31.	GOODYEAR TIRE CENTER	1913 W FOOTHILL BLVD
32.	POMONA COLLEGE	555 N COLLEGE WAY
33.	3610050	WELL 14 - DESTROYED
34.	1910126	TUNNEL WELL 02
35.	1910126	PEDLEY FILTRATION PLANT - RAW
36.	CLAREMONT COLLEGES	110 N MILLS AVE
37.	CLAREMONT LANDFILL	101 N MILLS AVE

UNKNOWN LOCATIONS

S M D S INC P O BOX 5019 DEPT 321

INDEX OF SITES LISTED BY MAP NUMBERS

ENVIRONMENTAL RECORDS SEARCH

SUMMARY

LISTED BY STREET

ENVIRONMENTAL RECORDS SEARCH FOR
COLUMBIA GROUP
NEC CLAREMONT & FOOTHILL BLVD, CLAREMONT/UPLAND

Job : CHJI3416
Date: 01-29-1998

ADDRESS	CITY	MAP LOC	DIR	LOCATION	SOU-RCE	STATUS
ENVIRONMENTAL CONCERNS, WITHIN 1/4 MILE OF THE SUBJECT SITE						
FOOTHILL & CLAREMONT BLVD	CLAREMONT	5	W	CONROCK - CLAREMONT	SR	8
699 E FOOTHILL BLVD	CLAREMONT	7	W	CHEVRON SS #202024	LT	9
				EXXON CO USA #7-6222	UT	93
				EXXON USA STA # 7-6222	HW	
				CHEVRON STATION 20 2024	RN	S
				CHEVRON STATION 20 2024	HW	
				EXXON CORP., STATION #76222	HW	
WELL 21 - INACTIVE	01S/08W-11D01 S	12	SE	MONTE VISTA CWD/	WQ	IR
ENVIRONMENTAL CONCERNS, WITHIN 1/4 - 1/2 MILE OF THE SUBJECT SITE						
601 E FOOTHILL BLVD	CLAREMONT	14	W	UNOCAL #3824	LT	1
				BATES UNOCAL 76 SERVICE	RN	
				SERVICE STATION #3824	HW	
601 E FOOTHILL BLVD, N/AN/AN/A	CLAREMONT	14	W	UNION OIL SERVICE STATION #382	UT	87&95
601 E FOOTHILL BLVD	CLAREMONT	14	W	UNOCAL CORP SS 3824	UT	87&93
				BATES UNOCAL 76 SERVICE	HW	
FAIR OAKS WELL 01	01S/08W-10B01 S	16	SE	SCWC - CLAREMONT/SOUTHERN CALI	WQ	AR
1284 AIRPORT DR	UPLAND	25	E	DINEEN TRUCKING	LT	5C
ENVIRONMENTAL CONCERNS, WITHIN 1/2 - 3/4 MILE OF THE SUBJECT SITE						
705 E 6TH ST	CLAREMONT	19	S	6TH ST DUMP	SR	12
15700 ARROW ROUTE, CLAREMONT/UPLAND	CLAREMONT	23	SE	CONROCK-CLAREMONT/REGION 6 (12	SR	3
MILL WELL 01	01S/08W-03G02 S	27	NW	SCWC - CLAREMONT/SOUTHERN CALI	WQ	AR
2085 W 11TH ST	UPLAND	28	SE	WESTON E. MONTGOMERY FUEL	LT	9
TUNNEL WELL 04	01S/08W-03F05 S	30	NW	1910128	WQ	AU
1913 W FOOTHILL BLVD	UPLAND	31	E	GOODYEAR TIRE CENTER	LT	9
555 N COLLEGE WAY	CLAREMONT	32	SW	POMONA COLLEGE	LT	0
WELL 14 - DESTROYED	01S/08W-11B02 S	33	E	3610050	WQ	DS
ENVIRONMENTAL CONCERNS, WITHIN 3/4 - 1 MILE OF THE SUBJECT SITE						
MT. VIEW WELL - TREATED		29	N	1910024	WQ	AT
TUNNEL WELL 02	01S/08W-03F04 S	34	NW	1910128	WQ	AU
PEDLEY FILTRATION PLANT - RAW		35	NW	1910126	WQ	AR
PEDLEY FILTRATION PLANT - TREATED		35	NW	1910126	WQ	CT
110 N MILLS AVE	CLAREMONT	36	SW	CLAREMONT COLLEGES	SR	7
101 N MILLS AVE	CLAREMONT	37	SW	CLAREMONT LANDFILL	SR	3
				CLAREMONT CLASS III DSPL SITE	SS	INACT

OPERATING PERMITS ONLY FOR
COLUMBIA GROUP
NEC CLAREMONT & FOOTHILL BLVD, CLAREMONT/UPLAND

Job : CHJI3416
Date: 01-29-1998

ADDRESS	CITY	MAP LOC	DIR	LOCATION	SOURCE	STATUS
OPERATING PERMITS ONLY, WITHIN 1/4 MILE OF THE SUBJECT SITE						
767 E MARYLIND AVE	CLAREMONT	2	NE	A B A & SONS CONSTRUCTION	UT	93
1232 N PADUA AVE	UPLAND	3	E	LEADING EDGE MOTOR SPORTS	HW	
1242 N PADUA AVE	UPLAND	4	E	LEMCO	HW	
1164 N PADUA AVE,# 9	UPLAND	6	SE	SONLINC SPORTSWEAR	HW	
1306 N PADUA AVE	UPLAND	8	NE	WONDER WHY INC	HW	
1318 N PADUA AVE,#2	UPLAND	9	NE	PAT DILLON PRODUCTS, INC	PE	
2315 W FOOTHILL BLVD,STE 4	UPLAND	10	E	INTEGRATED CARE SYSTEMS	HW	
2315 W FOOTHILL BLVD, STE 4	UPLAND	10	E	INTEGRATED CARE SYSTEMS	RN	S
665 E FOOTHILL BLVD, STE I	CLAREMONT	11	W	SHUTTERBUG PHOTO	HW	
OPERATING PERMITS ONLY, WITHIN 1/4 - 1/2 MILE OF THE SUBJECT SITE						
FOOTHILL & MILLS AVE	CLAREMONT	13	W	UNOCAL STN #3824	HW	
2193 W FOOTHILL BLVD	UPLAND	15	E	HOLIDAY ROCK CO	AF	
				HOLLIDAY ROCK CO INC	UT	87&95
				HOLLIDAY TRUCK & ROCK	HW	
				HOLLIDAY ROCK & TRUCKING, I	HW	
2180 W FOOTHILL BLVD	UPLAND	17	E	ALVERSONS SCOOTERS	HW	
2133 W FOOTHILL BLVD	UPLAND	18	E	POMONA VALLEY POOLCHLOR	FT	
				POMONA VALLEY POOLCHLOR	PE	
				TEXACO FOOTHILL SVC #2	HW	
				FOOTHILLS AUTO SVC	RN	
				FOOTHILLS AUTO SVC	RN	
				POMONA VALLEY POOLCHLOR	UT	93
				RAVENS AUTO	HW	
				HOCKETT & SONS, INC DBA POMONA	PE	
385 E 12TH ST	CLAREMONT	20	W	HARVEY MUDD COLLEGE	HW	
PHYSICAL PLANT	CLAREMONT	21	SW	THE CLAREMONT COLLEGES	HW	
2085 W FOOTHILL BLVD	UPLAND	22	E	ANGELES WEST	HW	
2080 W FOOTHILL BLVD	UPLAND	24	E	AMERICAN AUTOMOTIVE CENTER	HW	
2070 W FOOTHILL BLVD	UPLAND	26	E	CAR WASH USA	HW	
SITES WITH UNKNOWN OR NON-SPECIFIC LOCATION						
P O BOX 5019 DEPT 321	UPLAND			S M D S INC	RN	T

REFERENCED SOURCES

Job : CHJI3416
Date: 01-29-1998

FEDERAL SOURCES

NL	NATIONAL PRIORITY LIST (12/15/97)
CC	CERCLIS (12/15/97)
NF	NFRAP (12/15/97)
FF	FEDERAL FACILITIES (12/15/97)
ER	EMERGENCY RESPONSE NOTIFICATION SYSTEM (1989-1997)
SE	SITE ENFORCEMENT TRACKING SYSTEM (05/21/97)
DO	ENFORCEMENT DOCKET SYSTEM (DOCKET/CDETS)
CD	C-DOCKET (01/97)
RV	RCRA VIOLATORS LIST (12/15/97)
FD	FEDERAL ENFORCEMENT DOCKETS

CALIFORNIA STATE SOURCES

BP ANNUAL WORK PLAN (09/07/97)

BKLG	Backlog	DLST	Delisted from the AWP	AWP	Active AWP site
REFRW	Referred to the RWQB	COM	Certified, maint mode	REFRC	Referred to RCRA
CERT	Certified after remediation				

AS CALSITES (09/07/97)

PEARL	Prel Assmnt Low priority	NFA	No Further Action for DTSC	PEARM	Prel Assmnt Medium priority
EPA	EPA is the lead agency	PEARH	Prel Assmnt High priortiy	RCRA	Mitigated under the RCRA
SSR	Site Screening Required	RWQCB	Mitigated under RWQB	HRR	Hazard Ranking Required
CNTY	County lead	PRPR	PRP Search Required	OAL	Other Agency lead

AN CALSITES - NO FURTHER ACTION (09/07/97)

NFA	No Further Action	RED	Closed Case

CS CORTESE (12/96)

WRCBT	Tank leak	DHS3	Cont large well	DHS1	Abandoned haz waste site
DHS5	section 25356	DHS2	Cont small well	CWMB	Disposal site

LT LEAKING UNDERGROUND STORAGE TANKS (12/97)

0	No action	3B	Prel site assmnt underway	7	Remedial action underway
1	Leak being confirmed	5C	Pollution characterization	8	Post remedial action monitoring
3A	Site workplan submitted	5R	Remediation plan	9	Case closed

SS	SOLID WASTE INFORMATION SYSTEM (12/96)
WP	WELL INVESTIGATION PROGRAM
WQ	DRINKING WATER PROGRAM

REGIONAL SOURCES

NT	TOXIC RELEASES
TP	TOXIC PITS (12/95)
SR	SOLID WASTE ASSESSMENT TEST - REGIONAL (08/96)

OPERATING PERMITS

RN RCRA GENERATORS (01/97)

L	Large Generator	T	Transporter	S	Small Generator

TD RCRA - TSD FACILITIES (01/97)

I	Incinerator	D	Land Disposal	T	Storage/Treatment

SA	SARA TITLE III,SECTION 313 (TRIS) (01/97)
NC	NUCLEAR REGULATORY COMMISSION LICENSEES (01/97)
PB	PCB WASTE HANDLERS DATABASE (01/97)
PC	PERMIT COMPLIANCE SYSTEM (PCS) (01/97)
AF	AIRS FACILITY SYSTEM (AFS) (01/97)
PE	SECTION SEVEN TRACKING SYSTEM (01/97)
FT	FIFRA/TSCA TRACKING SYSTEM (01/97)
FI	FEDERAL FACILITIES INFORMATION SYSTEM (FFIS) (01/97)
CI	CHEMICALS IN COMMERCE INFORMATION SYSTEM (01/97)
FN	FINDS EPA FACILITY INDEX SYSTEM (01/97)
HW	HAZARDOUS WASTE INFORMATION SYSTEM (1984-1995)
UT	UNDERGROUND STORAGE TANKS

ENVIRONMENTAL RECORDS SEARCH

LISTED BY SOURCE

INTRODUCTION

BBL has used its best effort but makes no claims as to the completeness or accuracy of the referenced government sources or the completeness of the search. Our records are frequently updated but only as current as their publishing date and may not represent the entire field of known or potential hazardous waste or contaminated sites. To ensure complete coverage of the subject property and surrounding area, sites may be included in the list if there is any doubt as to the location because of discrepancies in map location, zip code, address, or other information in our sources. For additional information call 619 793-0641.

The following government sources have been searched for sites within one mile radius,unless otherwise stated, of the subject location.

FEDERAL SOURCES

NPL National Priority List

EPA has prioritized sites with significant risk to human health and the environment. These sites receive remedial funding under the Comprehensive Environmental Response Conservation and Liability Act (CERCLA).

No listings within 1 mile radius of the subject site.

CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS is a data base used by the EPA to track activities conducted under the Comprehensive Environmental Response and Liability Act CERCLA (1980) and the amendment the Superfund Amendments and Reauthorization Act SARA (1986).

Sites to be included are identified primarily by the reporting requirements of hazardous substances Treatment, Storage and Disposal(TSD) facilities and releases larger than specific Reportable Quantities(RQ), established by EPA.

Using the National Oil and hazardous Substance Pollution Contingency Plan(National Contingency Plan) the EPA set priorities for cleanup.

The EPA rates National Contingency Plan sites according to a quantitative Hazard Ranking System(HRS) based on the potential health risk via any one or more pathways: groundwater,surface water, air, direct contact, and fire/explosion.

The EPA and state agencies seek to identify potentially responsible parties(PRP) and ultimately Responsible Parties(RP) who can be required to finance cleanup activities, either directly or through reimbursement of federal Superfund expenditures.

No listings within 1 mile radius of the subject site.

NFRAP No Further Remedial Action Planned sites (CERCLIS)

As of February 1995, CERCLIS sites designated 'No Further Remedial Action Planned' NFRAP have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the site being placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

EPA has removed these NFRAP sites from CERCLIS to lift unintended barriers to the redevelopment of these properties. This policy change is part of EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens promote economic redevelopment of unproductive urban sites.

No listings within 1 mile radius of the subject site.

FEDFAC Federal Facilities

As part of the CERCLA program, federal facilities with known or suspected environmental problems, the Federal Facilities Hazardous Waste Compliance Docket is tracked separately to comply with a Federal Court order.

No listings within 1 mile radius of the subject site.

ERNS Emergency Response Notification System

The ERNS is a national computer database used to store information on unauthorized releases of oil and hazardous substances. The program is a cooperative effort of the Environmental Protection Agency, the Department of Transportation Research and Special Program Administration's John Volpe National Transportation System Center and the National Response Center.

There are primarily five Federal statutes that require release reporting:the Comprehensive Environmental Response,Compensation and Liability Act (CERCLA) section 103; the Superfund Amendments and Reauthorization Act(SARA) Title III Section 304; the Clean Water Act of 1972(CWA) section 311(b)(3); and the Hazardous Material Transportation Act of 1974(HMTA section 1808(b).

No listings within half of a mile radius of the subject site.

SETS Site Enforcement Tracking System (SETS)

When expanding Superfund monies at a CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) Site, EPA must conduct a search to identify parties with potential financial responsibility for remediation of uncontrolled hazardous waste sites. EPA regional Superfund Waste Management Staff issue a notice letter to the potentially responsible party (PRP). The status field contains the EPA ID number and name of the site where the actual pollution occurred.

No listings within 1 mile radius of the subject site.

DO Enforcement Docket System (DOCKET)/Consent Decree Tracking System (CDETS)

DOCKET tracks civil judicial cases against environmental polluters, while CDETS processes court settlements, called consent decrees.

No listings within half of a mile radius of the subject site.

CD Criminal Docket System (C-DOCKET)

The Criminal Docket System is a comprehensive automated system for tracking criminal enforcement actions. C-Docket handles data for all environmental statues and ttracks enforcement actions from the initial stages of investigations through conclusion.

No listings within half of a mile radius of the subject site.

RCRA RCRA Violators List (CORRACTS)

The Resource Conservation and Recovery Act of 1976 provides for "cradle to grave" regulation of hazardous wastes. RCRA requires regulation of hazardous waste generators, transporters, and storage/treatment/disposal sites. Evaluation to potential violations, ranging from manifest requirements to hazardous waste discharges, is typically conducted by the US EPA. This data base is also known as Corrective Action Report (CORRACTS)

If enforcement is required, it is typically delegated to a state agency.

No listings within 1 mile radius of the subject site.

FD Federal Enforcement Dockets

The US EPA, Office of Enforcement, maintains a list of sites under enforcement by the US EPA.

No listings within 1 mile radius of the subject site.

CALIFORNIA STATE SOURCES

AW Annual Work Plan (previously known as Bond Expenditure Plan)

The California Health and Safety code, as amended by AB 129, requires the California Environmental Protection Agency to develop a site-specific expenditure plan as the basis for an appropriation of California Hazardous Substance Cleanup Bond Act of 1984 funds.

The Agency is also required to update the report annually and report any significant adjustments to the Legislature on an ongoing basis. The plan identifies California hazardous waste sites targeted for cleanup by responsible parties, the California and the Federal Environmental Protection Agency over the next five years.

Status Codes:	BKLG	Backlog, Potential Annual Work Plan Site
	AWP	Active Annual Work Plan site
	COM	Certified, but still in Operation & Maintenence mode
	CERT	Certified after remediation
	DLST	Delisted from the AWP
	REFRC	Former AWP site referred to RCRA
	REFRW	Former AWP site referred to the Regional Water Quality Board

No listings within 1 mile radius of the subject site.

CALS CALSITES

The Historical Abandoned Site Survey Program identified certain potential hazardous waste sites. The identification of these sites were generally not made via sampling and site characterization, they were made as a result of file searches and windshield surveys. Some of the sites may have had a site inspection with sampling.

The information has been compiled into this database by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

This database was previously known as The Abandoned Sites Program Information System ASPIS.

Status Codes:	PEARL	Preliminary Endangerment Assessment Required,Low priority
	PEARM	Preliminary Endangerment Assessment Required,Medium priority
	PEARH	Preliminary Endangerment Assessment Required,High priortiy

SSR	Site Screening Required
HRR	Hazard Ranking Required
PRPR	Potential Responsible Party Search Required
EPA	EPA is the lead agency
RCRA	Mitigated under the RCRA permitting program
RWQCB	Mitigated under the lead of the Regional Water Quality Boar
CNTY	County lead
OAL	Other Agency lead

No listings within 1 mile radius of the subject site.

CALS CALSITES - No Further Action

This section includes the sites on the Calsite list which have been flagged for no further action by the California Environmental Protection Agency, Department of Toxic Substance Control (DTSC) in accordance with Section 25359.6 of the California Health and Safety Code.

Status Codes:		
	NFA	No Further Action for DTSC
	RED	Closed Case marked for removal from list

No listings within half of a mile radius of the subject site.

CORTESE State of California Office of Planning and Research

This database is a consolidation of information from various sources. It is maintained by the State Office of Planning and Research and lists potential and confirmed hazardous waste or substances sites.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

Status Codes:		
	WRCBT	Tank leaks. Compiled by Water Resource Control Board
	DHS1	Abandoned hazardous waste site. Compiled by Toxic Substance Control Div. of DHS
	DHS2	Contaminated public water drinking wells serving less than 200 connections. Compil
	DHS3	Contaminated public water drinking wells serving more than 200 connections
	DHS5	Sites pusuant to section 25356 of the Health and Safety Code (see BEP)
	CWMB	Solid waste disposal sites with known migration of hazardous waste

No listings within 1 mile radius of the subject site.

LUST(S) Leaking Underground Storage Tanks - California State

The Leaking Underground Storage Tanks Information System is maintained by the State Water Resource Board pursuant to Section 25295 of the Health and Safety Code.

Status Codes:		
	0	No action

1	Leak being confirmed
3A	Prel site assessment workplan submitted
3B	Prel site assessment underway
5C	Pollution characterization
5R	Remediation plan
7	Remedial action underway
8	Post remedial action monitoring
9	Case closed

Site: WESTON E. MONTGOMERY FUEL
Address: 2085 W 11TH ST
City: UPLAND
Map Loc: 28 - within 1/2 - 3/4 mile SE of the subject
Status: 9 - Case Closed.

Site: DINEEN TRUCKING
Address: 1284 AIRPORT DR
City: UPLAND
Map Loc: 25 - within 1/4 - 1/2 mile E of the subject
Status: 5C - Pollution characterization.

Site: POMONA COLLEGE
Address: 555 N COLLEGE WAY
City: CLAREMONT
Map Loc: 32 - within 1/2 - 3/4 mile SW of the subject
Status: 0 - No Action Taken.

Site: UNOCAL #3824
Address: 601 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: 1 - Leak being confirmed.

Site: CHEVRON SS #202024
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: 9 - Case Closed.

Site: GOODYEAR TIRE CENTER
Address: 1913 W FOOTHILL BLVD
City: UPLAND
Map Loc: 31 - within 1/2 - 3/4 mile E of the subject
Status: 9 - Case Closed.

SWIS Solid Waste Information System

As legislated under the Solid Waste Management and Resource Recovery Act of 1972, the California Waste Management Board maintains lists of certain facilities, i.e. Active solid waste disposal sites, Inactive or Closed solid waste disposal sites and Transfer facilities.

Site: CLAREMONT CLASS III DSPL SITE
Address: 101 N MILLS AVE
City: CLAREMONT
Map Loc: 37 - within 3/4 - 1 mile SW of the subject
Status: INACT

WIP Well Investigation Program

The Well Investigation Program (AB1803) identifies groundwater that is already contaminated and empowers the California Department of Health Services and local health officers to order ongoing monitoring programs. The focus of this program is to monitor and protect drinking water.

Site: WELL MILL WELL 01 dhs1
Address: SOUTHERN CALIF WATER CO
City: 01S/08W-03G02 S
Map Loc: 27 - within 1/2 - 3/4 mile NW of the subject
Status: 0.70 ppb of 1,1,1-TCA

Site: WELL FAIR OAKS 01 dhs1
Address: SOUTHERN CALIF WATER CO
City: 01S/08W-10B01 S
Map Loc: 16 - within 1/4 - 1/2 mile SE of the subject
Status: 1.20 ppb of 1,1-DCE

WQ Drinking Water Program

The California Health and Safety Code section 116275-116300 stipulates that it is the intent of the Legislature to improve laws governing drinking water quality to improve upon the minimum requirements of the federal Safe Drinking Water Act Amendments of 1986, to establish primary drinking water standards that are at least as stringent as those established under the federal Safe Drinking Water Act, and to establish a program under this chapter that is more protective of public health than the minimum federal requirements.

In order to provide for the orderly and efficient delivery of safe drinking water the State Department of Health Services collect information on the quality of public drinking water wells under the California Drinking Program.

Below, the latest and maximum analysis of contaminants are reported (only positive reading are included). Additional information is available from BBL upon request.

Site: SCWC - CLAREMONT/SOUTHERN CALI
Address:
City: 01S/08W-03G02 S
Map Loc: 27 - within 1/2 - 3/4 mile NW of the subject
Status:

Site: SCWC - CLAREMONT/SOUTHERN CALI
Address:
City: 01S/08W-10B01 S
Map Loc: 16 - within 1/4 - 1/2 mile SE of the subject
Status:

Site: 3610050
Address:
City: 01S/08W-11B02 S
Map Loc: 33 - within 1/2 - 3/4 mile E of the subject
Status:

Site: MONTE VISTA CWD/
Address:
City: 01S/08W-11D01 S
Map Loc: 12 - within 1/4 mile SE of the subject
Status:

Site: 1910024
Address:
City:
Map Loc: 29 - within 3/4 - 1 mile N of the subject
Status:

Site: 1910126
Address:
City:
Map Loc: 35 - within 3/4 - 1 mile NW of the subject
Status:

Site: 1910126
Address:
City:
Map Loc: 35 - within 3/4 - 1 mile NW of the subject
Status:

Site: 1910126
Address:
City: 01S/08W-03F04 S
Map Loc: 34 - within 3/4 - 1 mile NW of the subject
Status:

Site: 1910126
Address:
City: 01S/08W-03F05 S
Map Loc: 30 - within 1/2 - 3/4 mile NW of the subject
Status:

REGIONAL SOURCES

NT Toxic Releases

The California Regional Water Quality Control Boards or local Department of Health Services keeps track of toxic releases to the environment. These lists are known as Unauthorized Releases, Spill, Leaks, Investigations and Cleanups (SLIC), Non-Tank Releases, Toxics List or similar, depending on the local agency.

No listings within 1 mile radius of the subject site.

TPC Toxic Pits

The Toxic Pits Clean-Up Act (Katz Bill)places strict limitations on the discharge of liquid hazardous wastes into surface impoundments, toxic ponds, pits and lagoons. Regional Water Quality Control Boards are required to inspect all surface impoundments annually, in addition, every facility was required to file a Hydrogeological Assessment Report. Recent legislation allows the Department of Health Services to exempt facilities that closed on or before December 31, 1985, if a showing is made that no significant environmental risk remains (AB1046).

Special exemption provisions have been created for surface impoundments that receive mining wastes.

No listings within 1 mile radius of the subject site.

SWAT(R) Solid Waste Assessment Test - Regional

This program, provided for under the Calderon legislation (Section 13273 of the Water Code), requires that disposal sites with more than 50,000 cubic yards of waste provide sufficient information to the regional water quality control board to determine whether or not the site has discharged hazardous substances which will impact the environment.

Site operators are required to file Solid Waste Assessment Test reports on a staggered basis. Operators of the 150 highest ranking (Rank 1) sites were required to submit Solid Waste Assessment Tests by July 1, 1987, Rank 2 in 1988 and so on.

Operators submit water quality tests to the Regional Water Quality Control Board, describing surface and groundwater quality and supply; and the geology within 1 mile of the site. Air quality tests are submitted to the local Air Quality Management District or Air Pollution Control District.

This program is currently not funded and thus not updated.

. Status Codes: Facilities or sites are ranked within each region on a scale 1-15 according to priority.

Site: 6TH ST DUMP
Address: 705 E 6TH ST
City: CLAREMONT
Map Loc: 19 - within 1/2 - 3/4 mile S of the subject
Status: Priority Rank 12

Site: CONROCK-CLAREMONT/REGION 8 (12
Address: 15700 ARROW ROUTE, CLAREMONT/UPLAND
City: CLAREMONT
Map Loc: 23 - within 1/2 - 3/4 mile SE of the subject
Status: Priority Rank 3

Site: CONROCK - CLAREMONT
Address: FOOTHILL & CLAREMONT BLVD
City: CLAREMONT
Map Loc: 5 - within 1/4 mile W of the subject
Status: Priority Rank 8

Site: CLAREMONT LANDFILL
Address: 101 N MILLS AVE
City: CLAREMONT
Map Loc: 37 - within 3/4 - 1 mile SW of the subject
Status: Priority Rank 3

Site: CLAREMONT COLLEGES
Address: 110 N MILLS AVE
City: CLAREMONT
Map Loc: 36 - within 3/4 - 1 mile SW of the subject
Status: Priority Rank 7

OPERATING PERMITS

Various agencies issue operating permits or regulate the handling, movements, storage and disposal of hazardous materials and require mandatory reporting. The inclusion in this section does not imply that an environmental problem exists presently or has in the past.

The sources referenced below have been searched within half a mile radius,unless otherwise stated, of the subject site.

RCRA-G Resource Conservation and Recovery Information System - Generators

The Environmental Protection Agency regulates generators of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste generators are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form. The notification form provides basic identification information and specific waste activities.

Status Codes: L - Generators who generate at least 1000 kg/mo of non-acutely hazardous waste (or 1 kg/mo of acutely hazardous waste).
S - Generators who generate 100 kg/mo but less than 1000 kg/mo of non-acutely hazardous w
T - Transporter.

Site: BATES UNOCAL 76 SERVICE
Address: 601 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: Permit id#: CAD981425523

Site: CHEVRON STATION 20 2024
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: S - Small Generator
Permit id#: CAD983662065

Site: FOOTHILLS AUTO SVC
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CA0000134940

Site: FOOTHILLS AUTO SVC
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CA0000134940

Site: INTEGRATED CARE SYSTEMS
Address: 2315 W FOOTHILL BLVD, STE 4
City: UPLAND
Map Loc: 10 - within 1/4 mile E of the subject
Status: S - Small Generator
Permit id#: CAD982521890

Site: S M D S INC
Address: P O BOX 5019 DEPT 321
City: UPLAND
Status: T - Transporter
Permit id#: CAD983630773

RCRA-D Resource Conservation and Recovery Information System - Treatment, Storage & Disposal

The Environmental Protection Agency regulates the treatment, storage and disposal of hazardous material through the Resource Conservation and Recovery Act (RCRA). All hazardous waste TSD facilities are required to notify EPA of their existence by submitting the Federal Notification of Regulated Waste Activity Form (EPA Form 8700-12) or a state equivalent form as well as part A (EPA form 8700-23) and Part B of their Hazardous Waste Permit Application.

Status Codes: I Incinerator
T Storage/Treatment facility other than Incinerator
D Land Disposal Facility

No listings within 1 mile radius of the subject site.

SARA SARA Title III,section 313 (TRIS)

Title III of the Superfund Amendments and Reauthorization Act,Section 313, also known as Emergency Planning and Community Right-to-Know Act of 1986 requires owners or operators of facilities with more than 10 employees and are listed under Standard Industrial Classification(SIC) Codes 20 through 39 to report the manufacturing, processing or use of more than a threshold of certain chemical or chemical categories listed under section 313. This data base is also known as Toxic Release Information System (TRIS).

Below summary information for the last five year period is reported grouping the releases into air, water, underground injection, land, public offsite treatment (potw) and transportation offsite.

No listings within half of a mile radius of the subject site.

NC Nuclear Regulatory Commission Licensees

The Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards has been mandated (10 CFR Ch 1.42) to protect the public health and safety, the common defense and security, and the environment by licensing, inspection, and environmental impact assessment for all nuclear facilities and activities, and for the import and export of special nuclear material.

No listings within half of a mile radius of the subject site.

PB PCB Waste Handlers Database

The U.S. Environmental Protection Agency tracks generators, transporters, commercial stores and/or brokers and disposers of PCB's in accordance with the Toxic Substance Control Act.

No listings within half of a mile radius of the subject site.

PCS Permit Compliance System

PCS is a database which contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS was developed by The U.S. Environmental Protection Agency to meet the information needs of the NPDES program under the Clean Water Act. PCS tracks permit, compliance, and enforcement states of NPDES facilities.

No listings within half of a mile radius of the subject site.

AFS AIRS Facility System

AFS contains emissions and compliance data on air pollution point sources tracked by the U.S. EPA and state and local environmental regulatory agencies. There are seven "criteria pollutants" for which data must be reported to EPA and stored in AIRS: PM10 (particulate matters less than 10 microns in size), carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, reactive volatile organic compounds (VOC), and ozone.

AFS replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aeromatic Data (SAROAD).

Site: HOLIDAY ROCK CO
Address: 2193 W FOOTHILL BLVD
City: UPLAND
Map Loc: 15 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CAD047789862

PE Section Seven Tracking System (SSTS)

SSTS evolved from the FIFRA and TSCA Enforcement System (FATES). SSTS tracks the registration of all pesticide producing establishments and tracks annually the types and amounts of pesticides, active ingredients, and devices that are produced, sold or distributed each year.

Site: POMONA VALLEY POOLCHLOR
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CA0000667584

Site: HOCKETT & SONS, INC DBA POMONA
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CA0000669671

Site: PAT DILLON PRODUCTS, INC
Address: 1318 N PADUA AVE,#2
City: UPLAND
Map Loc: 9 - within 1/4 mile NE of the subject
Status: Permit id#: CA0000645564

FIFRA FIFRA/TSCA Tracking System/ National Compliance Database (FTTS/NCDB)

NCDB supports implementation of the Federal Insecticide, Funguside and Rodenticide Control Act (FIFRA) and the Toxic Substance Control Act (TSCA).

Site: POMONA VALLEY POOLCHLOR
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: Permit id#: CA0000667584

FI Federal Facilities Information System (FFIS)

Federal Faclities Informaton System (FFIS) contains a list of all Treatment Storage and Disposal Faclities (TSDs) owned and operated by federal agencies.

No listings within half of a mile radius of the subject site.

CI Chemicals in Commerce Information System (CICIS)

Chemicals in Commerce Information System contains an inventory of chemicals manufactured in commerce or imported for Toxic Substances Control Act regulated commercial purposes. CICIS allows EPA to maintain a comprehensive listing of over 70,000 chemical substances that are manufactured or imported and are regulated under TSCA.

No listings within half of a mile radius of the subject site.

FN FINDS EPA Facility Index System

The U.S. Environmental Protection Agency maintains an index system of all facilities which are regulated or have been assigned an identification number for other purposes.

Facilities that have been reported elsewhere in this report will not be included in the listing below.

No listings within half of a mile radius of the subject site.

HWIS Hazardous Waste Information System

The Department of Toxic Substance Control, California Environmental Protection Agency, maintains a a data base keeping track of the movement and disposal of hazardous waste. The data is used to support the Tanner legislation, AB 2948.

Status Codes: EPA Facility Permit Number

Site: HARVEY MUDD COLLEGE
Address: 385 E 12TH ST
City: CLAREMONT
Map Loc: 20 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAC000182917

Site: UNOCAL STN #3824
Address: FOOTHILL & MILLS AVE
City: CLAREMONT
Map Loc: 13 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAD981161532

Site: SERVICE STATION #3824
Address: 601 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAL000046390

Site: BATES UNOCAL 76 SERVICE
Address: 601 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: EPA ID#: CAD981425523

Site: SHUTTERBUG PHOTO
Address: 665 E FOOTHILL BLVD, STE I
City: CLAREMONT
Map Loc: 11 - within 1/4 mile W of the subject
Status: EPA ID#: CAC000657512

Site: EXXON USA STA # 7-6222
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: EPA ID#: CAC000055573

Site: CHEVRON STATION 20 2024
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: EPA ID#: CAD983662065

Site: EXXON CORP., STATION #76222
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: EPA ID#: CAC000162285

Site: CAR WASH USA
Address: 2070 W FOOTHILL BLVD
City: UPLAND
Map Loc: 26 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAC000166229

Site: AMERICAN AUTOMOTIVE CENTER
Address: 2080 W FOOTHILL BLVD
City: UPLAND
Map Loc: 24 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAL000019311

Site: ANGELES WEST
Address: 2085 W FOOTHILL BLVD
City: UPLAND
Map Loc: 22 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAL000095101

Site: TEXACO FOOTHILL SVC #2
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAL000095141

Site: RAVENS AUTO
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAL000040546

Site: ALVERSONS SCOOTERS
Address: 2180 W FOOTHILL BLVD
City: UPLAND
Map Loc: 17 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAL000067814

Site: HOLLIDAY TRUCK & ROCK
Address: 2193 W FOOTHILL BLVD
City: UPLAND
Map Loc: 15 - within 1/4 - 1/2 mile E of the subject
Status: EPA ID#: CAC000603840

Site: HOLLIDAY ROCK & TRUCKING, I
Address: 2193 W FOOTHILL BLVD
City: UPLAND
Map Loc: 15 - within 1/4 - 1/2 mile E of the subject

Status: EPA ID#: CAC000206153

Site: INTEGRATED CARE SYSTEMS
Address: 2315 W FOOTHILL BLVD,STE 4
City: UPLAND
Map Loc: 10 - within 1/4 mile E of the subject
Status: EPA ID#: CAD982521890

Site: SONLINC SPORTSWEAR
Address: 1164 N PADUA AVE,# 9
City: UPLAND
Map Loc: 6 - within 1/4 mile SE of the subject
Status: EPA ID#: CAL000038619

Site: LEADING EDGE MOTOR SPORTS
Address: 1232 N PADUA AVE
City: UPLAND
Map Loc: 3 - within 1/4 mile E of the subject
Status: EPA ID#: CAL000040521

Site: LEMCO
Address: 1242 N PADUA AVE
City: UPLAND
Map Loc: 4 - within 1/4 mile E of the subject
Status: EPA ID#: CAL000070802

Site: WONDER WHY INC
Address: 1306 N PADUA AVE
City: UPLAND
Map Loc: 8 - within 1/4 mile NE of the subject
Status: EPA ID#: CAL000112409

Site: THE CLAREMONT COLLEGES
Address: PHYSICAL PLANT
City: CLAREMONT
Map Loc: 21 - within 1/4 - 1/2 mile SW of the subject
Status: EPA ID#: CAD981421621

UST Permitted Underground Storage Tanks - State Water Quality Control Board

The Corteses Bill (AB2013), enacted in 1983, required registration of all underground storage tanks (UST) with the State Water Quality Control Board by July 1, 1984. About 176,000 tanks and surface impounds were registered between 1984 and 1987. An amendment (AB 1413) was passed in 1987, effectively removing the State Board from the registration process starting January 1, 1988. The data reflects the information collected by the state between 1984 and 1987 as well as recent time and includes all tanks and surface impounds in use or closed after 1974.

Home and farm heating fuel tanks with capacities of 1,100 gallons or less and "structures such as sumps, separators, storm drains, catch basins, oil field gathering lines, refinery pipelines, lagoons, evaporation ponds, well cellars, separation sumps, lined and unlined pits, sumps and lagoons" except those defined as UST under HSWA or may be regulated to protect water quality under the Porter-Cologne Water Quality Control Act are excluded.

Site: UNION OIL SERVICE STATION #382
Address: 601 E FOOTHILL BLVD, N/AN/AN/A
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: 00000019947 (1987&95)

Site: UNOCAL CORP SS 3824
Address: 601 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 14 - within 1/4 - 1/2 mile W of the subject
Status: 00000041631 (1987&93)

Site: EXXON CO USA #7-6222
Address: 699 E FOOTHILL BLVD
City: CLAREMONT
Map Loc: 7 - within 1/4 mile W of the subject
Status: 19046454133 (1993)

Site: POMONA VALLEY POOLCHLOR
Address: 2133 W FOOTHILL BLVD
City: UPLAND
Map Loc: 18 - within 1/4 - 1/2 mile E of the subject
Status: 36004854125 (1993)

Site: HOLLIDAY ROCK CO INC
Address: 2193 W FOOTHILL BLVD
City: UPLAND
Map Loc: 15 - within 1/4 - 1/2 mile E of the subject
Status: 00000019790 (1987&95)

Site: A B A & SONS CONSTRUCTION
Address: 767 E MARYLIND AVE
City: CLAREMONT
Map Loc: 2 - within 1/4 mile NE of the subject
Status: 19046514135 (1993)

Enclosure "D"
Job No. 98044-9

REFERENCES

BBL Environmental Information Products, January 29, 1998. Environmental Record Search, Job No. CHJI 3416.

C.H.J., Incorporated, August 15, 1989. Preliminary Environmental Site Assessment Report, Job No. 89-01-046.

United States Department of Interior Geological Survey, Topographic Map of 7.5-Minute Ontario, Scale 1:24,000.

APPENDIX E-2:

Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites, ACTA, July 2017

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Report No. 17-952

Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites

Job No. 952

Prepared by

ACTA
2790 Skypark Dr., Suite 310
Torrance, CA 90505

for submission to:
City of Claremont
City of Upland

July 2017

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EXECUTIVE SUMMARY

Cable Airport is a small, non-towered, privately owned general aviation airport that is predominately used by single-engine aircraft. The Airport is located in the city of Upland, California; it has operated since 1945. Approximately a quarter mile to the south west is the site of the future Claremont Commons Development, which will be a mixed-use residential community located on both sides of the border between the City of Claremont and the City of Upland.

Methodology: This report was prepared to analyze the potential for an aircraft accident that could result in casualties to persons residing on the proposed development. The potential for an accident causing a casualty on Claremont Commons was determined by estimating the likelihood of an accident occurring, and, given such an event, estimating the likelihood of injury to a resident. Accident rates were developed using annual operations data and the historical record of accidents in the vicinity of the Airport. Impact location likelihoods were computed based on state-wide data gathered by the Institute of Transportation Studies. The probability of impact for each of the sites was then combined with the probability of a consequence to determine risk. Risk values were segmented by time periods during a 24-hour day to include probabilities of building occupancy and operational frequency.

Concluding Remarks: This analysis determined that the annual maximum risk of a severe injury to an occupant of Claremont Commons is $2.7x10^{-5}$, which is equivalent to 27 chances in 1 million. To provide perspective, the annual risk of a person being injured in a car accident is approximately $7 x10^{-3}$, or 7,000 chances in 1 million, based on statistics from the National Highway Traffic Safety Administration. Car travel is therefore more than 250 times riskier than the potential for injury due to an aircraft accident on Claremont Commons.

This report also compares the individual risk for the Claremont Commons site with 5 other airport-adjacent sites developed with commercial and residential uses. The Claremont Commons property presents the lowest individual risk among the sites analyzed. (See table below). The likelihood of building occupancy and the proximity of a building to the Airport runway are the factors that have the largest impact on risk. Commercial sites generally have somewhat higher risk than residential sites because the likelihood of occupancy is higher during the periods of the day when airport operations are most frequent (7am – 7pm).

Annual Maximum Individual Risk of a Severe Injury or Greater

Site	Claremont Commons	1 (Commercial)	2 (Commercial)	3 (Residential)	4 (Approved Residential)	5 (Commercial)
Risk	$2.70X10^{-5}$ *	$5.27X10^{-5}$	$4.22X10^{-5}$	$5.83X10^{-5}$	$2.74X10^{-5}$	$3.43X10^{-5}$

*$2.7x10^{-5}$ per year is equivalent to 27 chances in 1 million

1. INTRODUCTION

This study analyzed the risk to the proposed Claremont Commons site from potential aircraft impacts. The site is located approximately 2,000 feet due southwest of Cable Airport Runway 6-24. Five additional sites were selected and analyzed for comparison, three commercial sites and two residential sites.

This analysis estimates risks of an aircraft impact accident to individuals located in buildings on the Claremont Commons property and nearby sites. All Cable Airport arrival and departure operations of fixed-wing aircraft and rotorcraft were considered in this analysis.

Risks were calculated using airport operations data and historical accident data. Aircraft operations data for the period encompassing January 1990 through December 2015 were obtained from the Cable Airport Master Plan [1], the FAA TAF [2] and the FAA ATADS [3]. This data was investigated for accuracy by onsite observation conducted by ACTA personnel. Data provided by the National Transportation Safety Board (NTSB) [4] was used to determine the Airport accident history for the period January 1990 through March 2017. Similar analyses performed by ACTA are referenced in Appendix D.

2. SITE LOCATION

Figure 2-1[1] shows the Claremont Commons site, which is located at the northwest corner of West Foothill Blvd and Monte Vista on the boundary between the City of Claremont and the City of Upland. A portion of the site is within the Upland city limits with the remaining portion within the City of Claremont. Figure 2-2[2] outlines the plan to build approximately 104 single-family dwellings on the site. Figure 2-3[3] shows the location of the site in relation to the Cable Airport runways.



Figure 2-1. Claremont Commons Site – Claremont-Upland, California

[1] Source: "Claremont Commons", Lat: 34,106825, Long: -117.699022". **Google Earth**. March 24,2015, August 13, 2015.
[2] Provided by Claremont Commons
[3] Source: "Claremont Commons", Lat: 34,106825, Long: -117.699022". **Google Earth**. March 24,2015, August 13, 2015



Figure 2-2. Claremont Commons Specific Plan Site



Figure 2-3. Claremont Commons Site and the Cable Airport Runway

3. CABLE AIRPORT OPERATIONS

Operations data is used to determine the accident rate for an airport based on the historical record. An estimate of the number of operations is listed for Cable Airport for the years 1990 through 2017 by the FAA Terminal Area Forecast (TAF). This information is provided in Table 3-1. The Cable Airport Master Plan contested the credibility of these numbers due to their high estimates. A new estimate was provided in the Master Plan for 2009 along with forecasted operation for the years 2015, 2020, and 2030. ACTA assessed these operations estimates for 1990 to 2017 to determine their validity.

3.1 Number of Annual Operations by Aircraft Type

Operations data and accident data are used to compute accident rates. Operations data is provided for the years 1990 through 2017 in Table 3-1 based on the FAA TAF. Other estimates are provided by the Southern California Association of Governments (SCAG), and the California Aviation System Plan (CASP): all show similar numbers. Cable Airport is a private, non-towered airport, which operates with low to moderate activity. After 1993, Airport operations were limited to General/Civil Aviation use, which may explain why operations are shown to decrease beginning in 1994 [1].

Operations data is generally reported using FAA Forms 5010-1 [1], which may be based on prior forecasts. Forecasts are generally high [5], which may be the source of the high FAA values. No evidence was found to support the FAA TAF operations information. Additionally, for non-towered airports, numbers of operations are often repeated over subsequent years on FAA Forms 5010-1 [1]. The 2015 Cable Airport Master Plan estimated a greatly reduced number of operations for 2009 based on observations than those specified on FAA Form 5010-1. The Master Plan determined an average of 110 operations per day, which is less than half of that specified in the TAF. The Master Plan 2009 assessment, identified in Table 3-2, projected the number of operations for 2010 through 2015. The Master Plan values are believed to be more representative of Cable Airport operations.

Table 3-1. FAA TAF Estimate of Cable Airport Annual Operations [2]

Year	Itinerant				Local			Total Operations
	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
1990	600	21,150	250	22,000	118,000	0	118,000	140,000
1991	0	22,000	250	22,250	118,000	0	118,000	140,250
1992	0	22,000	250	22,250	118,000	0	118,000	140,250
1993	0	22,000	250	22,250	118,000	0	118,000	140,250
1994	0	17,600	0	17,600	70,400	0	70,400	88,000
1995	0	17,600	0	17,600	70,400	0	70,400	88,000
1996	0	17,600	0	17,600	70,400	0	70,400	88,000
1997	0	17,600	0	17,600	70,400	0	70,400	88,000
1998	0	17,600	0	17,600	70,400	0	70,400	88,000
1999	0	17,600	0	17,600	70,400	0	70,400	88,000
2000	0	17,600	0	17,600	70,400	0	70,400	88,000
2001	0	17,600	0	17,600	70,400	0	70,400	88,000
2002	0	17,600	0	17,600	70,400	0	70,400	88,000
2003	0	17,600	0	17,600	70,400	0	70,400	88,000
2004	0	17,600	0	17,600	70,400	0	70,400	88,000
2005	0	18,438	0	18,438	73,751	0	73,751	92,189
2006	0	18,438	0	18,438	73,751	0	73,751	92,189
2007	0	18,438	0	18,438	73,751	0	73,751	92,189
2008	0	18,438	0	18,438	73,751	0	73,751	92,189
2009	0	18,438	0	18,438	73,751	0	73,751	92,189
2010	0	18,438	0	18,438	73,751	0	73,751	92,189
2011	0	18,438	0	18,438	73,751	0	73,751	92,189
2012	0	18,438	0	18,438	73,751	0	73,751	92,189
2013	0	18,438	0	18,438	73,751	0	73,751	92,189
2014	0	18,438	0	18,438	73,751	0	73,751	92,189
2015	0	18,438	0	18,438	73,751	0	73,751	92,189
2016	0	18,438	0	18,438	73,751	0	73,751	92,189
2017	0	18,438	0	18,438	73,751	0	73,751	92,189

Table 3-2. Cable Airport Master Plan Estimate of Operations, 2009 – 2015 [1]

Year	Itinerant				Local			Total Operations
	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	
2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	41,000
2010	0	8,770	0	8,770	35,080	0	35,080	43,850
2015	0	11,620	0	11,620	46,480	0	46,480	58,100

A discussion with Cable Airport staff [4] indicated that the number of annual operations could be as low as 60 operations per day. The variability in operations information prompted ACTA to conduct a two-day evaluation to count landings and takeoffs for a full 12-hour *Daytime* period (7am to 7pm). An interview with Airport staff provided additional operations data for weekends. This data for weekends from February 12 to March 12 and ACTA counts for Friday March 17 and Saturday March 18 are presented in Table 3-3. This information indicated that the current number of annual operations may be around 46,000 based on an average of 126 operations per day for the period evaluated. These findings are evidence that the short-term projections from the Master Plan are more reasonable than those reported by the FAA TAF.

Table 3-3. Collected Daily Operations Data - Cable Airports

Day		Takeoffs	Landings	All Operations	Conditions
Saturday	February 11	Unknown	Unknown	78	
Sunday	February 12	Unknown	Unknown	178	
Saturday	February 18	Unknown	Unknown	77	
Sunday	February 19	Unknown	Unknown	62	
Saturday	February 25	Unknown	Unknown	151	
Sunday	February 26	Unknown	Unknown	26	Rainy
Saturday	March 4	Unknown	Unknown	202	
Sunday	March 5	Unknown	Unknown	62	Foggy
Saturday	March 11	Unknown	Unknown	180	
Sunday	March 12	Unknown	Unknown	145	
Friday*	March 17	81	87	168	Clear; low winds
Saturday*	March 18	87	94	181	Clear; low winds
**Counts found by ACTA*		**Weekend Average**		**122.00**	
		Overall Average		**125.83**	

[4] ACTA call with Cable Airport Staff on January 9, 2017

Annual operations data reported for the State of California [3] were used to identify the general trend of operations since 1990. Additionally, local data, which considered all towered airports within a 20 nautical-mile radius of Cable Airport were analyzed to provide operational trends. The airports in the local area include: Brackett, Chino, Riverside, and El Monte. Operational rates versus time for the State of California and for local area were determined prior to and after 2009 in Figure 3-1 and Figure 3-2, respectively. The number of total annual operations in 2009 for the state level and the local level serve as the y-intercepts in the best-fit equation presented. The exponential equation models the annual number of operations by plugging in the number of years from the base year (2009) in for *x* to solve for *y*.

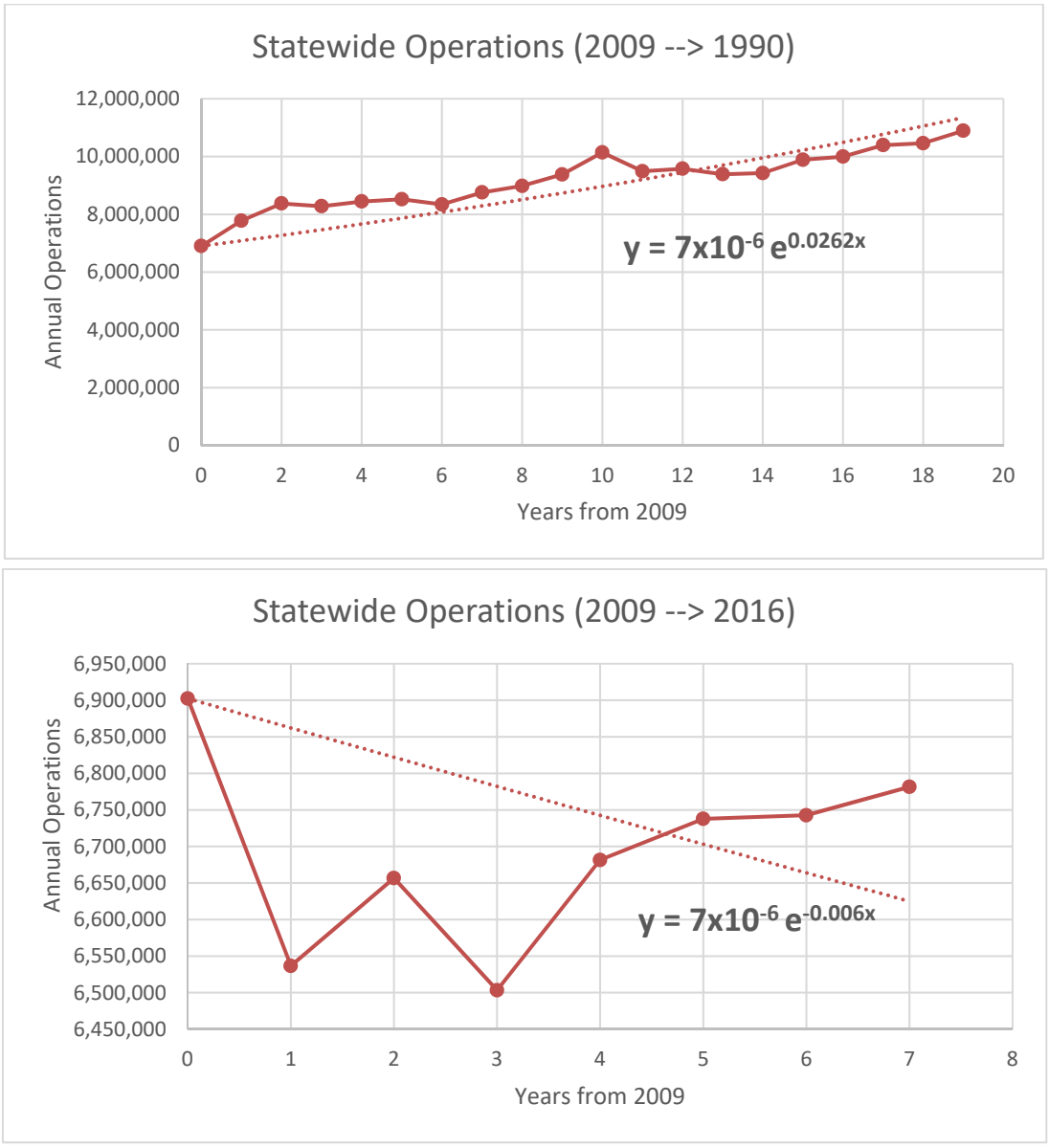
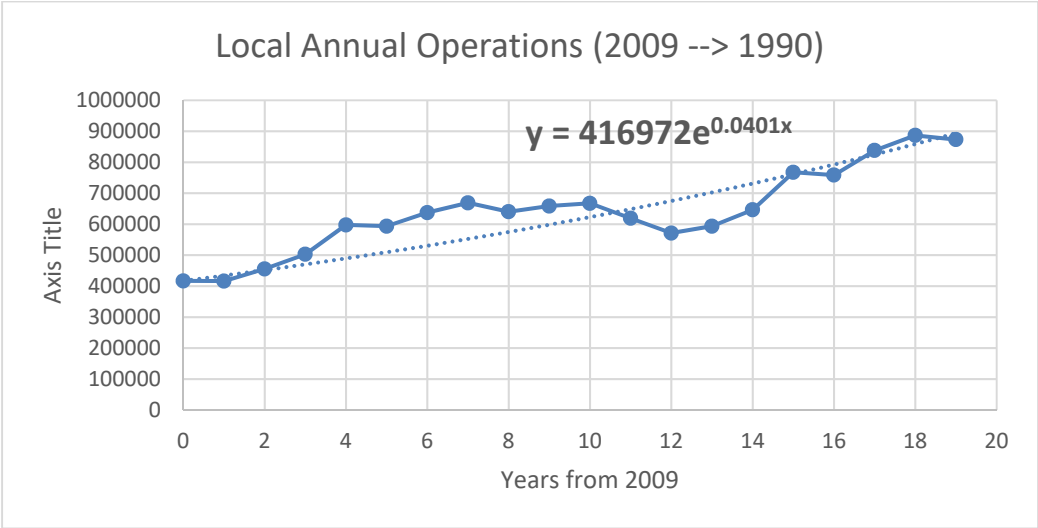


Figure 3-1. California Operations Trend



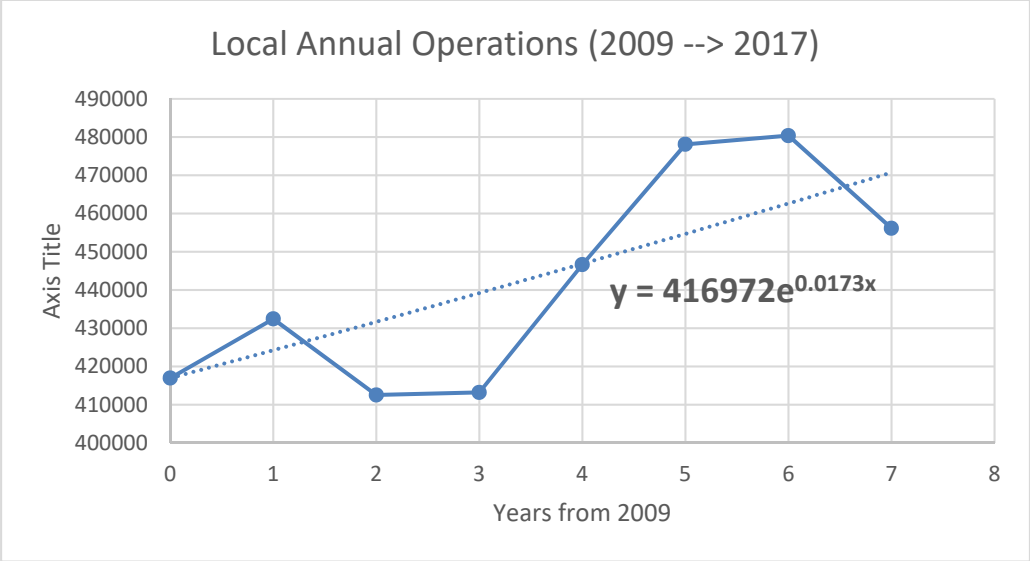


Figure 3-2. Local Number of Operations Trend

The rates determined from the best-fit model are shown in Table 3-4. An estimate of the number of operations from 1990 to 2017 can be found by applying these rates to the number of operations for 2009 found in the Master Plan, which is 41,000. The annual operations by year for California and the local area are shown in Table 3-5 using the base value of 41,000 in 2009 and projecting forward and backward using the forward and backward rates.

Table 3-4. Rate of Increase/Decline in Annual Number of Operations

Rate Direction	Statewide	Local
Backward rate (2009 --> 1990):	2.62%	4.01%
Forward rate (2009 --> 2017):	-0.06%	1.73%

Table 3-5. ACTA Estimates of Annual Cable Airport Operations Using Statewide and Local Growth Rates

Year	Cable Airport Annual Operations		Years from Base Year
	Application of Statewide Growth Rate	Application of Local Growth Rate	
1990	67449	87836	19
1991	65705	84384	18
1992	64006	81067	17
1993	62351	77880	16
1994	60738	74819	15
1995	59167	71878	14
1996	57637	69053	13
1997	56147	66339	12
1998	54695	63731	11
1999	53281	61226	10
2000	51903	58819	9
2001	50561	56507	8
2002	49253	54286	7
2003	47979	52152	6
2004	46739	50103	5
2005	45530	48133	4
2006	44353	46241	3
2007	43206	44424	2
2008	42088	42678	1
2009	41000	41000	**Base Year**
2010	40755	41715	1
2011	40511	42443	2
2012	40269	43184	3
2013	40028	43938	4
2014	39788	44704	5
2015	39550	45485	6
2016	39314	46278	7
Total Operations up to Jan 1, 2017	1344001	1540304	NA
2017	39078	47086	8

ACTA considers the local estimate to be more appropriate for use in this calculation as it assumes a positive forward trend, which is understood to be more indicative of the Cable Airport operations. This differs from the statewide trend which indicates a negative trend. Additionally, the local trend indicates 47,086 annual operations for 2017 in Table 3-5 which is very similar to the current ACTA estimate of 46,000.

The estimated number of operations for 2017 by aircraft takeoff weight is provided in Table 3-6. Helicopters using the Airport are considered to have a median gross takeoff weight between 3,500 to 5,000 pounds. The category "Other" may contain Ultralights which have gross takeoff weights less than 500 pounds. It is not clear what else may be included in the "Other" category. More than 90% of operations in 2017 consisted of single-engine aircraft.

Table 3-6. ACTA Estimated Number of Operations at Cable Airport by Aircraft Gross Takeoff Weight for 2017

Aircraft Type	Aircraft Takeoff Weight (lbs)	Total	Percent
Single-Engine	< 3,500	43,366	92.10%
Multi-Engine	> 3,500 to < 7,500	2,731	5.80%
Jet Aircraft	7,500 to < 12,500	141	0.30%
Helicopters	< 5,000	471	1.00%
Other	< 500	377	0.80%
Total		**47,086**	**100%**

3.2 Number of Annual Operations by Runway

Information about runway usage is necessary in determining likely impact location. The Airport uses Runway 24 for 85% [5] to 97% [6] of all operations. Runway 6 is used for the remaining 3% to 15% of operations, usually when the Santa Ana winds take effect [6]. An approximate average ratio of 90/10 was selected for estimating Runway 24/6 usage. The resulting breakdown of aircraft arrivals and departures by aircraft weight is provided in Table 3-7 for 2017, which is considered to apply for all years.

[5] Provided by reference [1]
[6] Provided by experience/observation from Cable Airport (Stephen Dunn) by email on August 18, 2014

Table 3-7. ACTA Estimated Cable Airport Operations by Runway Designation for 2017

Aircraft Gross Takeoff Weight (lbs)	Number of Operations			
	Arrivals		Departures	
	Total	Percent	Total	Percent
Runway 6 (10%)	**2354**	**5.00%**	**2354**	**5.00%**
< 3,500	2168	4.61%	2168	4.61%
> 3,500 to < 7,500	137	0.29%	137	0.29%
7,500 to 12,500	7	0.02%	7	0.02%
Helicopters (< 3,500)	24	0.05%	24	0.05%
Other	19	0.04%	19	0.04%
Runway 24 (90%)	**21189**	**45.00%**	**21189**	**45.00%**
< 3,500	19515	41.45%	19515	41.45%
> 3,500 to < 7,500	1229	2.61%	1229	2.61%
7,500 to 12,500	64	0.14%	64	0.14%
Helicopters (< 3,500)	212	0.45%	212	0.45%
Other	170	0.36%	170	0.36%
Total all Operations	23,543	50.00%	23,543	50.00%

4. CABLE AIRPORT ACCIDENT HISTORY

ACTA collected and reviewed all accident reports gathered from the National Transportation Safety Board (NTSB) [4] for accidents occurring near Cable Airport. A total of 22 accidents attributable to Cable Airport operations, occurred from 1990 through 2017, Table 4-1. A variation in makes and models are included in this table ranging from 550-pound to 7500-pound aircraft. Single and dual engine aircraft accidents occurred in addition to one turbojet accident (No. 9) and one helicopter accident (No. 8).

A few accidents are considered to be extraneous to the risk of impact to a site in the Airport vicinity. Accident number 3, for example, was a controlled hard-impact landing on the runway and as such, this type of accident is not threatening to the surrounding area. A number of other on-runway impacts could have occurred off-runway and so were included in the accident count. Additionally, accident numbers 1, 18, 19, and 20 occurred during the cruise phase of flight and/or distant from the Airport and are considered irrelevant to the computation of property impact risk.

After analysis of the accident list, a total of 17 accidents were considered relevant to the computation of an accident rate relevant to the properties surrounding the Airport. Seven of these occurred during a departure operation (takeoff and climb) and eight occurred during the arrival phase of operation (approach, descent and landing). One accident occurred in the maneuvering phase and one accident could not be categorized by flight phase. These two accidents may be relevant to the elevated risk near the Airport and so are included in the study accident rate. ACTA collected information from accidents reports [4] and news articles to identify the approximate locations of the accidents, which is presented in Figure 4-1 and described in Table 4-2. In the history of the accidents at Cable Airport, there were no ground injuries reported associated with these accidents.

Table 4-1. Aircraft Accidents Attributed to Cable Airport (January 1990 to March 2017)

No.	Accident Number	Event Date	Make-Model	Number of Engines	Engine Type	Injured - Uninjured	Broad Phase of Flight
1*	WPR17FA025	11/22/2016	PIPER PA 28-181	1	Recip	1-0	Climb
2	GAA15CA006	03/05/2015	CHAMPION 7EC	1	Recip	0-2	Landing
3*	WPR14CA039	11/01/2013	YUNEEC YUNEEC	1	Electric	0-2	Landing
4	WPR12CA352	08/12/2012	CESSNA 180	1	Recip	0-1	Landing
5	WPR09CA465	09/25/2009	CESSNA 195A	1	Recip	0-1	Takeoff
6	LAX07LA186	06/04/2007	Piper PA-34-200	2	Recip	3-0	Approach
7	SEA07LA066	02/24/2007	Scherer Europa	1	Recip	0-2	Takeoff
8	LAX07LA005	10/08/2006	Robinson R22 Beta	1	Recip	0-2	Takeoff
9	LAX06FA211	06/24/2006	Cessna 560	2	Jet	3-0	Landing
10	LAX06CA013	10/19/2005	Piper PA-23-160	1	Recip	1-2	Landing
11	LAX04CA298	08/20/2004	Berry Hatz CB-1	1	Recip	0-1	Landing
12	LAX04LA124	02/13/2004	Cessna 172N	1	Recip	2-1	Takeoff
13	LAX04FA066	12/14/2003	Cessna 421C	2	Recip	1-0	Approach
14	LAX00LA214	06/03/2000	Mooney M20F	1	Recip	1-3	Takeoff
15	LAX00LA068	01/08/2000	Clark PITTS S1X	1	Recip	1-0	Maneuvering
16	LAX99LA035	11/19/1998	Mooney M20F	1	Recip	2-0	Takeoff
17	LAX96LA143	03/23/1996	Cessna 172	1	Recip	1-0	Takeoff
18*	LAX95FA340	12/31/1994	CESSNA 182B	1	Recip	1-0	Cruise
19*	LAX92FA164	04/04/1992	CESSNA 172N	1	Recip	2-0	Maneuvering
20*	LAX91FA044	11/25/1990	CESSNA T210-F	1	Recip	1-0	Cruise
21	LAX90DUG10	09/24/1990	ELY THORP T-18	1	Recip	2-0	Unknown
22	LAX90LA239	07/01/1990	CESSNA 152	1	Recip	0-1	Landing

*Not indicative of heightened risk near airport due to nature or proximity of accident and not considered in accident rate



Figure 4-1. Locations of Plane Crashes Related to Cable Airport since 1990

Table 4-2. Description of Accident History for Cable Airport

Accident Number	Impact Location	Total on Plane	Minor Injuries	Serious Injuries	Fatalities	Injured on Ground	Phase of Flight	Notes
1	Mountains	1	0	0	1	0	Climb	Unknown; lost signal
2	Runway	2	0	0	0	0	Landing	touch-and-go; overcorrection
3	Runway	2	0	0	0	0	Landing	hard landing; came in too high
4	Runway	1	0	0	0	0	Landing	poor tracking; landed in fence to left of runway
5	Runway	1	0	0	0	0	Takeoff	loss of directional control; nosed over
6	House	3	2	1	0	0	Approach	touch-and-go; landed on house
7	Runway	2	0	0	0	0	Takeoff	loss of power; hit berm
8	Gravel Pit	2	0	2	0	0	Climb	Instructional flight; loss of power
9	Embankment	3	0	2	1	0	Landing	runway overrun; hit obstacles
10	Runway	3	1	0	0	0	Landing	veered right after touchdown; impacted car
11	Runway	1	0	0	0	0	Landing	veered right after touchdown; impacted hangar
12	Runway	3	2	0	0	0	Takeoff	power loss; attempted to stop at end of runway
13	House	1	0	0	1	0	Approach	missed approach
14	Runway	4	1	0	0	0	Takeoff	door opened distracting pilot; runs off runway
15	Rock Quarry	1	0	0	1	0	Maneuvering	maneuver during airshow
16	Runway	2	1	1	0	0	Takeoff	forced landing after loss of power during takeoff
17	Rock Quarry	1	0	1	0	0	Takeoff	forced landing after loss of power during takeoff
18	Mountains	1	0	0	1	0	Cruise	failure to maintain altitude near mountains
19	Mountains	2	0	2	0	0	Maneuvering	lost pilot; low visibility
20	Mountains	1	0	0	1	0	Cruise	low visibility
21	Unknown	2	0	0	2	0	Unknown	loss of control
22	Runway	1	0	0	0	0	Landing	hard landing; nose gear collided with pavement

5. AIRCRAFT ACCIDENT RATES

The operations data from Section 3 and the accident history from Section 4 are used to compute an accident rate per operation for each aircraft size category. These rates are computed by dividing the number of accidents in a given time period by the number of operations in the same time period, which is the period from January 1990 and January 2017. Accident rates can be calculated for arrivals and departures. In the present case, the accident data is too sparse to utilize accident rates by arrival and departure for each aircraft size category and given the accident history available, a single accident rate is used for takeoff and landing.

Table 5-1 provides the accident rates for each aircraft size for the period 1990 through 2017. There were 17 relevant accidents during the period January 1, 1990 up through January 1, 2017. The accident record was sufficient to compute an accident rate for single-engine and helicopters/other) and medium (multi-engine and jet engine) weight aircraft. The results are based on an estimated total of 1,540,304 airport operations in the time-period January 1, 1990 through December 31, 2016.

The accident rate for single-engine aircraft and helicopters is calculated as 9.68×10^{-6} per operation, which is about 10 accidents in one million operations. The multi-engine and jet aircraft category accident rate computes to 3.19×10^{-5} per operation, or about 32 accidents in one million operations.

Table 5-1. Aircraft Accident Rates per Operation, Cable Airport, 1990-2016

Quantity	Single-Engine and Helicopters	Multi and Jet Engine	All
Arrival Accidents	5	3	8
Departure Accidents	7	0	7
Other Accidents	2	0	2
Total Accidents	14	3	17
Number of Arrivals	723173	46979	770152
Number of Departures	723173	46979	770152
Total Operations	1446345	93959	1540304
Total Accident Rate	**9.68×10^{-6}**	**3.19×10^{-5}**	**1.10×10^{-5}**

6. DISTRIBUTION OF ACCIDENTS

The distribution of accidents in the vicinity of an airfield can be described according to a downrange distance impact distribution and a cross-range distance impact distribution. Downrange distance is measured along the runway centerline from a specific location on the runway and cross-range distance is measured from, and perpendicular to, the runway centerline. From a downrange perspective, the distribution of accidents is generally highest at locations near to the end of the runway. From a cross-range perspective, the highest concentration of accidents generally occurs close to the extended runway centerline.

6.1 Probability of Impact Given an Accident Occurrence

Accident location data specific to the Airport is not available to determine probabilistic impact location with reasonable accuracy. Instead, data was obtained from the California Airport Land Use Planning Handbook [2]. This handbook provides distributions for general aviation accidents based on research conducted by the Institute of Transportation Studies of the University of California, Berkeley, in 2002. This document was updated in a 2011 release. The study was not updated in the 2011 version of the document. The work defined a database that encompasses accidents that occurred in all 50 states and covered the time period from 1983 into 1992. The database contains a total of 873 accidents, including both arrivals and departures.

Figures from the handbook [2] demonstrating probabilistic impact locations around an airport are reproduced here in Figure 6-1 and Figure 6-2 for arrivals and departures, respectively. The two figures show the location of accidents with respect to the landing and departure ends of runways for runways less than 4,000 feet long. A model was built from this data to determine the probability of impact, given that an accident occurs.

The pooled accident data for arrivals and departures was used to develop stochastic (probabilistic) models. The data are referred to as pooled because they are aggregated over different airports and accumulated over a period of time. The stochastic models were used to, in effect, estimate empirical confidence limits. These confidence limits provide the basis for estimating the probability of future accidents within a defined area in the vicinity of the existing accident data. The probability estimates are conditioned on the data and assume it was perfectly observed. The stochastic model produced in each case is non-parametric. This means that regardless of the spatial distribution of the accident data, the probabilities that are calculated from the stochastic model will be greatest in the vicinity of accident "clusters." The stochastic model is based on a Markov Chain Monte Carlo (MCMC) technique that is described in [7]. The following discussion is intended as a general outline.

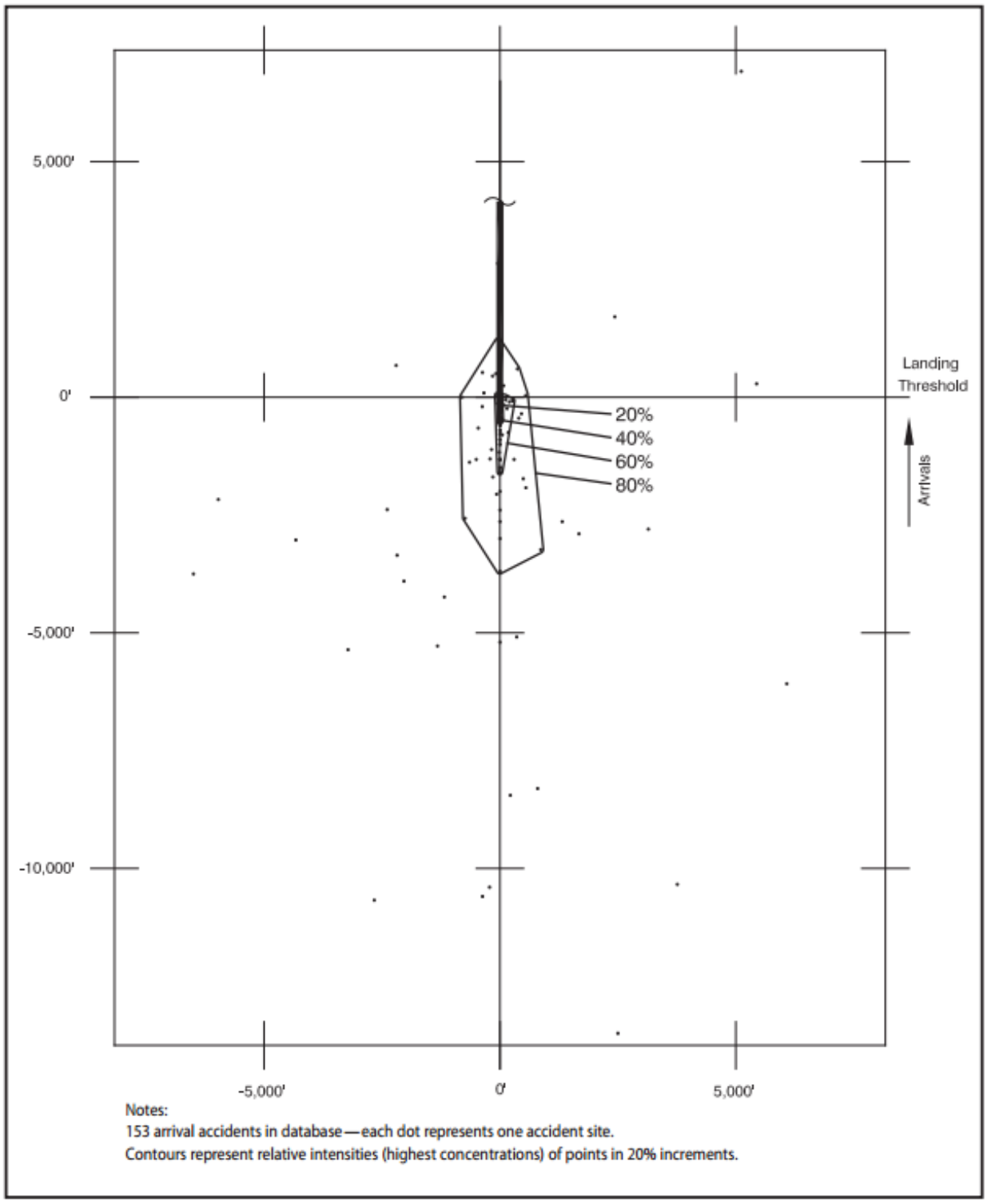


Figure 6-1. General Aviation Accident Distribution Contours of Arrival Accidents For Runways less than 4,000 feet [2]

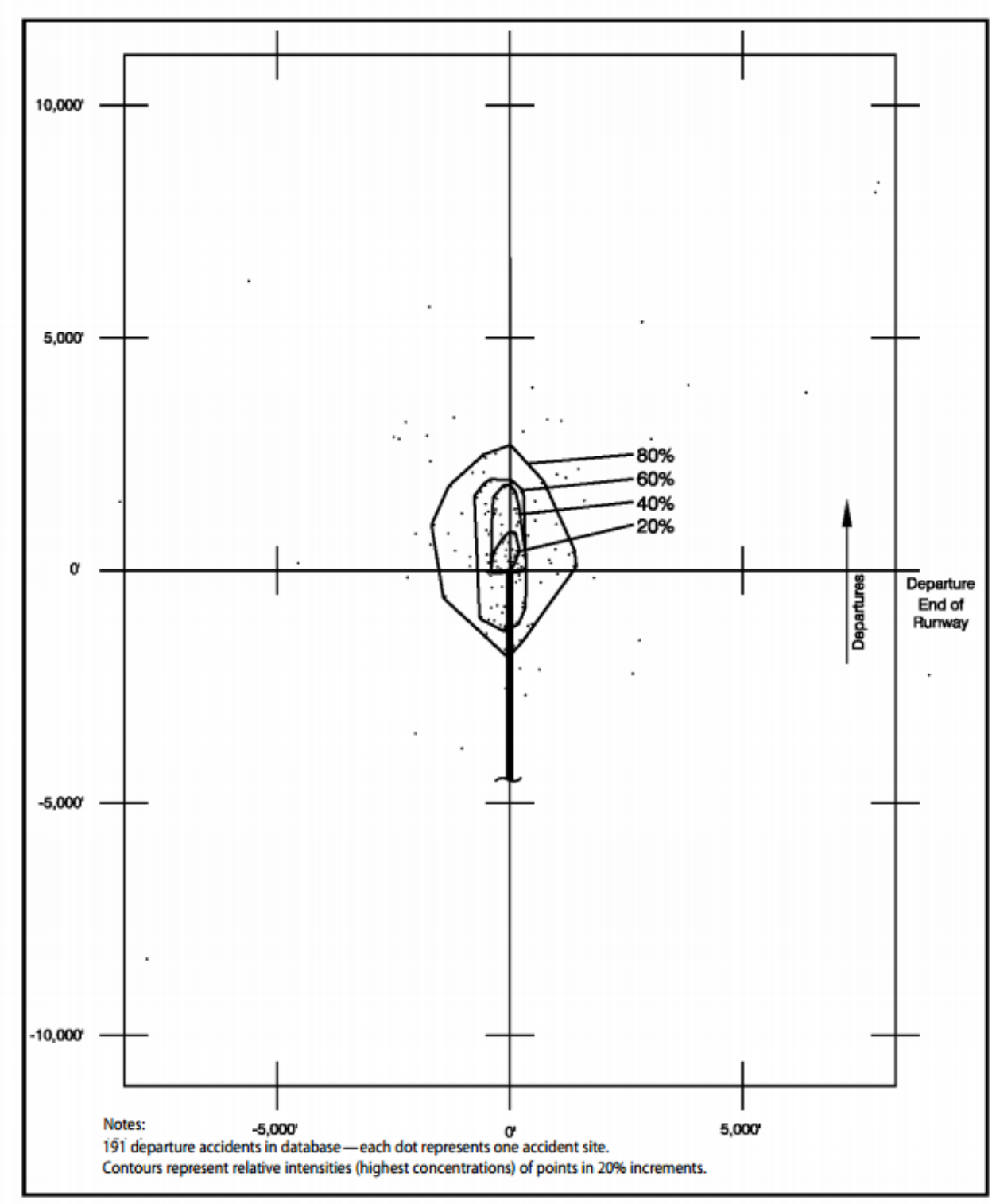


Figure 6-2. General Aviation Accident Distribution Contours of Departure Accidents For Runways less than 4,000 feet [2]

The MCMC methodology consists of: 1) constructing a surrogate random process for the accident data; 2) setting up a random walk in the space of the surrogate random process, and 3) ensuring that the walk traverses the posterior density in a finite time (finite number of steps) via Metropolis-Hastings acceptance testing. The last step is the "Markov Chain" aspect of the methodology, in that state-transition probabilities are calculated and used during this step.

The first step requires transforming the observed random process to a better structured probabilistic space. This is done using a Karhunen-Loeve transformation. The resulting space is one of uncorrelated standard normal random variables. This probabilistic space is also one in which a random walk is easy to construct, which is the second step of the method. Although a random walk is easy to construct, there is no guarantee that results belong to the probabilistic description empirically described by the airport crash data (the source random process). The third step addresses this issue by "guiding" the random walk using likelihood ratios calculated from proposed random steps and an empirical density description based on kernel density estimators. The final step ensures that the results from the walk are probabilistically indistinguishable from the source random process, even though they are serially correlated.

Once a stochastic model for a particular accident data set is constructed, the procedure used to estimate accident probabilities in a finite region, A_{new}, is to sample from the stochastic model many times. This is the Monte Carlo aspect of the MCMC methodology. (The Markov Chain aspect yields an efficient and usable algorithm.) For regions of interest in the vicinity of the existing accident data, the number of samples used was 30000. Accident probability, conditioned on the area is then given directly by,

$$\Pr(Accident \mid A_{new}) = \frac{number\ of\ \ samples\ inside\ A_{new}}{total\ number\ of\ \ samples}$$

Because the data on which the stochastic models were based were pooled, accident observations incompatible with a particular airport are conceivable. An issue such as this would require detailed investigation of the catalogued data as well as intimate knowledge of the particular airport in question. Such issues, of course, transcend any particular stochastic modeling procedure or statistical analysis.

Because the sets of data on which the stochastic models were based are finite in size (roughly 100-150 accidents per set), azimuthal asymmetries and multi-modal characteristics are evident, even pronounced in some cases. However these features are consistent with the empirical descriptions of the accident spatial distributions, as observed. The incorporation of additional prior information should be decided on a case-by-case basis.

A computer program was prepared from the model which enables the computation of the conditional probability of impact to a specific location, defined by its downrange and cross-range coordinates in feet from a reference location. For arrival accidents, the reference location is the landing threshold of the runway and for departures it is the departure end of the runway. Figure 6-3 provides the results of many thousands of random samples of impact location, typical for departure accidents, using the model for comparison with the contours provided in the California Airport Land Use Planning Handbook of January 2011[2]. The results appear to be reasonable.

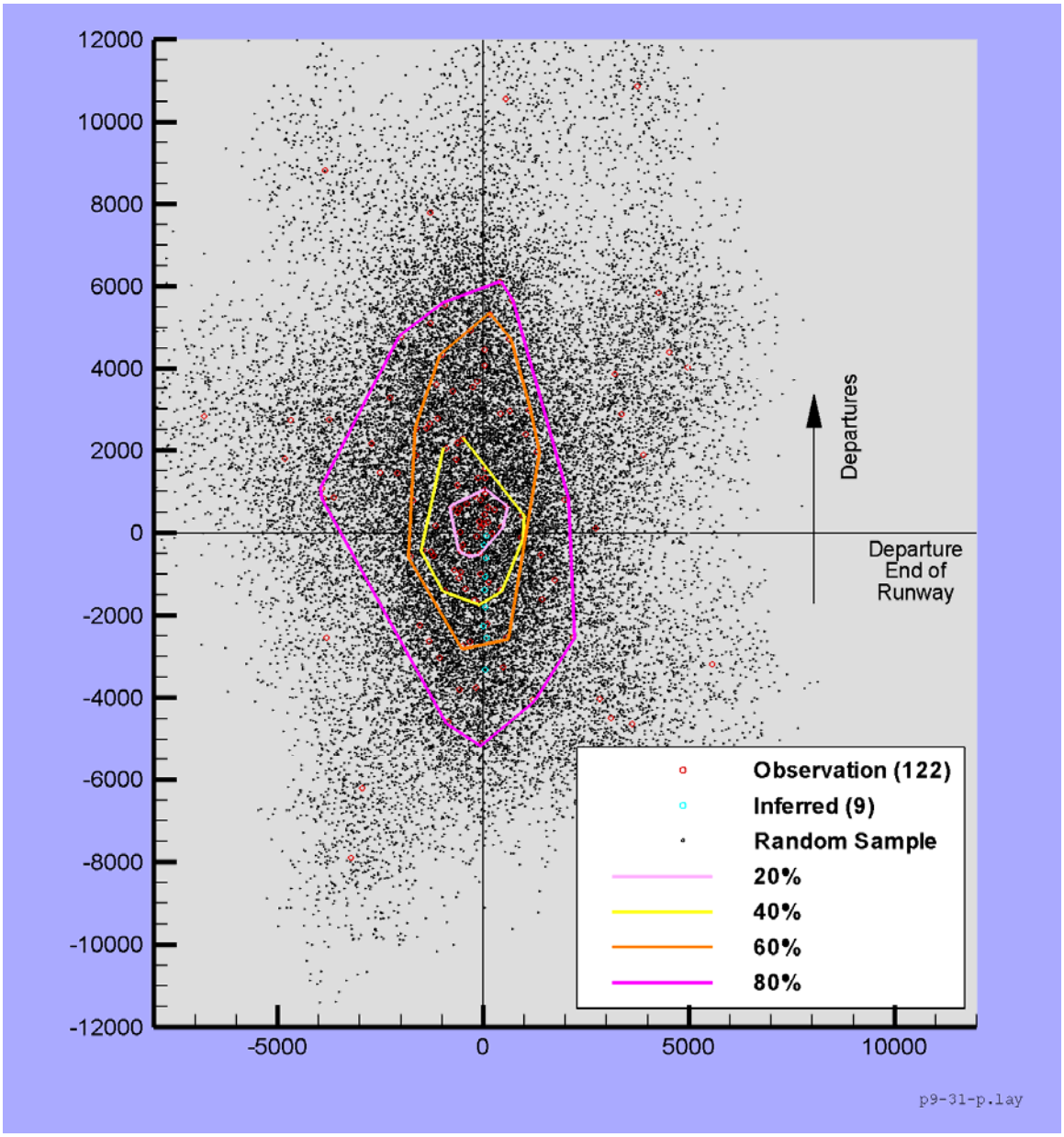


Figure 6-3. Typical Impact Scatter Plot for Aircraft Departure Accidents

7. PROPERTY IMPACT PROBABILITIES

Impact probabilities can be expressed with respect to a variety of bases, such as per operation, per unit of time, or others. Here, they are computed as the probability of impact per year. The reciprocal is the return period, which is the number of years expected, on average, between impacts. The probability of impact per year is computed follows:

$$P(I) = P(A) * P(IL \mid A) * N$$

where,

P(A)	= probability of an accident per operation
P(IL|A)	= probability of impact to a specific location given an accident
N	= number of operations per year

P(IL|A) is computed using the model described in Section 6.1.
P(A) is provided in Table 5.1
N is provided in Table 3-6 and Table 3-7

Different aircraft sizes will yield different debris footprints on impact and so it necessary to compute impact probabilities for each type of aircraft that use the airport. Debris will generally be scattered over a larger area for heavier aircraft and so the potential for building impact will be greater. In determining the impact footprint area, the potential for impact from non-direct hits must be included. The size of the impact footprints for different aircraft sizes was determined from US Air Force data for fixed-wing aircraft [8].

An impact area of 1 acre was used as the size of the possible impact footprint for small fixed wing aircraft (single-engine) and helicopters. The impact footprint for aircraft with weights ranging from 3,500 pounds to 7,500 pounds is considered to be 2 acres and the impact footprint for aircraft with maximum takeoff weight between 7,500 pounds and 15,000 pounds is considered to be 3 acres. These impact areas by aircraft size are reflected in Table 7-1.

Table 7-1. Debris Field Dimensions Corresponding to Maximum Aircraft Takeoff Weight

Maximum Aircraft Takeoff Weight (lbs)	Debris Field Size (Acres)	Downrange Dimension (ft)	Cross Range Dimension (ft)
< 500	0.5	255	85
< 3,500	1.0	360	120
> 3,500 to < 7,500	2.0	510	170
7,500 to 15,000	3.0	624	208

Figure 2-3 shows the location of the Claremont Commons site in relation to the Airport runway. The building with the highest potential likelihood of aircraft debris impact on the Claremont Commons site is in the Upland city limits and is identified as building 1 in Figure 7-1. Building 2 is the building with the highest likelihood of debris impact within the Claremont city limits. The red dots indicate the point with the highest likelihood of impact on the buildings. The figure outlines the areas in which a 1-acre debris field encompasses the worst point (red dot) on the building. The debris fields will be referred to as *Locales*. A scaled map of this figure was used to determine the coordinate distances from the runway arrival and departure locations for exposure of the building based on 1-acre, 2-acre and 3-acre debris field. The momentum of an aircraft on impact is assumed to carry the debris three times further in the direction of the travel than in a cross-wise direction. This is reflected in the dimensions included in Table 7-1.

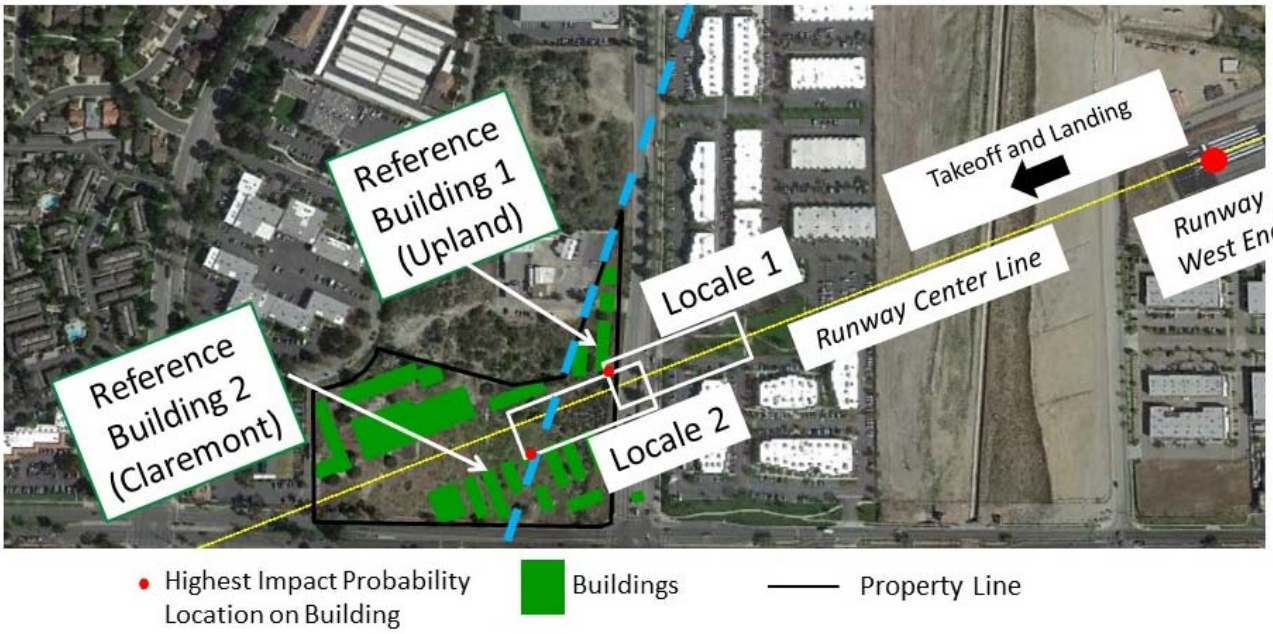


Figure 7-1. Defining Locale Coordinates Based on 1 Acre Debris Field for Reference Buildings on Claremont Commons Site

In order to compute the probabilities of impacting a site given an accident, the impact probability code requires input of the downrange and cross range coordinate locations of the impact locations with reference to the Runway 6-24. The airport runway is 3,860 feet long [1]. Figure 7-2 is a graphic portrayal of Runway 6-24 and an example locale defined by its four corners as 1, 2, 3 and 4. The arrowed lines represent the dimensions required to obtain the downrange distance and the cross-range distance from the centerline of Runway 6.

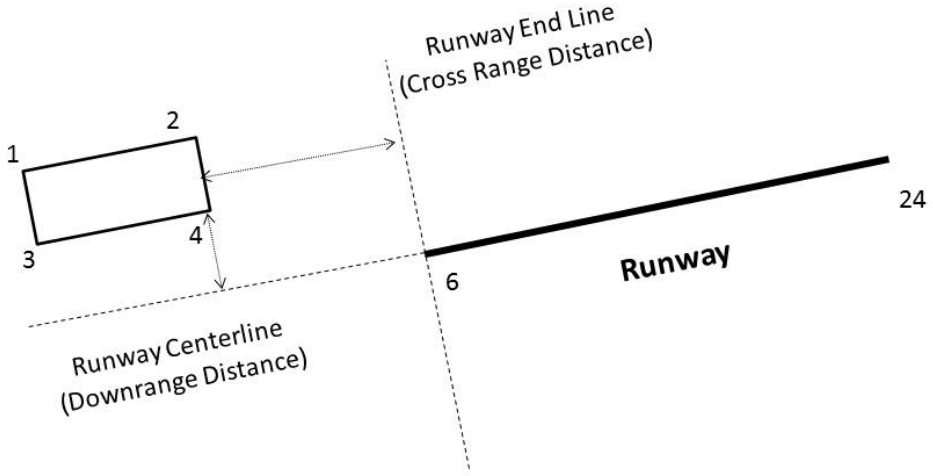


Figure 7-2. Example of Coordinate Measurements that Define Potential Impact Locations on the Site With Respect to Runway 6-24

Similarly, buildings with the highest likelihood of impact s are identified on five other sites shown in Figure 7-3. Downrange and cross range coordinates are determined for each building considering debris fields of 1, 2, and 3 acres. These sites are analyzed for risk comparisons with the Claremont Commons site. Figure 7-4, Figure 7-5, Figure 7-6, Figure 7-7, and Figure 7-8 identify the buildings and corresponding 1-acre debris fields that present the highest risk potential associated with other sites.



Figure 7-3. Properties on which impact probabilities were computed

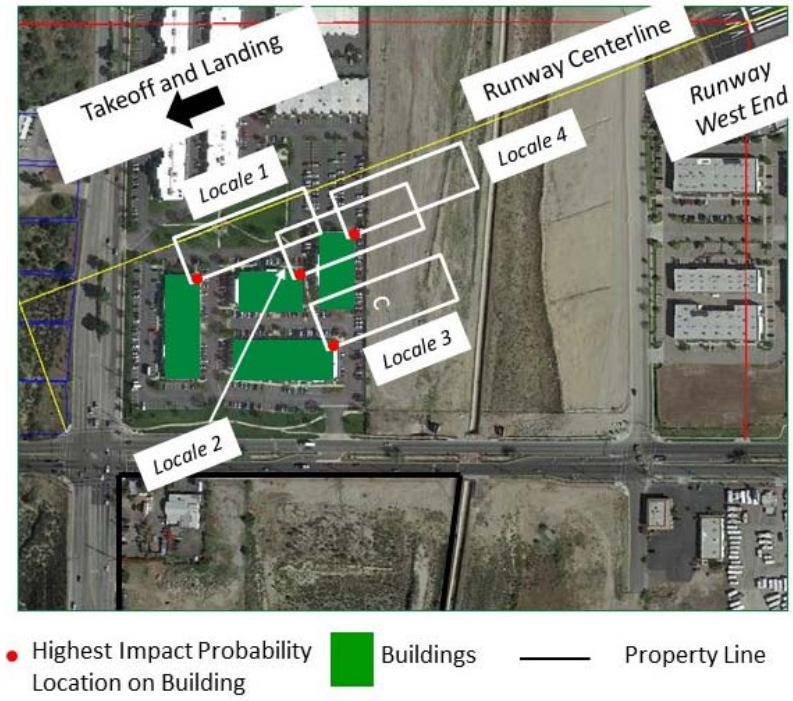


Figure 7-4. Reference Buildings and Locales 1-4 for Site 1

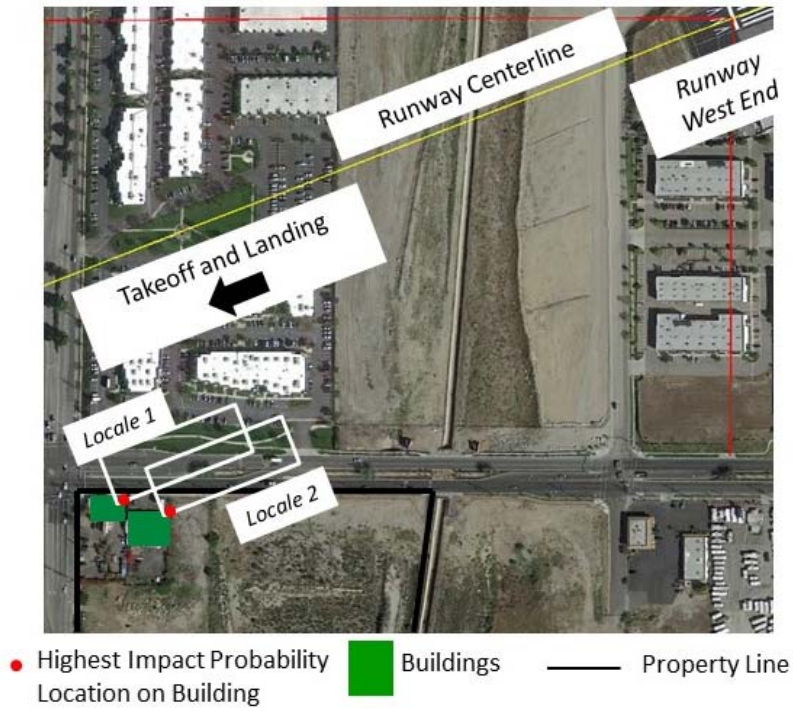


Figure 7-5. Reference Buildings and Locales 1 and 2 for Site 2

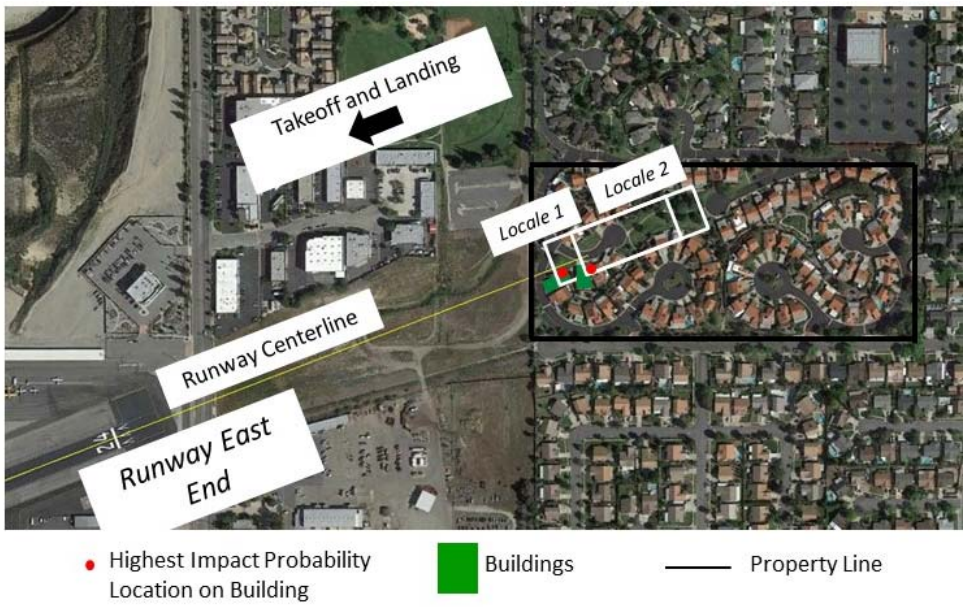


Figure 7-6. Reference Building and Locale 1 and Locale 2 for Site 3

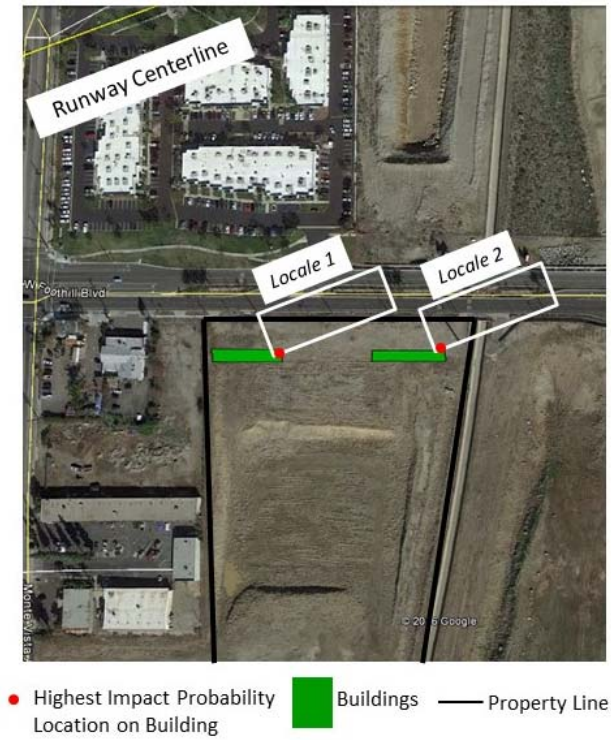


Figure 7-7. Reference Building and Locale 1 and Locale 2 for Site 4

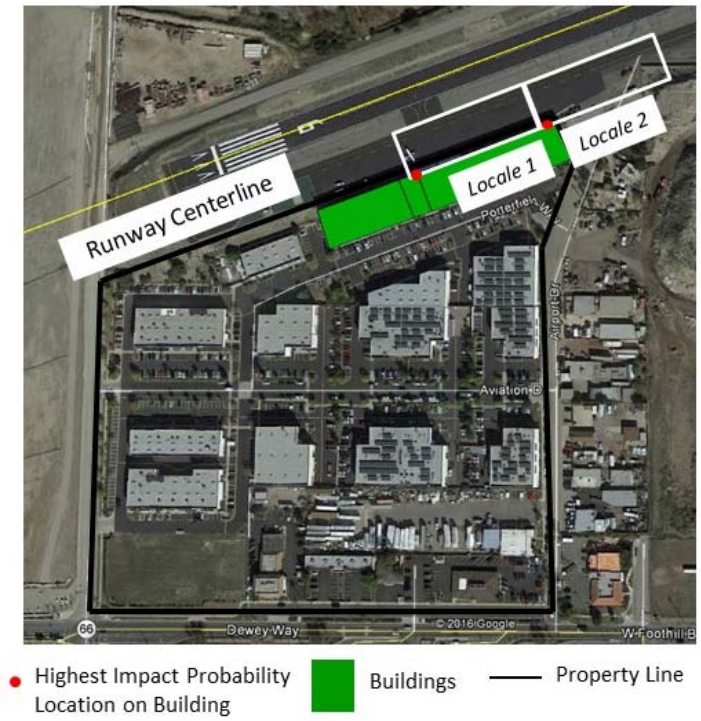


Figure 7-8. Reference Building and Locale 1 and Locale 2 for Site 5

Appendix A provides the downrange (DR) and cross range (CR) distances, from the arrival threshold of Runway 6 and Runway 24 for each location, which are designated by site number. Each impact area is defined by 1, 2, or 3-acre debris fields that can overlap the building in question. For example, a debris field of 1 acre has a width of 120 feet and length of 360 feet for a single-engine aircraft accident. Similarly, 2 and 3-acre debris fields were superimposed over a building footprint to determine coordinates that encompasses the threat of a nearby impact. The potential area of building impact exposure resulting from 1, 2, and 3 debris fields are defined as A_1, A_2 and A_3, respectively.

An impact probability analysis was conducted to estimate the probability of an impact occurring within each debris field defined if an accident was to occur. The results of the impact probability analysis for each locale are provided in Appendix B. This table provides the results for each aircraft size that could potentially impact the site, where field size is as defined in Table 7-1. The conditional weighted probabilities of impact by arrival and departure are combined with the accident rate to determine the annual likelihood of an impact on the site. Table 7-2 provides combined annual impact probabilities for each locale.

Table 7-2. Annual Probability of at Least Minor Building Impact

Site	Locale	Aircraft Weight (lbs)		
		< 3,500 (Debris Field A_1)	**≥ 3,500 to < 7,500** (Debris Field A_2)	**≥ 7,500** (Debris Field A_3)
CC	1	$1.27X10^{-4}$	$6.44X10^{-4}$	$4.47X10^{-6}$
	2	$1.40X10^{-4}$	$6.68X10^{-4}$	$4.29X10^{-6}$
1	1	$1.36X10^{-4}$	$6.78X10^{-4}$	$4.49X10^{-6}$
	2	$1.55X10^{-4}$	$6.91X10^{-4}$	$4.82X10^{-6}$
	3	$1.56X10^{-4}$	$7.33X10^{-4}$	$5.06X10^{-6}$
	4	$1.61X10^{-4}$	$7.10X10^{-4}$	$4.67X10^{-6}$
2	1	$2.99X10^{-4}$	$6.99X10^{-4}$	$4.66X10^{-6}$
	2	$1.46X10^{-4}$	$6.99X10^{-4}$	$4.70X10^{-6}$
3	1	$3.03X10^{-4}$	$1.44X10^{-3}$	$9.48X10^{-6}$
	2	$3.05X10^{-4}$	$1.42X10^{-3}$	$9.64X10^{-6}$
4	1	$1.43X10^{-4}$	$6.56X10^{-4}$	$4.37X10^{-6}$
	2	$1.42X10^{-4}$	$6.72X10^{-4}$	$4.77X10^{-6}$
5	1	$2.49X10^{-4}$	$1.20X10^{-3}$	$7.92X10^{-6}$
	2	$2.43X10^{-4}$	$1.17X10^{-3}$	$7.88X10^{-6}$

8. BUILDING OCCUPANCY

This section evaluates the expectation of occupancy for buildings within the six sites presented in the study. The occupancy information will be used to compute the risk posed to building occupants for Claremont Commons and the five other sites commercial and residential sites. The likelihood of occupancy is essential in providing reasonable estimates of casualty risk.

Claremont Commons, Site 3, and Site 4 are residential sites whereas Site 1, Site 2, and Site 5 are commercial sites. Data from the American Time Use Survey (ATUS), developed by the Bureau of Labor Statistics, was used to assess the hours on average a person spends away from home. The hours of operation for businesses was used to determine commercial occupancy likelihood. Appendix A outlines the process used to determine the expected occupancy percentages for residential dwellings and some of the commercial buildings for various times of day.

Building occupancy is broken down into three periods corresponding to operations data for the Airport: "Daytime" (7am-7pm), "Evening" (7pm-10pm), and "Night" (10pm-7am). For residential buildings, the hours that a person spends away from home are summed for weekdays and weekends. Away-from-home activities include: purchasing goods and services, caring for non-household members, work and work-related activities, attending classes, organizational activities, socializing, and participating in sports. The best estimates of away-from-home time are 6.8 hours during a weekday and 4.3 hours on weekend days. Commercial building operational hours vary from 8 hours a day on weekdays, to 24-hours a day. Appendix A provides a detailed occupancy evaluation of commercial examples.

Table 8-1 summarizes the average hours of occupancy of the highest risk buildings for each of the sites analyzed. On average, people tend to be home for 5.2 hours on weekdays during the *Daytime* and 7.7 hours during weekends. These expected at-home hours are used for both Claremont Commons and residential Site 3 and Site 4.

Table 8-1. Occupancy Statistics Summary

Location Details		Day	Average Daily Building Occupancy (hours)		
			Day	Evening	Night
			(7am-7pm)	(7pm-10pm)	(10pm -7am)
CC, Locale 1, 2	Claremont Commons	Weekday	5.2	3	9
		Weekend	7.7	3	9
Site 1, Locale 1	Hartford Escrow, Martel Interior	Weekday	8	0	0
		Weekend	0	0	0
Site 1, Locale 2	Allied Financial	Weekday	8.3	0	0
		Weekend	0	0	0
Site 1, Locale 3	Synergy Homecare	Weekday	12	3	9
		Weekend	12	3	9
Site 1, Locale 4	PARS Electrical	Weekday	9	0	0
		Weekend	0	0	0
Site 2, Locale 1	Jb's Pools and Pond	Weekday	9	0	0
		Weekend	3.5	0	0
Site 2, Locale 2	J&J Liquors	Weekday	10	3	1
		Weekend	10	2.5	1
Site 3, Locale 1	Residence (1410 West Lemonwood Drive)	Weekday	5.2	3	9
		Weekend	7.7	3	9
Site 4, Locale 1, 2	Lewis Homes	Weekday	5.2	3	9
		Weekend	7.7	3	9
Site 5, Locale 1	Pull up a Chair, Dance Studio*	Weekday	5.2	0	0
		Weekend	7.7	0	0
Site 5, Locale 2	Prestige Portraits	Weekday	5.2	0	0
		Weekend	7.7	0	0

*These hours are estimates as regular hours could not be verified

The majority of operations occur during *Daytime* hours, as indicated in the operational breakdown of Table 8-2. *Daytime* operations make up an estimated 85% of all operations with forecasts predicting this number to be potentially 90% [11]. *Evening* and *Night* operations are less common and therefore more accidents are expected to occur during the *Daytime* hours.

Table 8-2. Operation Occurrence by Time Period at Cable Airport [1], [11]

Day (7am-7pm)	Evening (7pm-10pm)	Night (10pm -7am)
85.0 – 90%	7 - 10.0%	3 - 5.0%

Table 8-3 provides the expected daily hours of occupancy corresponding to the *Daytime*, *Night* and *Evening* periods of aircraft operations. Locale 1 on Site 1 presents relatively low hours of occupancy during *Daytime* hours for a commercial building with the building occupied about 48% of that time. This is similar to the expected occupancy percentage for an average residence. The buildings on Site 2 are more representative occupancy levels of a commercial buildings, which present Daytime occupancy levels of between 57% and 62% during *Daytime* hours.

Table 8-3. Building Occupancy Over a 24-hour Period

Site	Locale	Day (hrs)	Evening (hrs)	Night (hrs)	Day (%)	Evening (%)	Night (%)
CC	1	5.91	3	9	49.25%	100.00%	100.00%
	2	5.91	3	9	49.25%	100.00%	100.00%
1	1	5.71	0	0	47.58%	0.00%	0.00%
	2	5.93	0	0	49.42%	0.00%	0.00%
	3	12	3	9	100.00%	100.00%	100.00%
	4	6.43	0	0	53.58%	0.00%	0.00%
2	1	10.0	2.86	1	83.33%	2.85%	11.11%
	2	6.85	2.57	0.85	57.08%	85.67%	9.44%
3	1	5.91	3	9	49.25%	100.00%	100.00%
	2	5.91	3	9	49.25%	100.00%	100.00%
4	1	5.91	3	9	49.25%	100.00%	100.00%
	3	5.91	3	9	49.25%	100.00%	100.00%
5	1	5.71	0	0	47.58%	0.00%	0.00%
	2	5.71	0	0	47.58%	0.00%	0.00%

9. RISK TO BUILDING OCCUPANTS

In order to determine the risk of a casualty located inside a building, the potential for structural penetration of a structure and impact to one-or-more people inside needs to be considered. Building impact is defined as anything from a minor impact of a part of an aircraft, which does not penetrate the structure, to full structural penetration.

9.1 Occupied Building Casualty Potential

Table 9-1 is a suggested severity classification for residents and property of the proposed Claremont Commons site and the comparison sites. It is typical of that used by various jurisdictions in California, and elsewhere, to classify the severity of accidents for various hazardous industrial activities.

Table 9-1. Severity Classification

Description	Definition
Catastrophic	Death or damage and other losses > $1,000,000
Severe	Multiple injuries or losses between $100,000 and $1,000,000
Moderate	A single injury or losses between $25,000 and $100,000
Negligible	No casualties or losses < $25,000

Table 9-2 provides estimates of the potential for building damage, penetration and casualties, given an aircraft impacts on or close to an occupied building. This was derived by ACTA based on its work over many years for government and commercial entities. These estimates are affected by the location of impact, a direct hit versus an impact of debris, and the velocity and size of debris. The likelihood of structural penetration increases as aircraft size and impact velocity increase. For small fixed wing aircraft, the size of the impact area is considered to be 1 acre, which was used to compute the impact probabilities based on building exposure fields in Section 7 [8]. The likelihood of all damage levels sums to 1 (100%).

Table 9-2. Conditional Probability of Consequence Given an Aircraft Impact

Ultralights				Small Fixed Wing				Medium Fixed Wing				Large Fixed Wing			
Neg	Mod	Sev	Cat	Neg	Mod	Sev	Cat	Neg	Mod	Sev	Cat	Neg	Mod	Sev	Cat
60%	30%	8%	2%	30%	50%	15%	5%	25%	45%	20%	10%	20%	40%	25%	15%

The results of Table 7-2, the probabilities of annual impact, are be multiplied by the conditional probabilities of consequence in Table 9-2 to determine the probability of various levels of effect (the risk) to persons located on the four sites included in this analysis. To calculate the probability of a consequence considered severe or greater, the annual impact probabilities can be multiplied by the sum of the severe and catastrophic probabilities from Table 8-2 for each corresponding aircraft type. For example, a small winged aircraft impact probability for a site is multiplied by 0.20 (0.15 for severe +0.05 for catastrophic) to obtain the probability of a consequence of severe or greater. The probability of getting at least a severe consequence for the worst-case scenario in each site is provided in Table 9-3. The total annual severe risk is then found by summing the risk contributions from each aircraft weight class.

Table 9-3. Annual Severe Risk by Aircraft Type

Site	Locale	Aircraft Weight (lbs)			
		< 3,500	≥ 3,500 to < 7,500	≥ 7,500	Total Risk
CC	1	$2.54X10^{-5}$	$1.68X10^{-5}$	$2.01X10^{-6}$	$4.42X10^{-5}$
	2	$2.80X10^{-5}$	$1.75X10^{-5}$	$1.93X10^{-6}$	$4.74X10^{-5}$
1	1	$2.72X10^{-5}$	$1.77X10^{-5}$	$2.02X10^{-6}$	$4.70X10^{-5}$
	2	$3.11X10^{-5}$	$1.81X10^{-5}$	$2.17X10^{-6}$	$5.14X10^{-5}$
	3	$3.13X10^{-5}$	$1.92X10^{-5}$	$2.28X10^{-6}$	$5.27X10^{-5}$
	4	$3.23X10^{-5}$	$1.86X10^{-5}$	$2.10X10^{-6}$	$5.29X10^{-5}$
2	1	$5.97X10^{-5}$	$1.83X10^{-5}$	$2.10X10^{-6}$	$8.01X10^{-5}$
	2	$2.93X10^{-5}$	$1.83X10^{-5}$	$2.12X10^{-6}$	$4.97X10^{-5}$
3	1	$6.06X10^{-5}$	$3.76X10^{-5}$	$4.26X10^{-6}$	$1.02X10^{-4}$
	2	$6.10X10^{-5}$	$3.72X10^{-5}$	$4.34X10^{-6}$	$1.03X10^{-4}$
4	1	$2.85X10^{-5}$	$1.72X10^{-5}$	$1.96X10^{-6}$	$4.76X10^{-5}$
	3	$2.84X10^{-5}$	$1.76X10^{-5}$	$2.14X10^{-6}$	$4.81X10^{-5}$
5	1	$4.98X10^{-5}$	$3.15X10^{-5}$	$3.57X10^{-6}$	$8.49X10^{-5}$
	2	$4.86X10^{-5}$	$3.06X10^{-5}$	$3.55X10^{-6}$	$8.28X10^{-5}$

Operational frequency and the probability of occupancy need to also be considered in the risk calculation. The occupancy information in Table 8-3 is used to determine the risk of impact when a building is occupied by time of day. The operations distribution, found in Table 8-2, then weights each time period based on operational probability. This process is summarized in Table 9-4 to show the risk of severe or worse consequences at each locale evaluated. The highest risk calculated was for Site 3, a residential site, with a risk of $5.90x10^{-5}$, or about 6 in 100,000.

Table 9-4. Summary of Individual Risk by Time of Day

Site	Locale	Day	Evening	Night	Total Risk
CC	1	$1.85X10^{-5}$	$4.42X10^{-6}$	$2.21X10^{-6}$	$2.52X10^{-5}$
	2	$1.98X10^{-5}$	$4.74X10^{-6}$	$2.37X10^{-6}$	$2.70X10^{-5}$
1	1	$1.90X10^{-5}$	Negligible	Negligible	$1.90X10^{-5}$
	2	$2.16X10^{-5}$	Negligible	Negligible	$2.16X10^{-5}$
	3	$4.48X10^{-5}$	$5.27X10^{-6}$	$2.64X10^{-6}$	$5.27X10^{-5}$
	4	$2.41X10^{-5}$	Negligible	Negligible	$2.41X10^{-5}$
2	1	$4.22X10^{-5}$	Negligible	Negligible	$4.22X10^{-5}$
	2	$2.41X10^{-5}$	$4.26X10^{-6}$	$2.35X10^{-7}$	$2.86X10^{-5}$
3	1	$4.29X10^{-5}$	$1.02X10^{-5}$	$5.12X10^{-6}$	$5.82X10^{-5}$
	2	$4.29X10^{-5}$	$1.03X10^{-5}$	$5.13X10^{-6}$	$5.83X10^{-5}$
4	1	$1.99X10^{-5}$	$4.76X10^{-6}$	$2.38X10^{-6}$	$2.71X10^{-5}$
	3	$2.01X10^{-5}$	$4.81X10^{-6}$	$2.41X10^{-6}$	$2.74X10^{-5}$
5	1	$3.43X10^{-5}$	Negligible	Negligible	$3.43X10^{-5}$
	2	$3.35X10^{-5}$	Negligible	Negligible	$3.35X10^{-5}$

10. CONCLUSION AND DISCUSSION

This analysis determined the likelihood of an aircraft accident occurring on the Claremont Commons property, which is located in the vicinity of Cable Airport. For comparison, the study also determined the likelihoods of impact to several sites near the Airport. Impacts were associated with severe injury and combined with likelihood to obtain risk. The analysis applied conservative assumptions to calculate risk. Away-from-home activities were selected conservatively for residential buildings, with residents considered to always be at home from 7 pm to 7am, the period of lowest runway use. Additionally, upper-bound *Evening* and *Night* operational frequency was used to calculate risk during these periods.

Table 10-1. Annual Maximum Individual Risk of Severe Injury or Greater

Site	Claremont Commons	1 (Commercial)	2 (Commercial)	3 (Residential)	4 (Approved Residential)	5 (Commercial)
Risk	$2.70X10^{-5}$ *	$5.27X10^{-5}$	$4.22X10^{-5}$	$5.83X10^{-5}$	$2.74X10^{-5}$	$3.43X10^{-5}$

*$2.7x10^{-5}$ per year is equivalent to 27 chances in 1 million

To provide perspective, casualty risk due to a car accident is a reasonable comparison since people voluntarily accept the risk associated with car travel. The annual risk of a person being injured in a car accident is approximately $7 x10^{-3}$, or 7 chances in 1000, based on statistics from the National Highway Traffic Safety Administration [12] and the Organization for Economic Co-operation and Development [13]. Car travel is therefore more than 250 times riskier than the potential for injury due to an aircraft accident on Claremont Commons.

The study selected the locations on each of the six sites considered to present the highest risk. The above table shows that Site 3 (residential) presented the highest individual risk among the six sites considered. The location with the second highest risk presented is that on Site 1 (commercial). The lowest risk calculated is that for the Claremont Commons location.

11. REFERENCES

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APPENDIX A

Debris Field Coordinates for Site Locales

Corner Coordinates				Runway 24 Corner Coordinates				Runway 6 Corner Coordinates			
				Arrival		Departure		Arrival		Departure	
				Y	X	Y	X	Y	X	Y	X
Site	Field	Locale	Edge	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
CC	1 Acre	1	Near	5120	60	1320	60	-1320	-60	-5120	-60
			Far	5480	-60	1680	-60	-1680	60	-5480	60
		2	Near	5395	25	1595	25	-1595	-25	-5395	-25
			Far	5755	-95	1955	-95	-1955	95	-5755	95
	2 Acre	1	Near	4970	85	1170	85	-1170	-85	-4970	-85
			Far	5480	-85	1680	-85	-1680	85	-5480	85
		2	Near	5245	75	1445	75	-1445	-75	-5245	-75
			Far	5755	-95	1955	-95	-1955	95	-5755	95
	3 Acre	1	Near	4856	104	1056	104	-1056	-104	-4856	-104
			Far	5480	-104	1680	-104	-1680	104	-5480	104
		2	Near	5131	104	1331	104	-1331	-104	-5131	-104
			Far	5755	-104	1955	-104	-1955	104	-5755	104
1	1 Acre	1	Near	4915	40	1115	40	-1115	-40	-4915	-40
			Far	5275	-80	1475	-80	-1475	80	-5275	80
		2	Near	4750	-15	950	-15	-950	15	-4750	15
			Far	5110	-135	1310	-135	-1310	135	-5110	135
		3	Near	4520	5	720	5	-720	-5	-4520	-5
			Far	4880	-115	1080	-115	-1080	115	-4880	115
		4	Near	4810	-180	1010	-180	-1010	180	-4810	180
			Far	5170	-300	1370	-300	-1370	300	-5170	300
	2 Acre	1	Near	4765	85	965	85	-965	-85	-4765	-85
			Far	5275	-85	1475	-85	-1475	85	-5275	85
		2	Near	4600	35	800	35	-800	-35	-4600	-35
			Far	5110	-135	1310	-135	-1310	135	-5110	135
		3	Near	4370	55	570	55	-570	-55	-4370	-55
			Far	4880	-115	1080	-115	-1080	115	-4880	115
		4	Near	4660	-130	860	-130	-860	130	-4660	130
			Far	5170	-300	1370	-300	-1370	300	-5170	300
	3 Acre	1	Near	4651	104	851	104	-851	-104	-4651	-104
			Far	5275	-104	1475	-104	-1475	104	-5275	104
		2	Near	4486	73	686	73	-686	-73	-4486	-73
			Far	5110	-135	1310	-135	-1310	135	-5110	135
		3	Near	4256	93	456	93	-456	-93	-4256	-93
			Far	4880	-115	1080	-115	-1080	115	-4880	115
		4	Near	4546	-92	746	-92	-746	92	-4546	92
			Far	5170	-300	1370	-300	-1370	300	-5170	300
2	1 Acre	1	Near	5175	-414	1375	-414	-1375	414	-5175	414
			Far	5535	-534	1735	-534	-1735	534	-5535	534
		2	Near	5085	-460	1285	-460	-1285	460	-5085	460
			Far	5445	-580	1645	-580	-1645	580	-5445	580
	2 Acre	1	Near	5025	-364	1225	-364	-1225	364	-5025	364
			Far	5535	-534	1735	-534	-1735	534	-5535	534
		2	Near	4935	-410	1135	-410	-1135	410	-4935	410
			Far	5445	-580	1645	-580	-1645	580	-5445	580
	3 Acre	1	Near	4911	-326	1111	-326	-1111	326	-4911	326
			Far	5535	-534	1735	-534	-1735	534	-5535	534

Corner Coordinates				Runway 24 Corner Coordinates				Runway 6 Corner Coordinates			
				Arrival		Departure		Arrival		Departure	
				Y	X	Y	X	Y	X	Y	X
Site	Field	Locale	Edge	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
		2	Near	4821	-372	1021	-372	-1021	372	-4821	372
			Far	5445	-580	1645	-580	-1645	580	-5445	580
3	1 Acre	1	Near	-1400	60	-5200	60	5200	-60	1400	-60
			Far	-1760	-60	-5560	-60	5560	60	1760	60
		2	Near	-1485	60	-5285	60	5285	-60	1485	-60
			Far	-1845	-60	-5645	-60	5645	60	1845	60
	2 Acre	1	Near	-1250	85	-5050	85	5050	-85	1250	-85
			Far	-1760	-85	-5560	-85	5560	85	1760	85
		2	Near	-1335	85	-5135	85	5135	-85	1335	-85
			Far	-1845	-85	-5645	-85	5645	85	1845	85
	3 Acre	1	Near	-1136	104	-4936	104	4936	-104	1136	-104
			Far	-1760	-104	-5560	-104	5560	104	1760	104
		2	Near	-1221	104	-5021	104	5021	-104	1221	-104
			Far	-1845	-104	-5645	-104	5645	104	1845	104
4	1 Acre	1	Near	4890	-585	1090	-585	-1090	585	-4890	585
			Far	5250	-705	1450	-705	-1450	705	-5250	705
		2	Near	4605	-700	805	-700	-805	700	-4605	700
			Far	4965	-820	1165	-820	-1165	820	-4965	820
	2 Acre	1	Near	4740	-535	940	-535	-940	535	-4740	535
			Far	5250	-705	1450	-705	-1450	705	-5250	705
		2	Near	4455	-650	655	-650	-655	650	-4455	650
			Far	4965	-820	1165	-820	-1165	820	-4965	820
	3 Acre	1	Near	4626	-497	826	-497	-826	497	-4626	497
			Far	5250	-705	1450	-705	-1450	705	-5250	705
		2	Near	4341	-612	541	-612	-541	612	-4341	612
			Far	4965	-820	1165	-820	-1165	820	-4965	820
5	1 Acre	1	Near	2520	-90	-1280	-90	1280	90	-2520	90
			Far	2880	-210	-920	-210	920	210	-2880	210
		2	Near	2920	-90	-880	-90	880	90	-2920	90
			Far	3280	-210	-520	-210	520	210	-3280	210
	2 Acre	1	Near	2370	-40	-1430	-40	1430	40	-2370	40
			Far	2880	-210	-920	-210	920	210	-2880	210
		2	Near	2770	-40	-1030	-40	1030	40	-2770	40
			Far	3280	-210	-520	-210	520	210	-3280	210
	3 Acre	1	Near	2256	-2	-1544	-2	1544	2	-2256	2
			Far	2880	-210	-920	-210	920	210	-2880	210
		2	Near	2656	-2	-1144	-2	1144	2	-2656	2
			Far	3280	-210	-520	-210	520	210	-3280	210

APPENDIX B

Conditional Probability of Aircraft Impact on a Locale

Exposure Field			Runway 24 East to West		Runway 6 West to East		Weighted Conditional Probability	
Site	Field	Locale	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
CC	1 Acre	1	$8.60X10^{-5}$	$4.05X10^{-4}$	$1.21X10^{-3}$	$2.95X10^{-4}$	$1.99X10^{-4}$	$3.94X10^{-4}$
		2	$4.80X10^{-5}$	$5.10X10^{-4}$	$1.18X10^{-3}$	$3.43X10^{-4}$	$1.61X10^{-4}$	$4.93X10^{-4}$
	2 Acre	1	$1.86X10^{-4}$	$9.14X10^{-4}$	$2.33X10^{-3}$	$6.52X10^{-4}$	$4.00X10^{-4}$	$8.88X10^{-4}$
		2	$1.38X10^{-4}$	$1.01X10^{-3}$	$2.33X10^{-3}$	$7.52X10^{-4}$	$3.57X10^{-4}$	$9.80X10^{-4}$
	3 Acre	1	$3.05X10^{-4}$	$1.41X10^{-3}$	$3.46X10^{-3}$	$9.90X10^{-4}$	$6.21X10^{-4}$	$1.36X10^{-3}$
		2	$2.14X10^{-4}$	$1.39X10^{-3}$	$3.55X10^{-3}$	$1.06X10^{-3}$	$5.48X10^{-4}$	$1.35X10^{-3}$
1	1 Acre	1	$7.60X10^{-5}$	$4.76X10^{-4}$	$1.07X10^{-3}$	$3.24X10^{-4}$	$1.76X10^{-4}$	$4.61X10^{-4}$
		2	$1.57X10^{-4}$	$5.00X10^{-4}$	$1.04X10^{-3}$	$3.10X10^{-4}$	$2.46X10^{-4}$	$4.81X10^{-4}$
		3	$2.19X10^{-4}$	$4.24X10^{-4}$	$1.10X10^{-3}$	$4.29X10^{-4}$	$3.07X10^{-4}$	$4.25X10^{-4}$
		4	$1.57X10^{-4}$	$5.33X10^{-4}$	$1.01X10^{-3}$	$3.14X10^{-4}$	$2.43X10^{-4}$	$5.11X10^{-4}$
	2 Acre	1	$2.43X10^{-4}$	$9.43X10^{-4}$	$2.20X10^{-3}$	$6.95X10^{-4}$	$4.38X10^{-4}$	$9.18X10^{-4}$
		2	$2.90X10^{-4}$	$9.29X10^{-4}$	$2.12X10^{-3}$	$7.38X10^{-4}$	$4.73X10^{-4}$	$9.10X10^{-4}$
		3	$4.14X10^{-4}$	$8.71X10^{-4}$	$2.29X10^{-3}$	$7.95X10^{-4}$	$6.02X10^{-4}$	$8.63X10^{-4}$
		4	$3.05X10^{-4}$	$9.38X10^{-4}$	$2.22X10^{-3}$	$7.86X10^{-4}$	$4.97X10^{-4}$	$9.23X10^{-4}$
	3 Acre	1	$3.81X10^{-4}$	$1.34X10^{-3}$	$3.33X10^{-3}$	$1.08X10^{-3}$	$6.76X10^{-4}$	$1.32X10^{-3}$
		2	$5.10X10^{-4}$	$1.37X10^{-3}$	$3.28X10^{-3}$	$1.16X10^{-3}$	$7.87X10^{-4}$	$1.35X10^{-3}$
		3	$6.62X10^{-4}$	$1.31X10^{-3}$	$3.40X10^{-3}$	$1.25X10^{-3}$	$9.35X10^{-4}$	$1.31X10^{-3}$
		4	$4.52X10^{-4}$	$1.34X10^{-3}$	$3.36X10^{-3}$	$1.18X10^{-3}$	$7.43X10^{-4}$	$1.33X10^{-3}$
2	1 Acre	1	$9.76X10^{-4}$	$4.38X10^{-4}$	$8.10X10^{-4}$	$4.24X10^{-4}$	$9.59X10^{-4}$	$4.37X10^{-4}$
		2	$1.10X10^{-4}$	$4.95X10^{-4}$	$1.04X10^{-3}$	$3.57X10^{-4}$	$2.03X10^{-4}$	$4.81X10^{-4}$
	2 Acre	1	$2.43X10^{-4}$	$9.76X10^{-4}$	$2.25X10^{-3}$	$7.52X10^{-4}$	$4.44X10^{-4}$	$9.54X10^{-4}$
		2	$2.81X10^{-4}$	$9.48X10^{-4}$	$2.21X10^{-3}$	$7.10X10^{-4}$	$4.74X10^{-4}$	$9.24X10^{-4}$
	3 Acre	1	$3.81X10^{-4}$	$1.42X10^{-3}$	$3.35X10^{-3}$	$1.10X10^{-3}$	$6.78X10^{-4}$	$1.39X10^{-3}$
		2	$4.05X10^{-4}$	$1.41X10^{-3}$	$3.39X10^{-3}$	$1.08X10^{-3}$	$7.04X10^{-4}$	$1.38X10^{-3}$
3	1 Acre	1	$1.22X10^{-3}$	$3.00X10^{-4}$	$6.70X10^{-5}$	$4.14X10^{-4}$	$1.10X10^{-3}$	$3.11X10^{-4}$
		2	$1.22X10^{-3}$	$3.10X10^{-4}$	$7.60X10^{-5}$	$4.10X10^{-4}$	$1.10X10^{-3}$	$3.20X10^{-4}$
	2 Acre	1	$2.42X10^{-3}$	$6.57X10^{-4}$	$1.52X10^{-4}$	$8.48X10^{-4}$	$2.20X10^{-3}$	$6.76X10^{-4}$
		2	$2.41X10^{-3}$	$6.48X10^{-4}$	$1.52X10^{-4}$	$8.48X10^{-4}$	$2.18X10^{-3}$	$6.68X10^{-4}$
	3 Acre	1	$3.51X10^{-3}$	$9.81X10^{-4}$	$2.43X10^{-4}$	$1.36X10^{-3}$	$3.18X10^{-3}$	$1.02X10^{-3}$
		2	$3.54X10^{-3}$	$1.04X10^{-3}$	$2.19X10^{-4}$	$1.33X10^{-3}$	$3.21X10^{-3}$	$1.06X10^{-3}$
4	1 Acre	1	$1.76X10^{-4}$	$4.14X10^{-4}$	$9.95X10^{-4}$	$3.57X10^{-4}$	$2.58X10^{-4}$	$4.08X10^{-4}$
		2	$1.43X10^{-4}$	$4.33X10^{-4}$	$1.05X10^{-3}$	$4.00X10^{-4}$	$2.34X10^{-4}$	$4.30X10^{-4}$
	2 Acre	1	$3.10X10^{-4}$	$8.33X10^{-4}$	$2.11X10^{-3}$	$7.24X10^{-4}$	$4.90X10^{-4}$	$8.22X10^{-4}$
		2	$3.48X10^{-4}$	$8.29X10^{-4}$	$2.04X10^{-3}$	$8.05X10^{-4}$	$5.18X10^{-4}$	$8.27X10^{-4}$
	3 Acre	1	$5.00X10^{-4}$	$1.29X10^{-3}$	$2.17X10^{-3}$	$1.08X10^{-3}$	$6.67X10^{-4}$	$1.27X10^{-3}$
		2	$5.38X10^{-4}$	$1.35X10^{-3}$	$2.97X10^{-3}$	$1.16X10^{-3}$	$7.81X10^{-4}$	$1.33X10^{-3}$
5	1 Acre	1	$6.76X10^{-4}$	$4.52X10^{-4}$	$1.04X10^{-3}$	$4.38X10^{-4}$	$7.13X10^{-4}$	$4.51X10^{-4}$
		2	$6.05X10^{-4}$	$4.95X10^{-4}$	$1.08X10^{-3}$	$3.86X10^{-4}$	$6.52X10^{-4}$	$4.84X10^{-4}$
	2 Acre	1	$1.43X10^{-3}$	$9.19X10^{-4}$	$2.08X10^{-3}$	$8.52X10^{-4}$	$1.50X10^{-3}$	$9.12X10^{-4}$
		2	$1.23X10^{-3}$	$1.02X10^{-3}$	$2.31X10^{-3}$	$8.24X10^{-4}$	$1.34X10^{-3}$	$1.00X10^{-3}$
	3 Acre	1	$2.11X10^{-3}$	$1.30X10^{-3}$	$3.02X10^{-3}$	$1.38X10^{-3}$	$2.21X10^{-3}$	$1.31X10^{-3}$
		2	$1.89X10^{-3}$	$1.48X10^{-3}$	$3.29X10^{-3}$	$1.33X10^{-3}$	$2.03X10^{-3}$	$1.47X10^{-3}$

APPENDIX C

Occupancy Analysis

Objective:

This investigation evaluates the exposure of residential and commercial sites in the vicinity of Cable Airport to aircraft accident hazards.

Summary:

The analysis utilizes known business operational hours and American Time Use Statistics (ATUS) provided by the Bureau of Labor Statistics [1] to determine expectations of occupancy for three daily time periods: *Daytime* (7am-7pm), *Evening* (7pm-10pm), and *Night* (10pm-7am). Airport aircraft operational statistics from the Cable Airport Master Plan [2] are used to provide the percentage of aircraft accidents that occur in each of these three time periods. Occupancy expectation and the distribution of aircraft operations together provide an estimate of the likelihood of building occupancy during an accident.

Approach:

Building occupancy is determined for three periods throughout an average day, "Daytime" (7am-7pm), "Evening" (7pm -10pm), and "Night" (10pm-7am). The likelihood of residential building occupancy is based on Table 2 in the American Time Use Survey (ATUS) of 2014 developed by the Bureau of Labor Statistics. A list of personnel activities, including away-from-home activities, are specified in Table 1 (Table 2 from ATUS 2014). Away-from-home activities include such pursuits as purchasing goods and services, caring for non-household members, working and work related activities, attending class, organizational activities, socializing, and participating in sports. The percentages of time spent over a 24-hour period doing the various activities are specified in the table.

Representative commercial buildings were selected from the commercial centers on the northeast corner of Monte Vista and W Foothill in Upland CA, near to Cable Airport. This is Site 1 in the ACTA report "Aircraft Individual Risk Analysis for Claremont Commons and Nearby Sites". Four buildings within these properties were considered in the analysis. The existing business names were collected along with provided operational hours. Businesses and hours of operation are provided in Table 2. A plan view of the sites and buildings is shown in Figure 1.

The previously approved commercial site plan (PACSP) for the Claremont Commons site is also considered herein. A set of four office buildings and four retail buildings are specified in the site plan, shown in Figure 1. Example retail business are provided to demonstrate occupancy expectations during the *Daytime*, *Evening*, and *Night*.

Table 1: Annual Average Time Spent on Primary Activities per Day [1]

Table 2. Time spent in primary activities and percent of the civilian population engaging in each activity, averages per day on weekdays and weekends, 2014 annual averages

Activity	Average hours per day, civilian population		Average percent engaged in the activity per day		Average hours per day for persons who engaged in the activity	
	Weekdays	Weekends and holidays	Weekdays	Weekends and holidays	Weekdays	Weekends and holidays
Total, all activities[1]	24.00	24.00	–	–	–	–
Personal care activities	9.33	10.16	99.9	100.0	9.34	10.16
Sleeping	8.54	9.40	99.9	100.0	8.55	9.40
Eating and drinking	1.13	1.29	95.7	95.3	1.18	1.35
Household activities	1.63	2.11	73.8	75.9	2.20	2.78
Housework	0.51	0.67	33.4	38.1	1.51	1.75
Food preparation and cleanup	0.57	0.62	57.1	54.3	1.00	1.14
Lawn and garden care	0.15	0.27	8.3	11.4	1.79	2.40
Household management	0.11	0.13	16.8	16.7	0.64	0.79
Purchasing goods and services	0.69	0.84	42.2	44.7	1.64	1.88
Consumer goods purchases	0.30	0.49	36.8	43.1	0.83	1.13
Professional and personal care services	0.11	0.04	10.0	3.4	1.12	1.15
Caring for and helping household members	0.56	0.49	27.1	22.4	2.07	2.17
Caring for and helping household children	0.42	0.39	22.4	18.1	1.88	2.16
Caring for and helping nonhousehold members	0.17	0.21	10.0	12.6	1.69	1.69
Caring for and helping nonhousehold adults	0.06	0.07	5.9	8.2	0.99	0.89
Working and work-related activities	4.54	1.38	52.7	23.7	8.61	5.82
Working	4.11	1.23	50.7	21.6	8.10	5.71
Educational activities	0.53	0.16	9.3	5.0	5.74	3.24
Attending class	0.33	0.02	6.7	0.5	4.88	3.45
Homework and research	0.16	0.13	6.0	4.2	2.66	3.14
Organizational, civic, and religious activities	0.24	0.52	12.7	18.8	1.92	2.75
Religious and spiritual activities	0.08	0.29	6.7	14.6	1.18	2.00
Volunteering (organizational and civic activities)	0.13	0.15	6.6	6.3	2.02	2.45
Leisure and sports	4.79	6.50	94.9	97.6	5.05	6.66
Socializing and communicating	0.58	1.02	35.4	42.4	1.63	2.41
Watching television	2.60	3.35	78.8	82.5	3.30	4.06
Participating in sports, exercise, and recreation	0.28	0.33	19.5	18.0	1.41	1.85
Telephone calls, mail, and e-mail	0.15	0.14	21.3	17.8	0.69	0.79
Other activities, not elsewhere classified	0.24	0.21	16.4	13.4	1.45	1.54

[1] All major activity categories include related travel time. See Technical Note for activity category definitions.
- Not applicable.
NOTE: A primary activity refers to an individual's main activity. Other activities done simultaneously are not included. Data refer to persons 15 years and over.

Table 2: Commercial Site Businesses and Operation Times

Location		Operations Hours	Day
Building 1: 2377 W Foothill Blvd			
Suite 15	Hartford Escrow	9am - 5pm	M-F
Suite 3	Martel Interiors & Home Furnishings	9am - 5pm	M-F
Suite 18	Raymond James Financial Services	9am-5pm	M-F
Building 2: 2335 W Foothill Blvd			
Suite 16	Tax Link	9am - 5pm	M-S
Suite 19	The Ritz Salon	9am - 6pm	M-S
Suite 19	SYNERGY Homecare	24 hrs	All
NA	Kessler Alair Insurance Services Inc.	8am - 5pm	M-F
Suite 20	Atlas Spinal Care Chiropractors	7:30-5	M,T,Th
Building 3: 2315 W Foothill Blvd			
Suite 1	PAR Electrical Contractors	9am - 5pm	M-F
Building 4: 1164 Monte Vista			
Suite 2	Bourne Pilates & Fitness	7am-8pm	M-F
		9am-12pm	S
Suite 5	Kogeman Construction Contractors	9am - 5pm	M-F
Suite 1	Doc Joe's Rooter & Plumbing Service	8am - 5pm	M-F

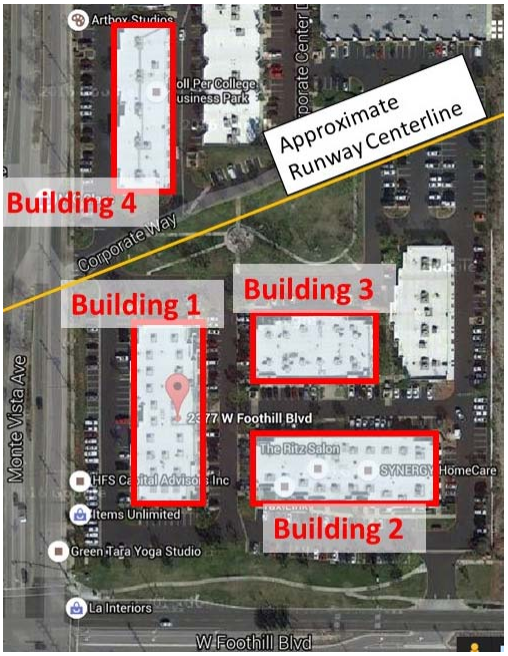

Figure 1: Commercial Site Building Reference

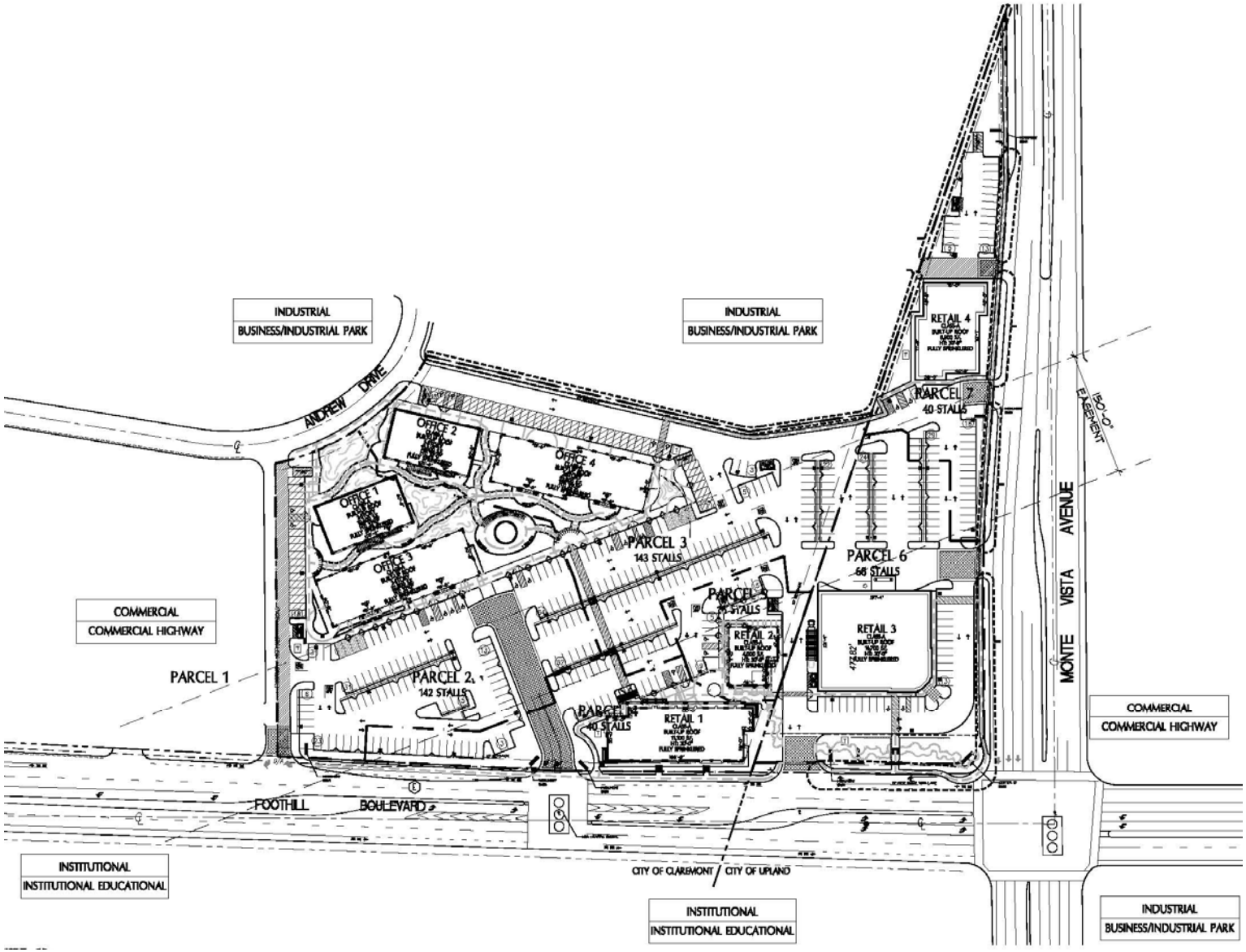

Figure 2: Previously Approved Commercial Site Plan at Claremont Commons [3]

The four retail buildings at the PACSP, referred to as Retail 1 through Retail 4 were preliminarily associated with the following business types by the Americal Management Company, Inc.: Retail 1- 50% food, 50% general retail, Retail 2- 50% food, 50% general retail, Retail 3: proposed drug store, and Retail 4: proposed retail offices (medical office, banking, services). Table 3 identifies examples of each business category and known operational hours.

Table 3: Previously Approved Commercial Site Plan Example Businesses by Category

Type	Business	Example	Time	Days
Pharmacy	CVS Pharmacy	1	24 hrs	M-Sun
		2	7am-10pm	M-Sun
		3	8am-10pm	M-Sun
	Walgreens	1	24 hrs	M-Sun
		2	7am-12am	M-Sun
		3	8am-10pm	M-Sun
Food	Subway	1	24 hrs	M-Sun
		2	6am-11pm	M-Sun
		3	7am-12am	M-Sun
		4	7am-11pm	M-Sun
		5	7am-10pm	M-Sun
		6	7am-9pm	M-Sun
	Chipotle	1	10:30am-10pm	M-Sun
	Frozen Yogurt	1	11am-10pm	M-Sun
Doctor and Chiropractor	UCLA Health Pulmonary Office	1	8:30am-5:30pm	M-F
	Dr. Janet H. Lee Internal Medicine	1	8:30am-5:30pm	M-F
	Itchon Lideia MD	1	9am-6pm	M-F
	Goodlife Chiropractic	1	8am-8pm	M-F
			9am-2pm	Sat
	Taylor Chiropractic and Laser Center	1	24 hrs	M-Sun
	Back to Function	1	7am-7pm	M-F
			9am-2pm	Sat
Banks	Bank of America	1	9am-6pm	M-F
			9am-2pm	Sat
		2	10am-6pm	M-F
			10am-2pm	Sat
	Chase	1	9am-6pm	M-F
			9am-4pm	Sat
	Wells Fargo	1	9am-6pm	M-F
			9am-4pm	Sat
	East West Bank	1	9am-5pm	M-F
			9am-2pm	Sat
	Union Bank	1	9am-5pm	M-Th
			9am-6pm	F
			9am-1pm	Sat
	Bank of the West	1	9am-5pm	M-Th
			9am-6pm	F
	US Bank	1	9am-5pm	M-Th
			9am-6pm	F
			9am-1pm	Sat
	Pacific Western Bank	1	9am-4pm	M-Th
			9am-6pm	F
	Umpqua Bank	1	9am-5pm	M-F

The daily breakdown of occupancy hours by weekday and weekend is shown in Table 4 for both the Claremont Commons residential site and the businesses within the buildings at the commercial site. The activities from the ATUS were applied to the *Daytime* period for Claremont Commons. It was conservatively assumed that these residential residents would always be at home during the *Evening* and *Night*.

Table 4. Residential and Commercial Occupancy

				Average Daily Occupancy (hours)		
				Day (7am-7pm)	Evening (7pm-10pm)	Night (10pm -7am)
Site	**Claremont Commons[1]**		Weekday	5.2	3	9
			Weekend	7.7	3	9
Building 1: 2377 W Foothill Blvd.	Suite 15	Hartford Escrow	Weekday	8	0	0
			Weekend	0	0	0
	Suite 3	Martel Interiors & Home Furnishings	Weekday	8	0	0
			Weekend	0	0	0
	Suite 18	Raymond James Financial Services[2]	Weekday	8	0	0
			Weekend	0	0	0
Building 2: 2335 W Foothill Blvd.	Suite 16	Tax Link[2]	Weekday	8	0	0
			Weekend	4	0	0
	Suite 19	The Ritz Salon[2]	Weekday	9	0	0
			Weekend	4.5	0	0
	Suite 19	SYNERGY Homecare	Weekday	12	3	9
			Weekend	12	3	9
	NA	Kessler Alair Insurance Services	Weekday	9	0	0
			Weekend	0	0	0
	Suite 20	Atlas Spinal Care Chiropractors	Weekday	5.4	0	0
			Weekend	0	0	0
Building 4: 1164 Monte Vista	Suite 2	Bourne Pilates & Fitness	Weekday	12	1	0
			Weekend	10	3	2
	Suite 5	Kogeman Construction Contractors[2]	Weekday	8	0	0
			Weekend	0	0	0
	Suite 1	Doc Joe's Rooter & Plumbing	Weekday	8	0	0
			Weekend	0	0	0

1. Based on Bureau of Labor Statistics Data for 2014 [1]

2. Estimated value considered conservative

The daily breakdown of occupancy hours by weekday and weekend is shown in Table 5 for the PACSP. A "high" and "low" case is established from Table 3 to indicate the general operational time span of each business type proposed to be located on the PACSP.

Table 5. Previously Approved Commercial Site Plan Occupancy

			Average Daily Occupancy (hours)		
			Day	Evening	Night
			(7am-7pm)	(7pm-10pm)	(10pm -7am)
Retail 1 and Retail 2	**Food - Low Estimate**	Weekday	8	3	0
		Weekend	8	3	0
	Food - High Estimate	Weekday	12	3	9
		Weekend	12	3	9
	General Retail[A] - Low Estimate	Weekday	7	0	0
		Weekend	3.5	0	0
	General Retail[A] - High Estimate	Weekday	10	3	0
		Weekend	9	1.5	0
Retail 3	**Drug Store - Low Estimate**	Weekday	11	3	0
		Weekend	11	3	0
	Drug Store - High Estimate	Weekday	12	3	9
		Weekend	12	3	9
Retail 4	**Medical Offices - Low Estimate**	Weekday	9	0	0
		Weekend	0	0	0
	Medical Offices - High Estimate	Weekday	12	3	9
		Weekend	12	3	9
	Banking - Low Estimate	Weekday	7.4	0	0
		Weekend	0	0	0
	Banking - High Estimate	Weekday	9	0	0
		Weekend	4	0	0

A. Based on "Shopping Hours" for general and small retail in the United States on Wikipedia

Table 6 summarizes the likelihood of occupancy during each of the time periods for the commercial sites and for Claremont Commons. For example, the likelihood of someone being at home on a residential site during the hours of 7am – 7pm is 49.29%. The likelihood of encountering someone at Tax Link between 7am and 7pm is 57.14%.

Table 6. Likelihood of Occupancy of Buildings at Claremont Commons and on Site 2

			Likelihood of Occupancy		
			Day	Evening	Night
			(7am-7pm)	(7pm-10pm)	(10pm -7am)
Site	Claremont Commons		0.4929	1.0000	1.0000
Building 1	Suite 15	Hartford Escrow	0.4762	0.0000	0.0000
	Suite 3	Martel Interiors & Home Furnishings	0.4762	0.0000	0.0000
	Suite 18	Raymond James Financial	0.4762	0.0000	0.0000
Building 2	Suite 16	Tax Link	0.5714	0.0000	0.0000
	Suite 19	The Ritz Salon	0.6429	0.0000	0.0000
	Suite 19	SYNERGY Homecare	1.0000	1.0000	1.0000
	NA	Kessler Alair Insurance Services	0.5357	0.0000	0.0000
	Suite 20	Atlas Spinal Care Chiropractors	0.3214	0.0000	0.0000
Building 4	Suite 2	Bourne Pilates & Fitness	0.9524	0.5238	0.0635
	Suite 5	Kogeman Construction Contractors	0.4762	0.0000	0.0000
	Suite 1	Doc Joe's Rooter & Plumbing	0.4762	0.0000	0.0000

Table 7 summarizes the likelihood of occupancy for the PACSP during each of the time periods. Operational hours during the weekends in some of the retail business examples increase the likelihood of occupancy during the *Daytime*. Some banking, general retail, and medical offices have limited hours on weekends and *Evening*s while others remain open. Food and drug stores generally have more extensive hours of operations and the likelihood of occupancy reflects this even for the "low" estimates.

Table 7. Likelihood of Occupancy of the Previously Approved Commercial Site Plan

		Likelihood of Occupancy		
		Day	Evening	Night
		(7am-7pm)	(7pm-10pm)	(10pm -7am)
Retail 1 and Retail 2	Food - Low Estimate	0.6667	1.0000	0.0000
	Food - High Estimate	1.0000	1.0000	1.0000
	General Retail - Low Estimate	0.5000	0.0000	0.0000
	General Retail - High Estimate	0.8095	0.8571	0.0000
Retail 3	Drug Store - Low Estimate	0.9167	1.0000	0.0000
	Drug Store - High Estimate	1.0000	1.0000	1.0000
Retail 4	Medical Offices - Low Estimate	0.5357	0.0000	0.0000
	Medical Offices - High Estimate	1.0000	1.0000	1.0000
	Banking - Low Estimate	0.4405	0.0000	0.0000
	Banking - High Estimate	0.6310	0.0000	0.0000

Table 8 summarizes the operational distribution by time throughout an average day at Cable Airport [2]. These operations include all take-offs and landings. The vast majority of operations take place during the *Daytime* period, in which it can be inferred that accidents are more likely.

Table 8. Occurrence of Operations by Time Period at Cable Airport [2]

Day	Evening	Night
(7am-7pm)	(7pm-10pm)	(10pm -7am)
85.0%	10.0%	5.0%

References:

1. Bureau of Labor Statistics, News Release on American Time Use Survey 2014 (ATUS) USDL-15-1236, United States Department of Labor, June 24, 2015, http://www.bls.gov/news.release/pdf/atus.pdf, Accessed June 18, 2016

2. Mead & Hunt. "Cable Airport Land Use Compatibility Plan" (CALUCP). September 2015.

3. Approved Site Plan provided by Americal Management Co.

APPENDIX D

Aircraft Impact Studies Performed by ACTA

Aircraft Impact Studies

1) *Aircraft Impact Analysis Costco Santa Barbara Gas Station Site*, Prepared for Costco Wholesale, ACTA Report No. 664, November 2008
2) *Aircraft Impact Analysis King City Eastern Extension*, Prepared for Kronick, Moskovitz, Tiedemann & Girard, San Luis Obispo, CA, ACTA Report No. 609, December 2007
3) *Aircraft Impact Analysis Springville Specific Plan*, Prepared for the City of Camarillo, Camarillo, CA., ACTA Report No. 646-01, November 2007
4) *Cabrillo Business Park Aircraft Impact Analysis*, Prepared for Cabrillo Park, Santa Barbara, CA., ACTA Report No. 453-01 (Rev. 1a), September 2001
5) *Camino Real Development Aircraft Impact Analysis*, Prepared for Wynmark, Inc., Santa Barbara, CA., ACTA Report No. 344-01, August 1996.
6) *Santa Maria Airport Shopping Center & Office Complex Crash Hazard Study*, Prepared for Santa Maria Public Airport District, Report No. 91-268, ACTA Inc., October 1991.
7) *Aircraft Impact Hazard Analysis for the Bixby Old Ranch Residential Site*, Prepared for Bixby Ranch Corporation, Santa Barbara, CA., April 1991
8) *Aircraft Hazard Analysis for Potential Hospital Sites,* Prepared for Maryvale Samaritan Hospital, Phoenix, AZ, Report No. 207, January 1998.
9) *Aircraft Impact Hazard Analysis for the Rossmoor Property*, Prepared for Rossmoor Liquidating Trust, Laguna Hills, CA., ACTA Report No. 108 (Rev 1), January 1987
10) *Obstruction Evaluation for (Aircraft Impact Analysis of) Proposed HBH Inc. Property (Apartment Complex)*, Houma, Louisiana, ACTA Report No. 127, March 1983.
11) Aircraft Impact Analysis of the Pacific Medical Center, Prepared for Diamond & Sylvester, Seattle WA., ACTA Report No. 129 (Rev 1)., December 1984
12) *Aircraft Impact Hazard Analysis for the Old Ranch Business Park*, Prepared for Aviation System Associates, Redondo Beach, CA., ACTA Report No. 123, February 1984
13) *Aircraft Impact Analysis of Two 15 Acre Sites Located South of the Irvine Medical and Science Complex.,* Prepared for The Irvine Company, Newport Beach, CA., ACTA Report No. 124, February 1984
14) *Aircraft Impact Analysis of the Proposed Cortyard Ice Cream Parlor*, Prepared for Corti Bros. Inc., Sacramento, CA., ACTA Report No. 138., 1984
15) *Aircraft Impact Hazard Analysis for Rossmoor & Other Properties*, Prepared for Rossmoor Liquidating Trust, ACTA Report No. 580A, May 1983
16) *Aircraft Impact Hazard Analysis for Three Sites Within the Irvine Medical & Science Complex*, Prepared for The Irvine Company, ACTA Report No. 112, September 1983
17) *Comparative Aircraft Impact Hazard Analysis for the Irvine Medical & Science Complex and Other Properties Located in Irvine California*, Prepared for The Irvine Company, ACTA Report No 501B, May 1983

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APPENDIX F-1:

Drainage Report for The Commons at NW Corner Foothill Blvd & Monte Vista Ave. City of Claremont and City of Upland. Andreasen Engineering, Inc. October 16, 2018

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ANDREASEN ENGINEERING, INC.
Civil Engineering • Land Surveying • Municipal Engineering

DRAINAGE REPORT

for

COMMONS

at

NW CORNER FOOTHILL BLVD & MONTE VISTA AVE.
City of Claremont & City of Upland

for

Clare Properties, LLC
9595 Wilshire Blvd. Suite 600
Beverly Hills, CA. 90212
Mr. Victor La Canina
310-860-5409

Prepared by:
Andreasen Engineering, Inc.
580 N. Park Avenue
Pomona, CA. 91768

October 16, 2018

JN 3036A



Stephen Ventura, R.C.E.
Vice-President

10/16/18
Date

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DISCUSSION

I. PURPOSE OF STUDY

The purpose of this study is to make a determination of the runoff volume generated from a 50year storm event and infiltration its volume into the ground with a CONTECH chamber network. No drainage is allowed on the Foothill Blvd.

II. LOCATION

The project site is located at the northwest corner of Foothill Blvd and Monte Vista Ave., Cities of Claremont and Upland , California.

III. PRE DEVELOPED SITE CONDITIONS

The existing ground consist on cobble stone, gravel, and sand (Geotechnical Report is available). Drainage pattern is north to south at 2% to 3%. Off-site flows come from the north enter the subject property.

IV. POST DEVELOPED SITE CONDITIONS

The proposed development shall consist residential and commercial developments. The off-site will enter catch basins on the north property line conveyed in pipes across the subject development and connected to existing box culverts that are under Foothill Blvd. and discharge on the south side of Foothill Blvd. as historical occurred.

The on-site drainage will enter a series of catch basins and storm drain pipes and discharge into a CONTECH underground chamber network. The CONTECH chamber network will store and infiltration the volume based on a 50 year storm event.

V. HYDROLOGY

The subject property has an impervious percentage of 42%, soil classifications of 015, 50 Year 24 Hour storm event.

The offsite flows have a composite impervious percentage are based on the ground type. A 25 Year 24 hour storm event was used to calculation the runoff. The off-site runoff will not impact of on-site runoff.

The point precipitation frequency estimate was obtained from NOAA Atlas 14, soil classification was given by L. A .County Hydrology Map GIS Viewer Application.

Stephen Ventura, R.C.E.
Vice-President

10/16/18
Date

REGISTERED PROFESSIONAL ENGINEER
STEPHEN VENTURA
C 32437
Exp. 12/31/18
CIVIL
STATE OF CALIFORNIA

HYDROLOGY CALCULATIONS

NOAA's National Weather Service
Hydrometeorological Design Studies Center
Precipitation Frequency Data Server (PFDS)

General Information
Homepage
Progress Reports
FAQ
Glossary

Precipitation Frequency
Data Server
GIS Grids
Maps
Time Series
Temporals
Documents
Performance

Probable Maximum Precipitation
Documents

Miscellaneous
Publications
Storm Analysis
Record Precipitation

Contact Us
Inquiries
List-server

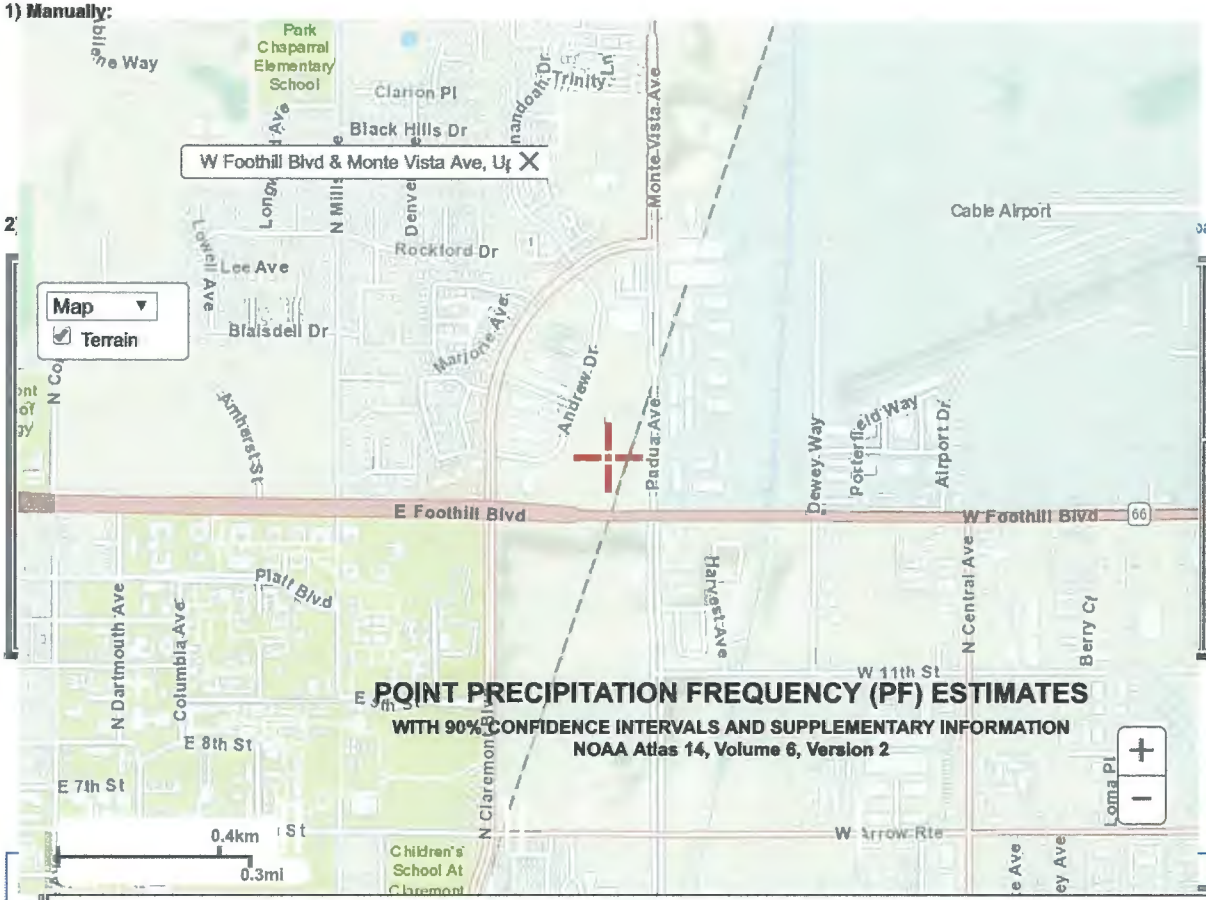
NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: CA

Data description

Data type: Precipitation depth **Units:** English **Time series type:** Partial duration

Select location

1) Manually:



a) Select location
Move crosshair or double click

b) Click on station icon
Show stations on map

Location information:
Name: Claremont, California, USA*
Latitude: 34.1081°
Longitude: -117.6996°
Elevation: 1343.5 ft **
* Source: ESRI Maps
** Source: USGS

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.124** (0.104-0.151)	**0.165** (0.137-0.200)	**0.220** (0.182-0.267)	**0.265** (0.218-0.325)	**0.328** (0.261-0.417)	**0.378** (0.294-0.491)	**0.430** (0.326-0.572)	**0.485** (0.357-0.665)	**0.561** (0.396-0.804)	**0.623** (0.424-0.924)

10-min	0.178 (0.149-0.216)	0.237 (0.197-0.287)	0.315 (0.261-0.383)	0.380 (0.313-0.466)	0.470 (0.374-0.597)	0.542 (0.422-0.703)	0.616 (0.467-0.821)	0.695 (0.512-0.953)	0.804 (0.568-1.15)	0.892 (0.607-1.32)
15-min	0.216 (0.180-0.261)	0.286 (0.238-0.347)	0.381 (0.316-0.463)	0.459 (0.378-0.563)	0.569 (0.452-0.722)	0.655 (0.510-0.851)	0.745 (0.565-0.992)	0.840 (0.619-1.15)	0.973 (0.686-1.39)	1.08 (0.735-1.60)
30-min	0.314 (0.262-0.381)	0.417 (0.347-0.506)	0.555 (0.461-0.675)	0.669 (0.551-0.821)	0.829 (0.659-1.05)	0.955 (0.743-1.24)	1.09 (0.824-1.45)	1.23 (0.902-1.68)	1.42 (1.00-2.03)	1.57 (1.07-2.33)
60-min	0.471 (0.392-0.570)	0.625 (0.520-0.757)	0.831 (0.690-1.01)	1.00 (0.825-1.23)	1.24 (0.987-1.58)	1.43 (1.11-1.86)	1.63 (1.23-2.17)	1.83 (1.35-2.52)	2.12 (1.50-3.04)	2.36 (1.60-3.50)
2-hr	0.717 (0.598-0.868)	0.937 (0.780-1.14)	1.23 (1.02-1.50)	1.48 (1.22-1.81)	1.82 (1.44-2.31)	2.09 (1.62-2.71)	2.36 (1.79-3.15)	2.66 (1.96-3.65)	3.07 (2.17-4.39)	3.40 (2.31-5.04)
3-hr	0.911 (0.760-1.10)	1.18 (0.986-1.44)	1.55 (1.29-1.88)	1.85 (1.52-2.27)	2.27 (1.81-2.89)	2.60 (2.03-3.38)	2.95 (2.24-3.93)	3.31 (2.44-4.54)	3.82 (2.69-5.47)	4.22 (2.88-6.27)
6-hr	1.32 (1.10-1.60)	1.71 (1.42-2.07)	2.22 (1.85-2.70)	2.65 (2.18-3.25)	3.25 (2.58-4.13)	3.72 (2.90-4.83)	4.21 (3.19-5.61)	4.73 (3.48-6.48)	5.45 (3.84-7.80)	6.02 (4.10-8.93)
12-hr	1.76 (1.47-2.13)	2.29 (1.90-2.77)	2.99 (2.48-3.64)	3.58 (2.94-4.39)	4.39 (3.49-5.58)	5.04 (3.92-6.54)	5.71 (4.33-7.60)	6.41 (4.72-8.79)	7.40 (5.22-10.6)	8.18 (5.57-12.1)
24-hr	2.45 (2.17-2.82)	3.22 (2.85-3.71)	4.26 (3.75-4.92)	5.12 (4.48-5.98)	6.33 (5.36-7.63)	7.29 (6.05-8.97)	8.29 (6.71-10.4)	9.35 (7.36-12.1)	10.8 (8.18-14.6)	12.0 (8.77-16.7)
2-day	3.09 (2.73-3.56)	4.13 (3.65-4.76)	5.53 (4.88-6.40)	6.72 (5.88-7.84)	8.39 (7.10-10.1)	9.72 (8.06-12.0)	11.1 (8.99-14.0)	12.6 (9.92-16.3)	14.7 (11.1-19.8)	16.3 (11.9-22.8)
3-day	3.40 (3.01-3.92)	4.61 (4.07-5.31)	6.24 (5.50-7.22)	7.62 (6.66-8.89)	9.57 (8.10-11.5)	11.1 (9.23-13.7)	12.8 (10.3-16.1)	14.5 (11.4-18.8)	17.0 (12.8-22.9)	18.9 (13.8-26.4)
4-day	3.68 (3.26-4.24)	5.02 (4.44-5.79)	6.85 (6.04-7.92)	8.39 (7.34-9.79)	10.6 (8.95-12.7)	12.3 (10.2-15.2)	14.2 (11.5-17.8)	16.1 (12.7-20.9)	18.9 (14.3-25.5)	21.1 (15.4-29.5)
7-day	4.17 (3.69-4.80)	5.78 (5.11-6.67)	7.97 (7.03-9.23)	9.83 (8.60-11.5)	12.4 (10.5-15.0)	14.5 (12.1-17.9)	16.7 (13.5-21.1)	19.1 (15.0-24.7)	22.4 (16.9-30.2)	25.0 (18.3-34.9)
10-day	4.50 (3.98-5.19)	6.29 (5.56-7.26)	8.73 (7.70-10.1)	10.8 (9.44-12.6)	13.7 (11.6-16.5)	16.0 (13.3-19.7)	18.5 (14.9-23.2)	21.0 (16.6-27.3)	24.7 (18.7-33.3)	27.7 (20.2-38.6)
20-day	5.39 (4.77-6.22)	7.57 (6.70-8.74)	10.6 (9.31-12.2)	13.1 (11.4-15.3)	16.7 (14.1-20.1)	19.6 (16.2-24.1)	22.6 (18.3-28.5)	25.9 (20.4-33.5)	30.5 (23.1-41.1)	34.2 (25.0-47.8)
30-day	6.33 (5.60-7.29)	8.83 (7.81-10.2)	12.3 (10.8-14.2)	15.2 (13.3-17.8)	19.4 (16.5-23.4)	22.8 (18.9-28.1)	26.4 (21.4-33.3)	30.3 (23.9-39.2)	35.8 (27.1-48.3)	40.3 (29.5-56.2)
45-day	7.57 (6.70-8.72)	10.4 (9.22-12.0)	14.4 (12.7-16.6)	17.8 (15.6-20.7)	22.7 (19.2-27.3)	26.7 (22.1-32.8)	30.9 (25.0-39.0)	35.5 (28.0-46.0)	42.1 (31.8-56.8)	47.5 (34.7-68.3)
60-day	8.81 (7.80-10.2)	11.9 (10.6-13.8)	16.3 (14.4-18.9)	20.1 (17.6-23.5)	25.6 (21.7-30.9)	30.1 (25.0-37.0)	34.9 (28.3-44.0)	40.2 (31.6-52.0)	47.7 (36.1-64.4)	54.0 (39.5-75.3)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Estimates from the table in CSV format: Precipitation frequency estimates ▼ Submit

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Home | OWP

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National Weather Service
Office of Water Prediction (OWP)
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dpw.lacounty.gov

search our site..

Hydrology Map A GIS viewer application to view the data for the hydrology manual.

LAYERS

- [ ] 50yr Two Tenths (Rainfall)
- [ ] DPA Zones
- [x] Soils 2004
- [ ] Final 85th Percentile, 24-hr Rainfall
- [ ] Final 95th Percentile, 24-hr Rainfall
- [ ] 1-year, 1-hour Rainfall Intensity

SEARCH

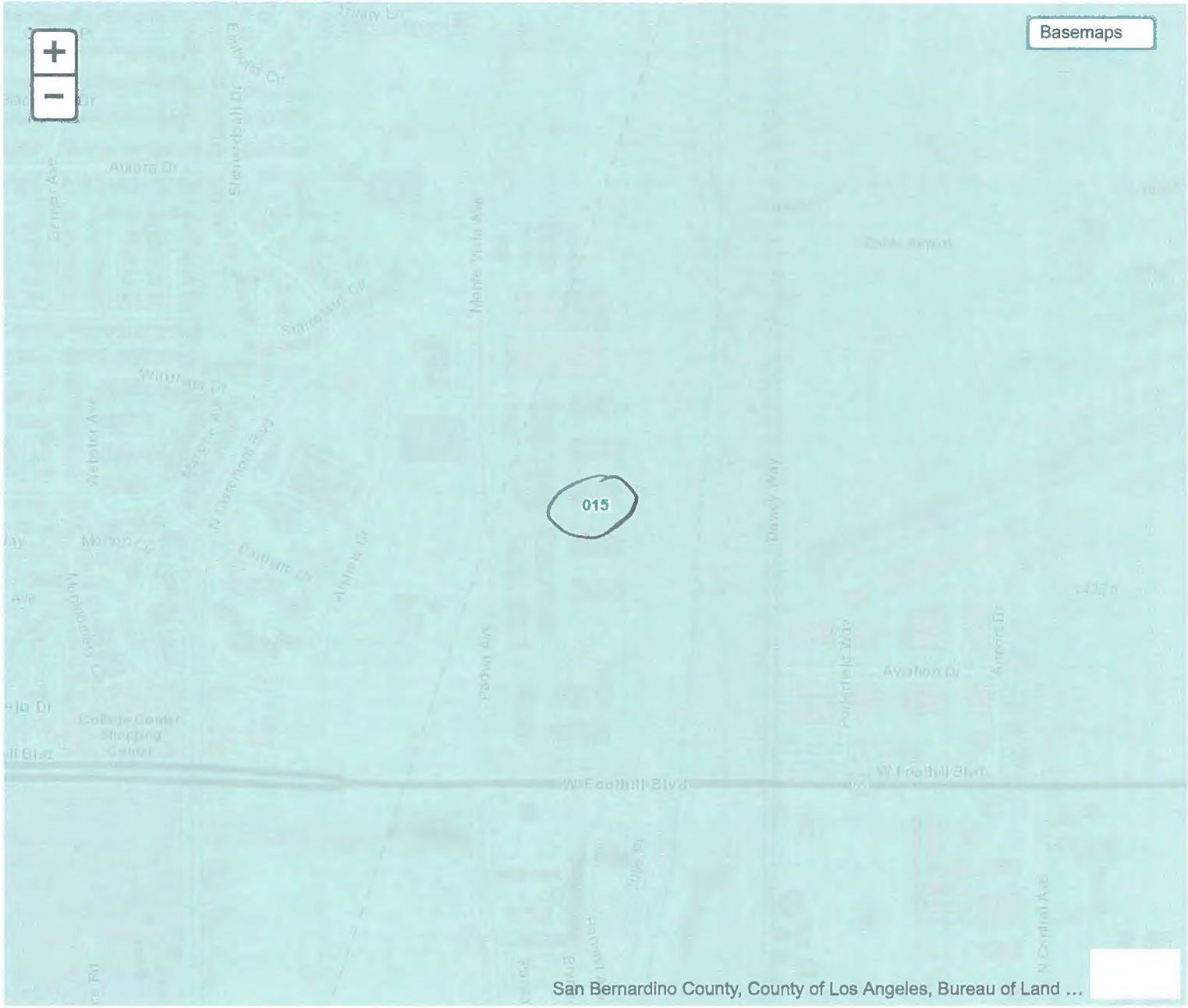
Enter Address, Cross Street, or Parcel No.:
(ex: 900 S. Fremont Ave., Fremont@Valley, 5342005904)

Foothillbl & Monte Vista Claremont

Search

Address Search Results:

Foothillbl AND Monte Vista Claremont



4

Proportion Impervious Data

Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

ON-SITE

Peak Flow Hydrologic Analysis

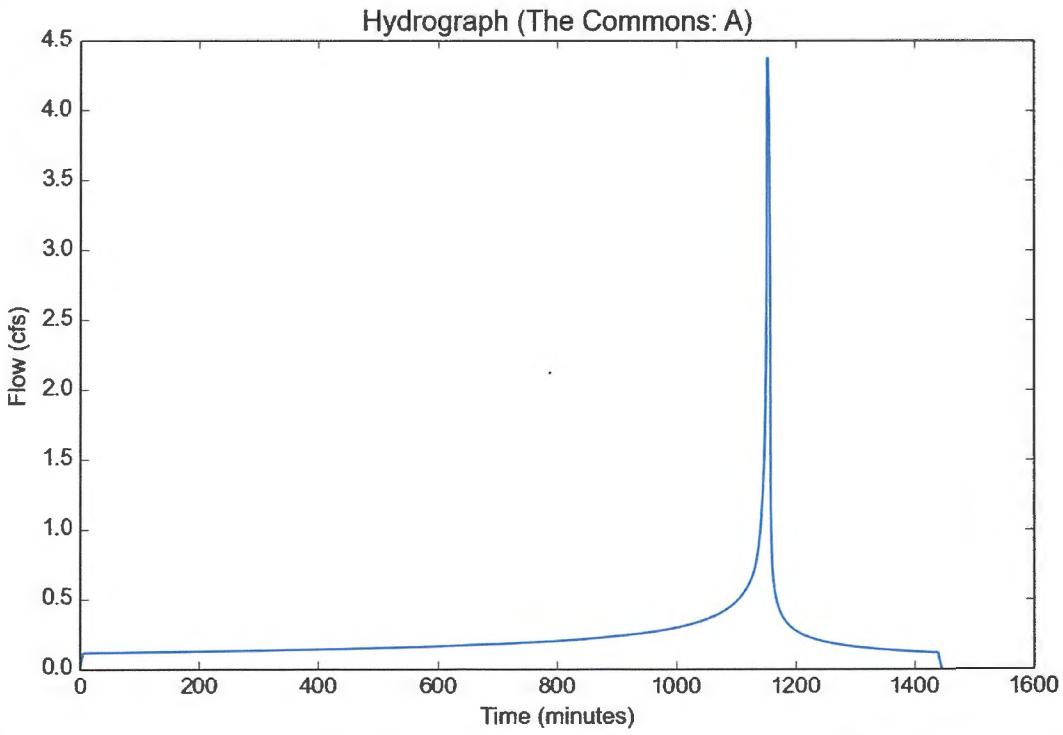
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/50 year Storm event/The Commons - A.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	A
Area (ac)	1.63
Flow Path Length (ft)	480.0
Flow Path Slope (vft/hft)	0.025
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.29
Peak Intensity (in/hr)	3.9922
Undeveloped Runoff Coefficient (Cu)	0.5055
Developed Runoff Coefficient (Cd)	0.6712
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	4.3677
Burned Peak Flow Rate (cfs)	4.3677
24-Hr Clear Runoff Volume (ac-ft)	0.4436
24-Hr Clear Runoff Volume (cu-ft)	19321.5714



ON-SITE

Peak Flow Hydrologic Analysis

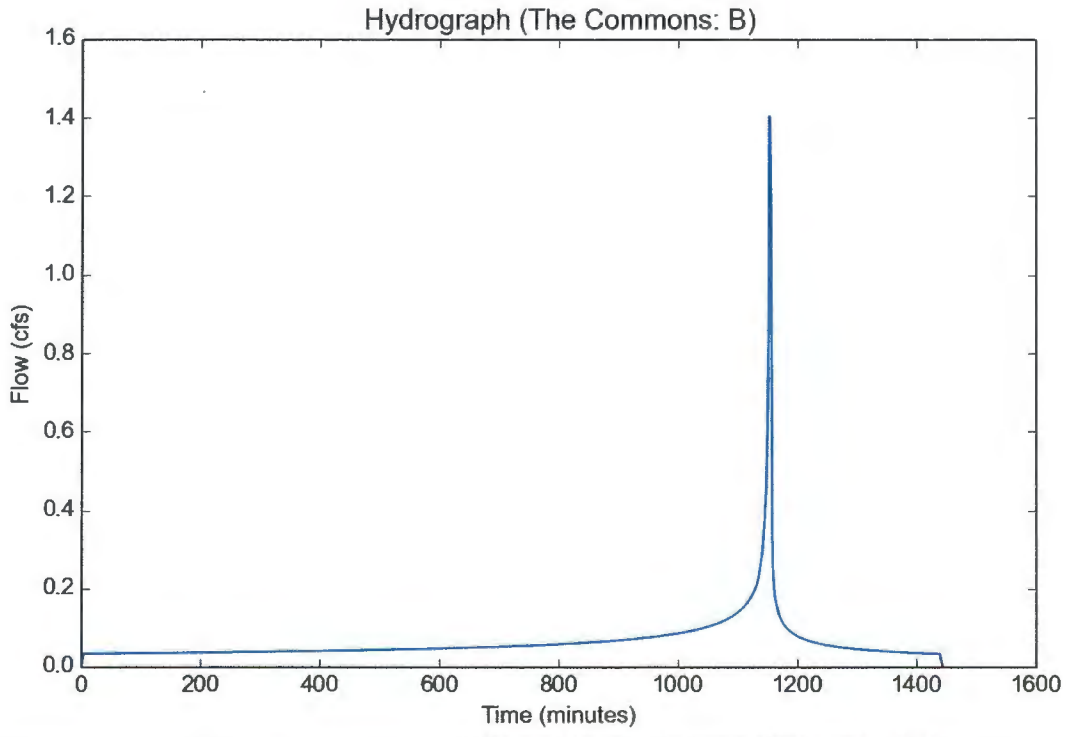
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/50 year Storm event/The Commons - B.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	B
Area (ac)	0.47
Flow Path Length (ft)	280.0
Flow Path Slope (vft/hft)	0.029
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.29
Peak Intensity (in/hr)	4.3494
Undeveloped Runoff Coefficient (Cu)	0.533
Developed Runoff Coefficient (Cd)	0.6872
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.4047
Burned Peak Flow Rate (cfs)	1.4047
24-Hr Clear Runoff Volume (ac-ft)	0.128
24-Hr Clear Runoff Volume (cu-ft)	5575.7866



ON-SITE

Peak Flow Hydrologic Analysis

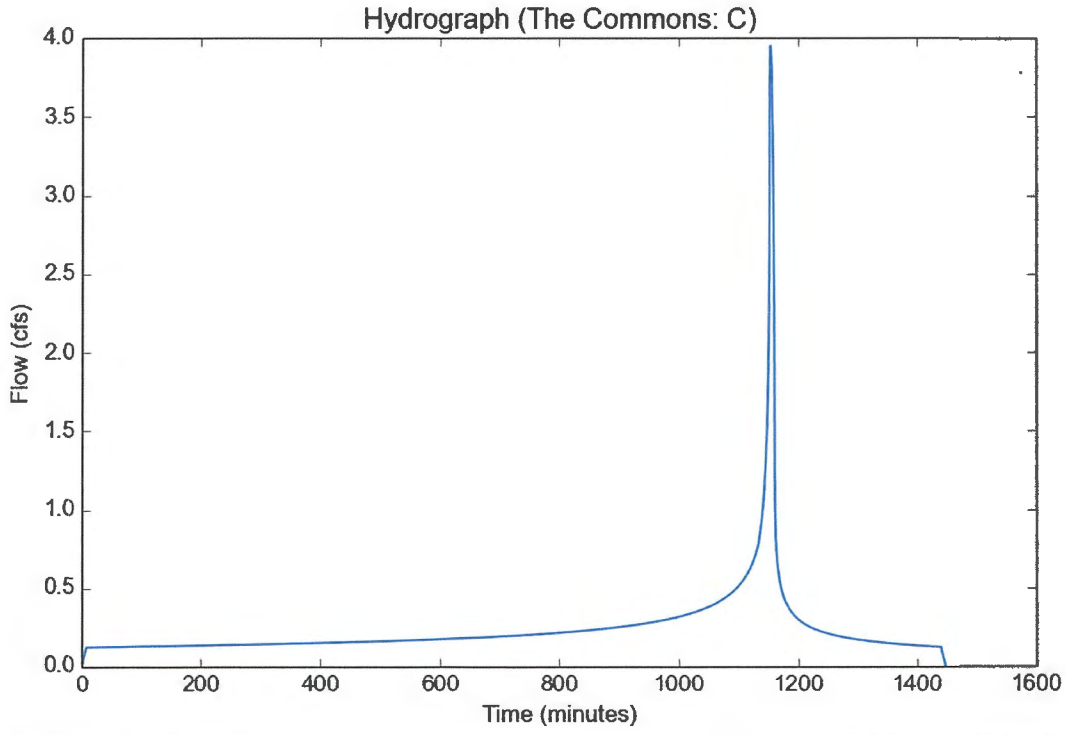
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/50 year Storm event/The Commons - C.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	C
Area (ac)	1.76
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.026
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.29
Peak Intensity (in/hr)	3.4873
Undeveloped Runoff Coefficient (Cu)	0.4572
Developed Runoff Coefficient (Cd)	0.6432
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	3.9477
Burned Peak Flow Rate (cfs)	3.9477
24-Hr Clear Runoff Volume (ac-ft)	0.4782
24-Hr Clear Runoff Volume (cu-ft)	20830.4997



ON-SITE

Peak Flow Hydrologic Analysis

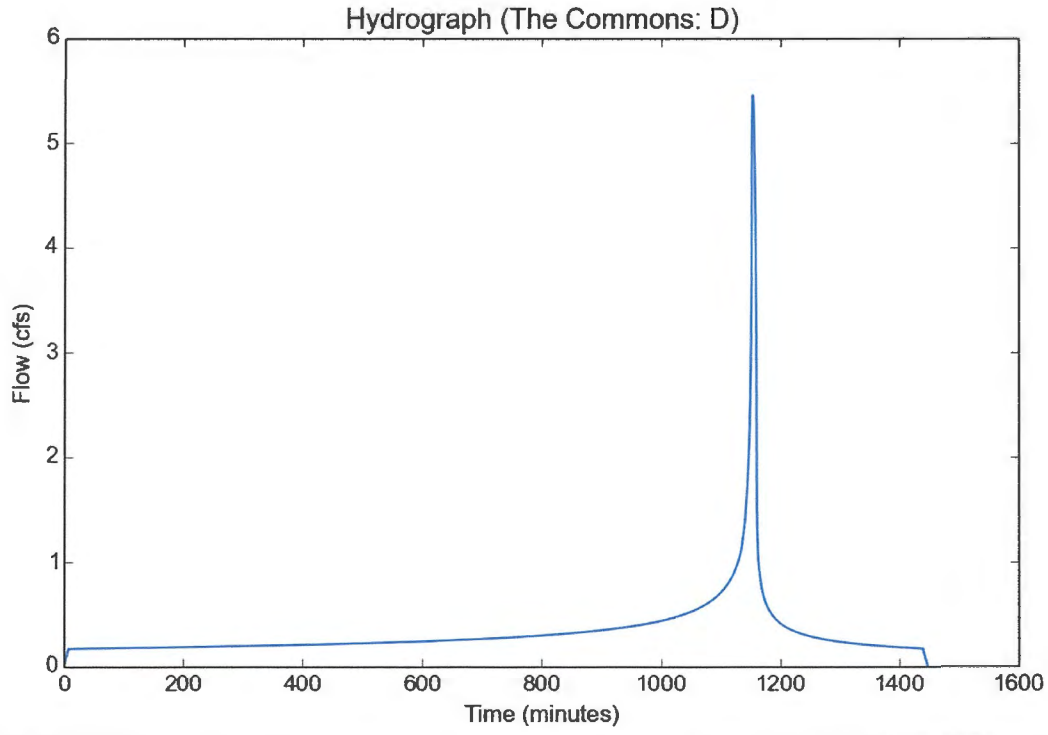
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/50 year Storm event/The Commons - D.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	D
Area (ac)	2.43
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.0209
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.29
Peak Intensity (in/hr)	3.4873
Undeveloped Runoff Coefficient (Cu)	0.4572
Developed Runoff Coefficient (Cd)	0.6432
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	5.4506
Burned Peak Flow Rate (cfs)	5.4506
24-Hr Clear Runoff Volume (ac-ft)	0.6602
24-Hr Clear Runoff Volume (cu-ft)	28760.2922



ON-SITE

Peak Flow Hydrologic Analysis

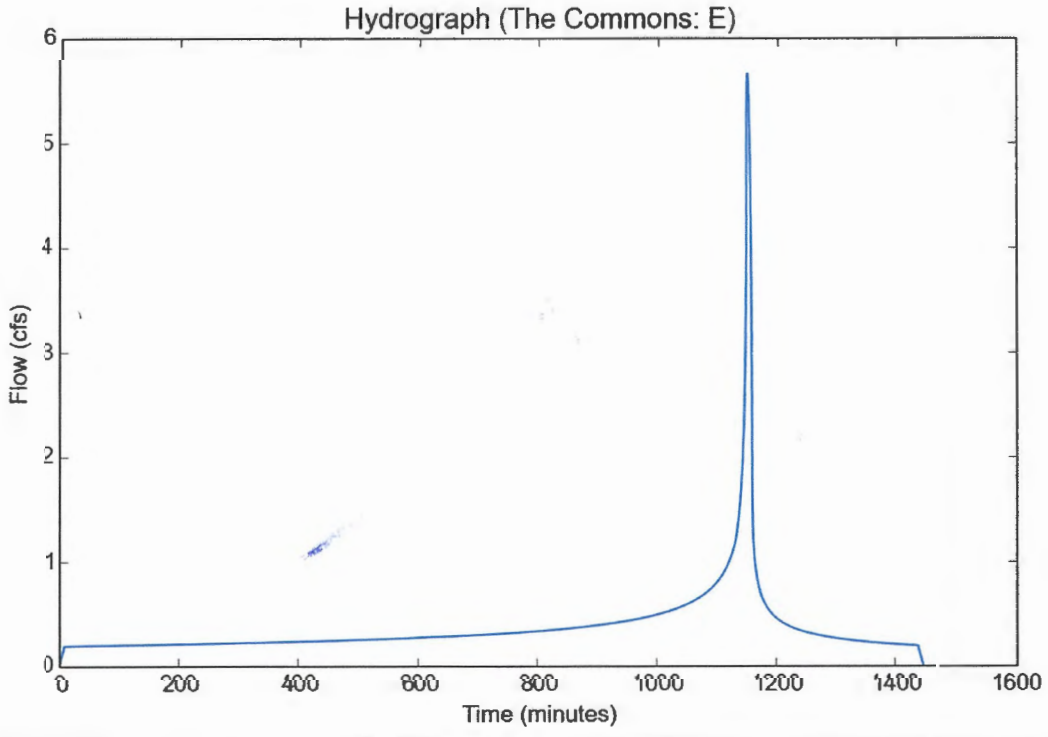
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/50 year Storm event/The Commons - E.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	E
Area (ac)	2.71
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.009
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	7.29
Peak Intensity (in/hr)	3.2995
Undeveloped Runoff Coefficient (Cu)	0.4393
Developed Runoff Coefficient (Cd)	0.6328
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	5.6581
Burned Peak Flow Rate (cfs)	5.6581
24-Hr Clear Runoff Volume (ac-ft)	0.7359
24-Hr Clear Runoff Volume (cu-ft)	32053.948



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Claremont Commence/Claremont Property LLC - A 25yr.pdf
Version: HydroCalc 0.3.1-beta

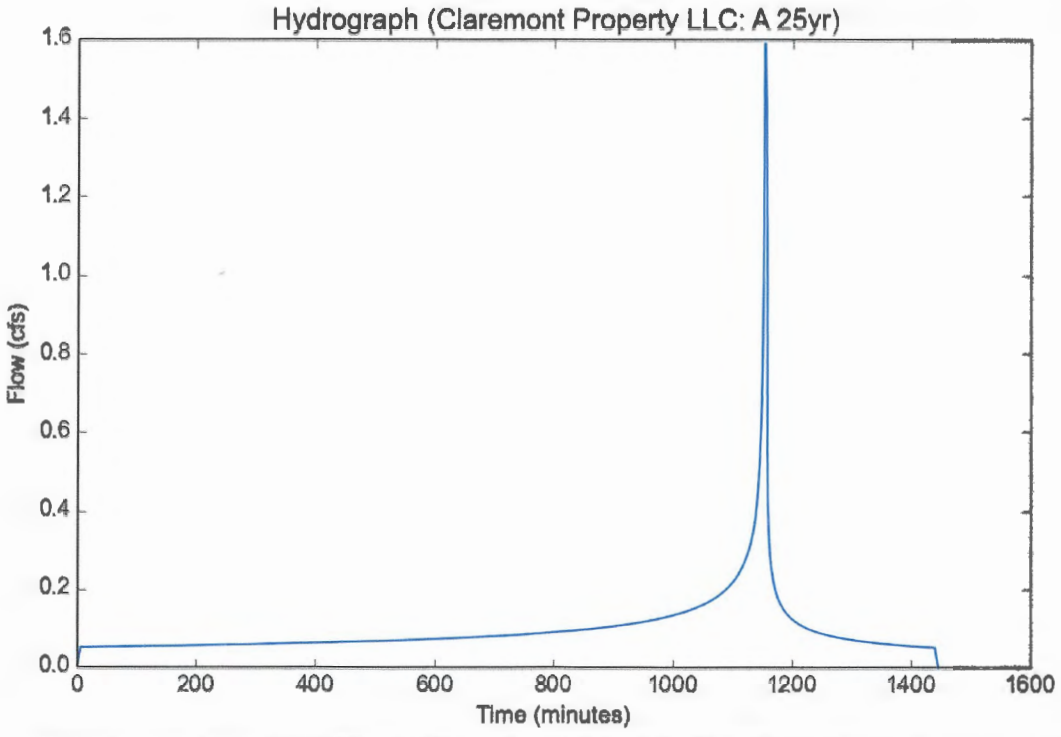
AREA "A" OFF-SITE FROM NORTH

Input Parameters

Project Name	Claremont Property LLC
Subarea ID	A 25yr
Area (ac)	0.62
Flow Path Length (ft)	430.0
Flow Path Slope (vft/hft)	0.0279
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.62
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4006
Peak Intensity (in/hr)	3.5052
Undeveloped Runoff Coefficient (Cu)	0.4589
Developed Runoff Coefficient (Cd)	0.7324
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	1.5916
Burned Peak Flow Rate (cfs)	1.5916
24-Hr Clear Runoff Volume (ac-ft)	0.1983
24-Hr Clear Runoff Volume (cu-ft)	8635.8588



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Claremont Commence/Claremont Property LLC - B 25yr.pdf
Version: HydroCalc 0.3.1-beta

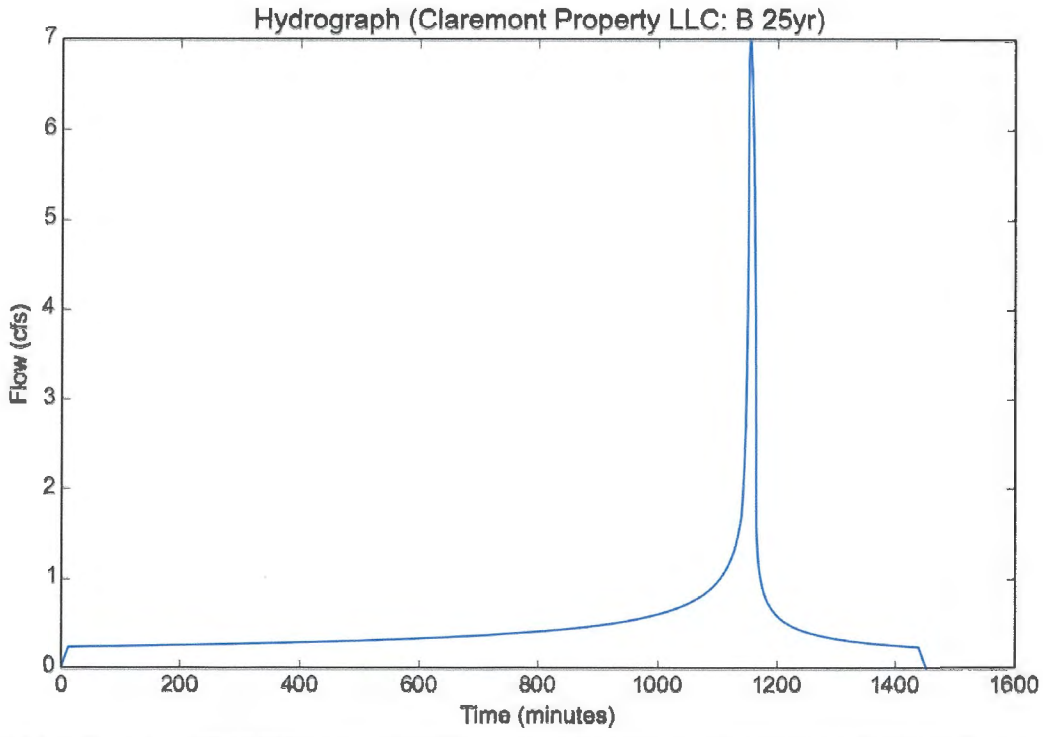
AREA B OFF-SITE FROM NORTH

Input Parameters

Project Name	Claremont Property LLC
Subarea ID	B 25yr
Area (ac)	6.24
Flow Path Length (ft)	1025.0
Flow Path Slope (vft/hft)	0.0322
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.21
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4006
Peak Intensity (in/hr)	2.4372
Undeveloped Runoff Coefficient (Cu)	0.3429
Developed Runoff Coefficient (Cd)	0.4599
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	6.9944
Burned Peak Flow Rate (cfs)	6.9944
24-Hr Clear Runoff Volume (ac-ft)	0.9341
24-Hr Clear Runoff Volume (cu-ft)	40688.8298



Peak Flow Hydrologic Analysis

File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Claremont Commence/Claremont Property LLC - C25yr.pdf
Version: HydroCalc 0.3.1-beta

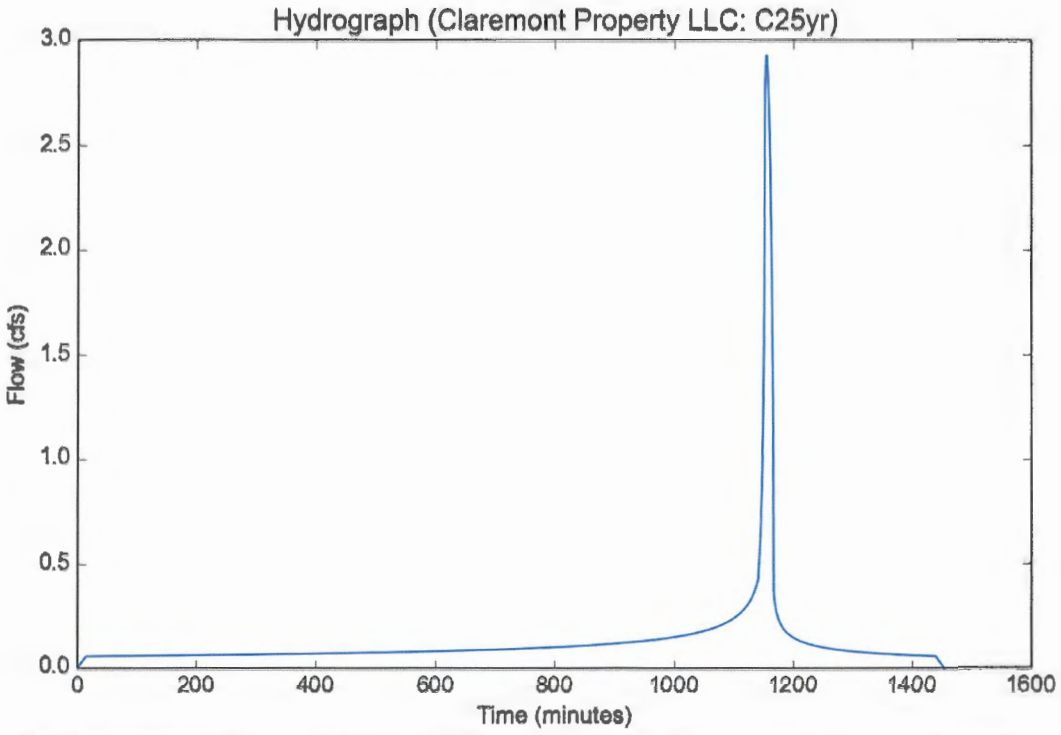
AREA "C" OFF-SITE FROM NORTH

Input Parameters

Project Name	Claremont Property LLC
Subarea ID	C25yr
Area (ac)	3.9
Flow Path Length (ft)	945.0
Flow Path Slope (vft/hft)	0.0392
50-yr Rainfall Depth (in)	7.29
Percent Impervious	0.01
Soil Type	15
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.4006
Peak Intensity (in/hr)	2.2787
Undeveloped Runoff Coefficient (Cu)	0.3239
Developed Runoff Coefficient (Cd)	0.3296
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	2.9294
Burned Peak Flow Rate (cfs)	2.9294
24-Hr Clear Runoff Volume (ac-ft)	0.2601
24-Hr Clear Runoff Volume (cu-ft)	11330.2583



ANDREASEN ENGINEERING, INC.
580 North Park Avenue
Pomona, California 91768
(909) 623-1595
FAX (909) 620-0016

JOB CLAREMONT COMMENTS
SHEET NO. 3036A OF
CALCULATED BY S.V. DATE
CHECKED BY DATE
SCALE

OFF-SITE

ASSIGN / CALC. IMPERVIOUS %

(A) BUILDING / PARKING LOT : 0.38 AC IMPERVIOUS 1.0
NATIVE GROUND : 0.62 - 0.38 = 0.24 AC 0.01
TOTAL AREA 0.62 AC

$$IMP. = \frac{(0.38)(1) + (0.24)(0.01)}{0.62} = 0.62$$

(B) BUILDING / PARKING LOT : 1.24 AC
NATIVE GROUND : (6.24 AC - 1.24 AC) = 5 AC

$$IMP = \frac{(1)(1.24) + (5)(0.01)}{6.24} = 0.21$$

(C) NATIVE GROUND IMP : 0.01

HYDROLOGY DATA
SOIL CLASSIFICATION: 015

50YR-24 HR EVENT: 7.29" (NOAA ATLAS 14)

PRODUCT 204-1 (Single Sheets) 205-1 (Padded)

Peak Flow Hydrologic Analysis

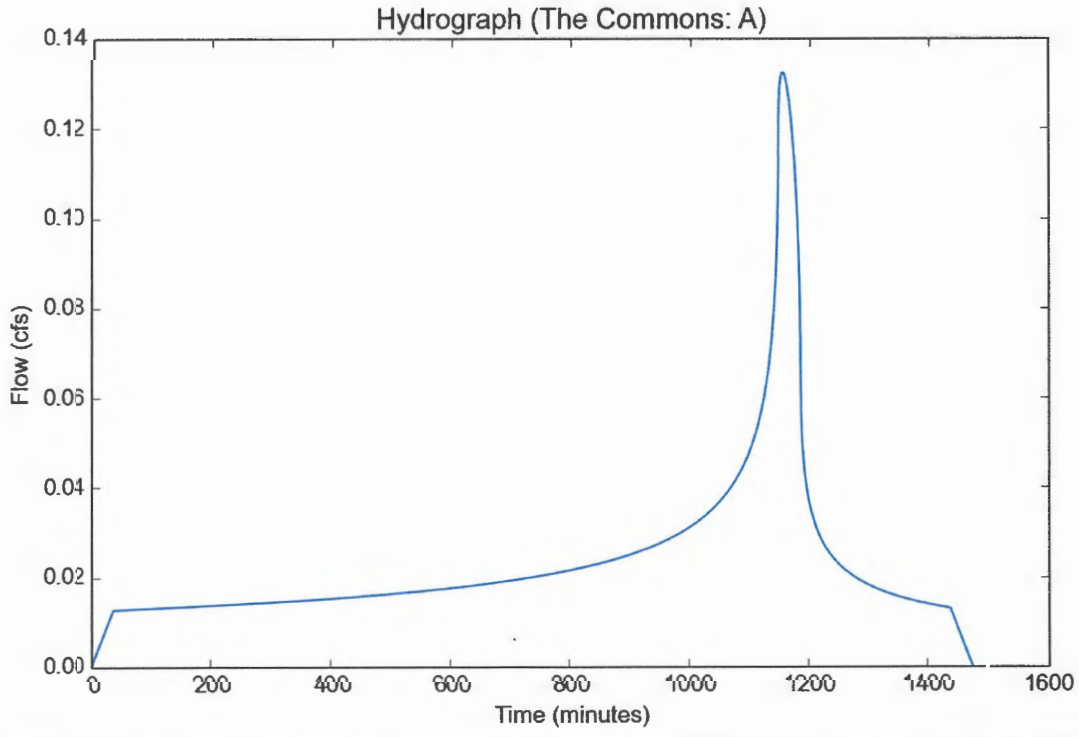
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/The Commons - A.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	A
Area (ac)	1.63
Flow Path Length (ft)	480.0
Flow Path Slope (vft/hft)	0.025
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.1863
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	37.0
Clear Peak Flow Rate (cfs)	0.1324
Burned Peak Flow Rate (cfs)	0.1324
24-Hr Clear Runoff Volume (ac-ft)	0.047
24-Hr Clear Runoff Volume (cu-ft)	2046.7943



Peak Flow Hydrologic Analysis

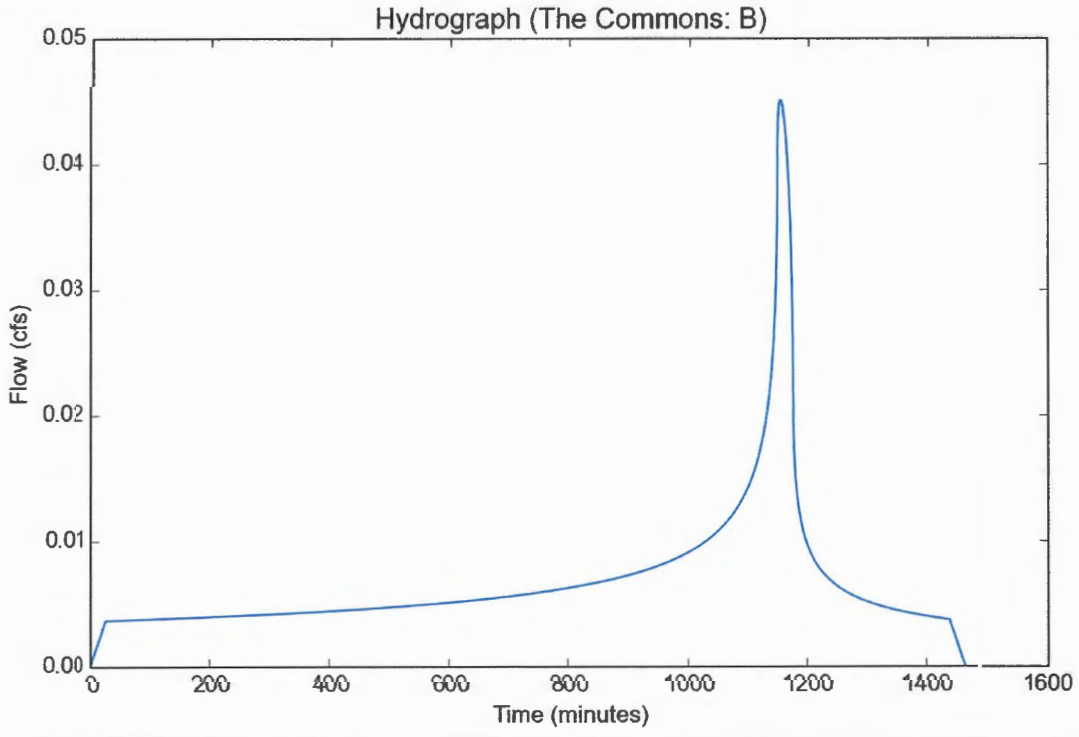
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/The Commons - B.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	B
Area (ac)	0.47
Flow Path Length (ft)	280.0
Flow Path Slope (vft/hft)	0.029
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.2199
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	26.0
Clear Peak Flow Rate (cfs)	0.0451
Burned Peak Flow Rate (cfs)	0.0451
24-Hr Clear Runoff Volume (ac-ft)	0.0135
24-Hr Clear Runoff Volume (cu-ft)	590.1747



Peak Flow Hydrologic Analysis

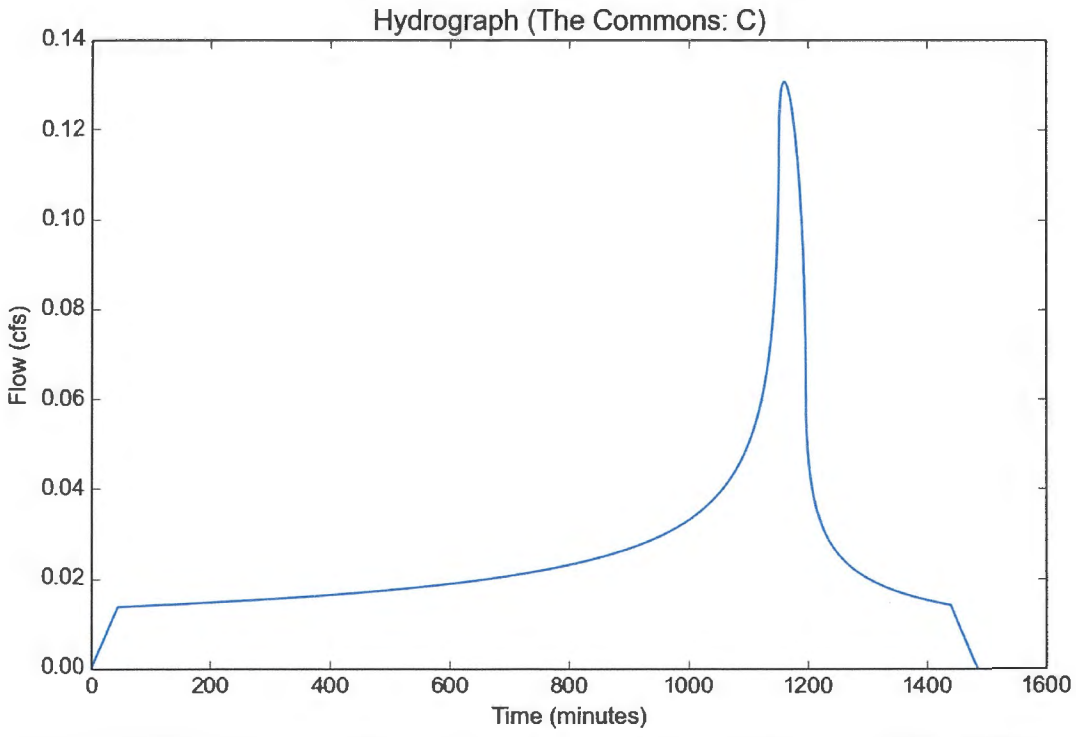
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/The Commons - C.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	C
Area (ac)	1.76
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.026
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.1699
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	45.0
Clear Peak Flow Rate (cfs)	0.1304
Burned Peak Flow Rate (cfs)	0.1304
24-Hr Clear Runoff Volume (ac-ft)	0.0507
24-Hr Clear Runoff Volume (cu-ft)	2210.0545



Peak Flow Hydrologic Analysis

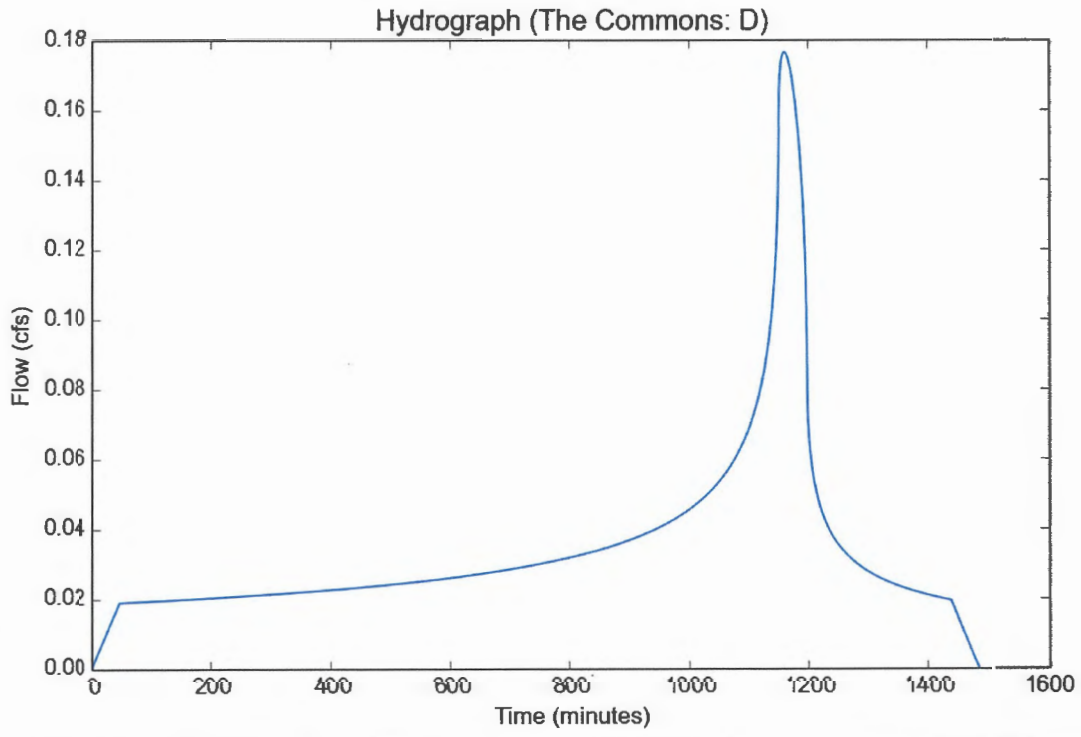
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/The Commons - D.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	D
Area (ac)	2.43
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.0209
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.1665
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	47.0
Clear Peak Flow Rate (cfs)	0.1764
Burned Peak Flow Rate (cfs)	0.1764
24-Hr Clear Runoff Volume (ac-ft)	0.0701
24-Hr Clear Runoff Volume (cu-ft)	3051.3894



Peak Flow Hydrologic Analysis

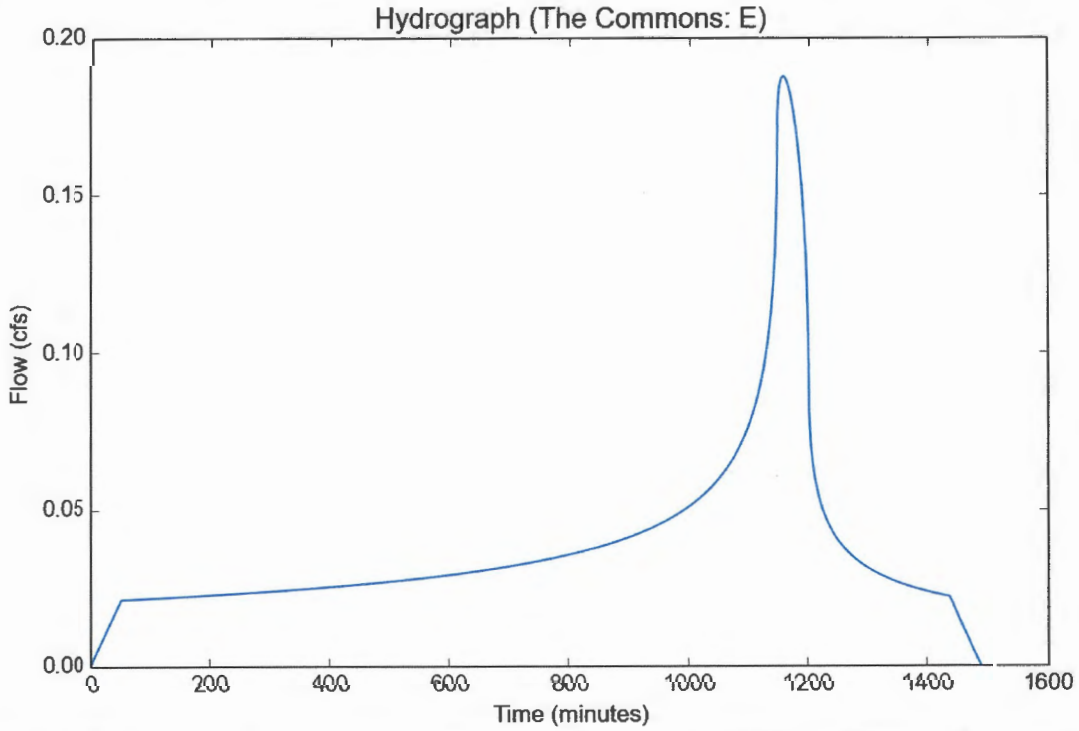
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/Comons/The Commons - E.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	E
Area (ac)	2.71
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.009
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.42
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

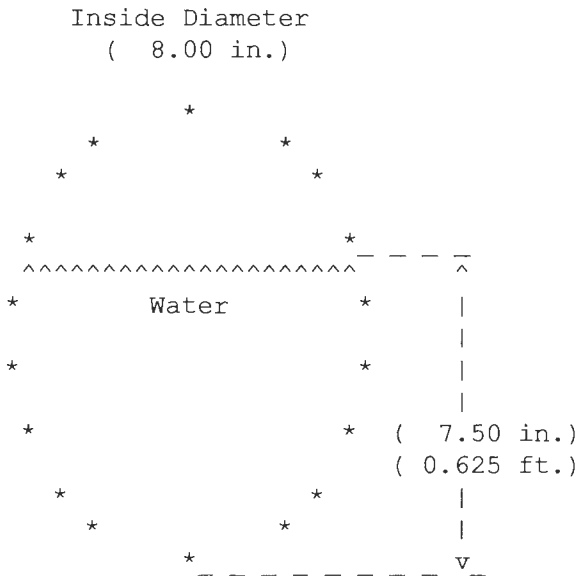
Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.1588
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	52.0
Clear Peak Flow Rate (cfs)	0.1876
Burned Peak Flow Rate (cfs)	0.1876
24-Hr Clear Runoff Volume (ac-ft)	0.0781
24-Hr Clear Runoff Volume (cu-ft)	3403.0119



HYDRAULIC CALCULATIONS

Andreasen Engineering
580 N. Park Ave.
Pomona, Calif. 91768
(909)623-1595



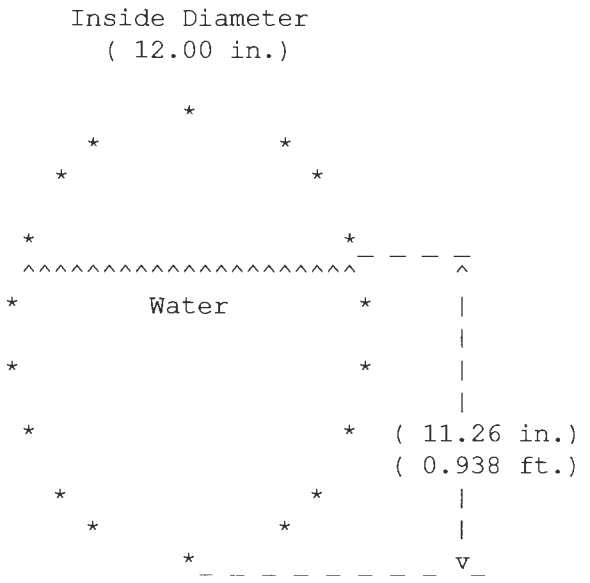
Circular Channel Section

OFF-SITE AREA "A"

Flowrate	2.173	CFS > Q_{25} = 1.59 CFS OF
Velocity	6.388	fps
Pipe Diameter	*8.000	inches
Depth of Flow	7.504	inches
Depth of Flow	0.625	feet
Critical Depth	0.634	feet
Depth/Diameter (D/d)	*0.938	
Slope of Pipe	2.000	% — ASSUMED
X-Sectional Area	0.340	sq. ft.
Wetted Perimeter	1.759	feet
AR^(2/3)	0.114	
Mannings 'n'	*0.011	
Min. Fric. Slope, 8 inch Pipe Flowing Full	2.314	%

* GIVEN

Andreasen Engineering
580 N. Park Ave.
Pomona, Calif. 91768
(909)623-1595



Circular Channel Section

OFF-SITE AREA "B"

Flowrate		7.162	CFS > Q_{25} = 6.99 CFS OK
Velocity		9.359	fps
Pipe Diameter	*	12.000	inches
Depth of Flow		11.256	inches
Depth of Flow		0.938	feet
Critical Depth		0.973	feet
Depth/Diameter (D/d)	*	0.938	
Slope of Pipe	→	2.500	% — ASSUMED
X-Sectional Area		0.765	sq. ft.
Wetted Perimeter		2.638	feet
AR^(2/3)		0.335	
Mannings 'n'	*	0.011	
Min. Fric. Slope, 12 inch Pipe Flowing Full		2.893	%

* GIVEN

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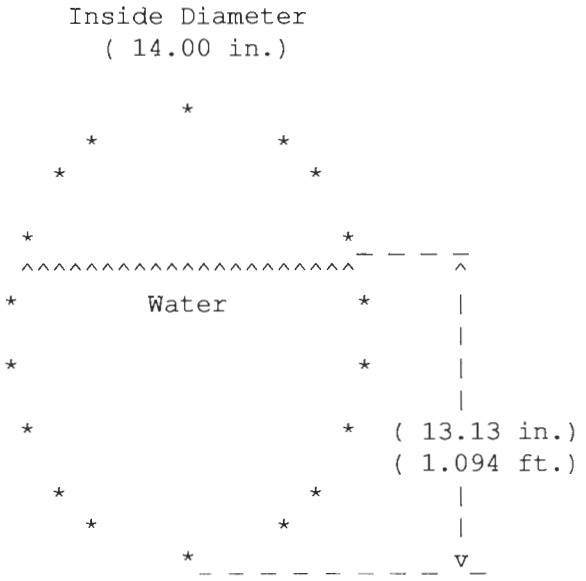
580 N. Park Ave.
Pomona, Calif. 91768
(909)623-1595



Circular Channel Section

OFF-SITE AREAS "A" & AREA "B" CONFLUENCE
$\Sigma Q_{25} = 1.59 + 6.99 = 8.58$ CFS

Flowrate		9.662	CFS
Velocity		9.277	fps
Pipe Diameter	*	14.000	inches
Depth of Flow		13.132	inches
Depth of Flow		1.094	feet
Critical Depth		1.128	feet
Depth/Diameter (D/d)	*	0.938	
Slope of Pipe	*	2.000	% ← ASSUMED
X-Sectional Area		1.042	sq. ft.
Wetted Perimeter		3.078	feet
AR^(2/3)		0.506	
Mannings 'n'	*	0.011	
Min. Fric. Slope, 14 inch Pipe Flowing Full		2.314	%

* GIVEN

INFILTRATION CALCULATIONS

ANDREASEN ENGINEERING, INC.
580 North Park Avenue
Pomona, CA 91768
(909) 623-1595
FAX (909) 620-0016

JOB COMMONS
SHEET NO. _____ OF _____
CALCULATED BY SV. DATE 10/15/16
CHECKED BY _____ DATE _____
SCALE _____

SIZE CONTECH WITH INFILTRATION INCLUDED

- INFILTRATION TEST RESULT 10 IN/HR
- ON-SITE V_{50} = 19,322 + 5576 + 20,830 + 28,768 + 32,054 = 106,550 FT^3 - TARGET VOL.

AVAILABLE AREA: 120' x 50' = 6000 FT^2

INFILTRATION: 10 IN/HR ÷ 2 = 5 IN/HR

$5\ IN/HR \times \frac{1\ FT}{12\ IN} = 0.42\ FT/HR \times 72\ HR = 30.24\ FT$

AREA USED: 29' x 136' (CONTECH FOOT PRINT) = 3944 FT^2

3944 FT^2 x 30.24 FT = 119,267 FT^3
+ 13,038 (FROM CONTECH)
132,305 FT^3 > 106,550 FT^3
OK

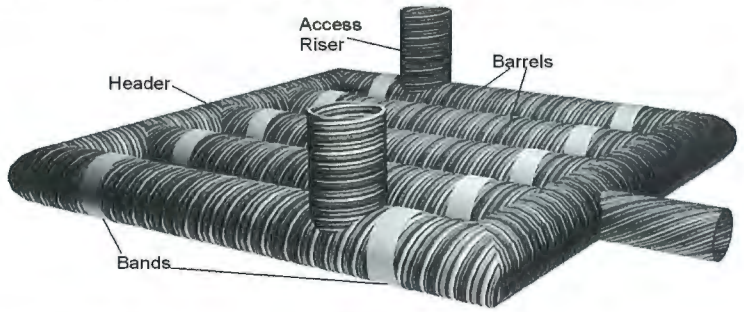
DYODS™

Design Your Own Detention System

CONTECH CMP DETENTION SYSTEMS

CONTECH CONSTRUCTION PRODUCTS INC.

For design assistance, drawings, and pricing send completed worksheet to:
dyods@contech-cpi.com



Project Summary

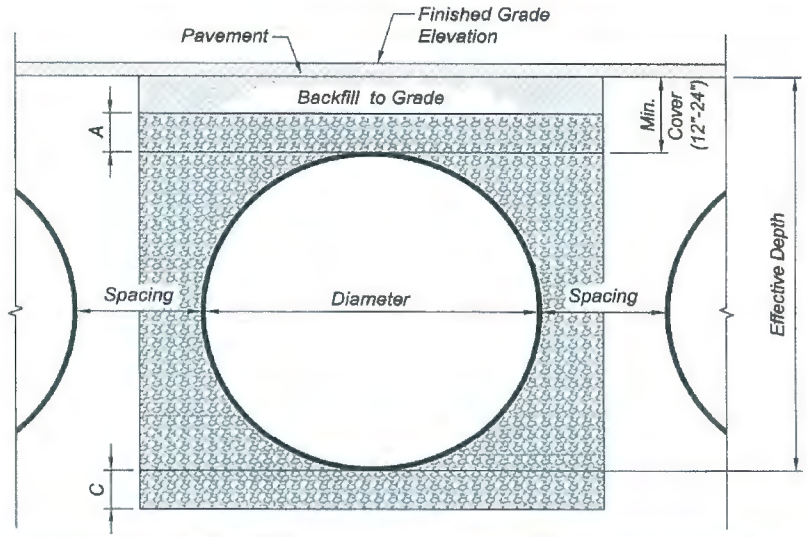
Date:	10/15/2018
Project Name:	Commom
City / County:	Cities of Claremont & Upland
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592

Enter Information in Blue Cells

Corrugated Metal Pipe Calculator

Storage Volume Required (cf):	13,000
Limiting Width (ft):	30.00
Invert Depth Below Asphalt (ft):	10.00
Solid or Perforated Pipe:	Perforated
Shape Or Diameter (in):	48
Number Of Headers:	1
Spacing between Barrels (ft):	2.00
Stone Width Around Perimeter of System (ft):	0.5
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	6
Stone Porosity (0 to 40%):	40

12.57 ft^2 Pipe Area



System Sizing

Pipe Storage:	8,583	cf	
Porous Stone Storage:	4,455	cf	
Total Storage Provided:	13,038	cf	100.3% Of Required Storage
Number of Barrels:	5	barrels	
Length per Barrel:	131.0	ft	
Length Per Header:	28.0	ft	
Rectangular Footprint (W x L):	29. ft x 136. ft		

CONTECH Materials

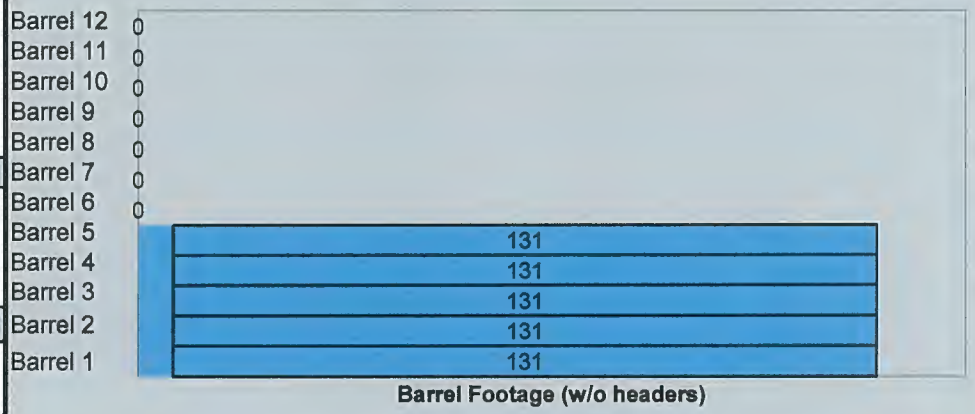
Total CMP Footage:	683	ft
Approximate Total Pieces:	32	pcs
Approximate Coupling Bands:	31	bands
Approximate Truckloads:	4	trucks

Construction Quantities**

Total Excavation:	1461	cy
Porous Stone Backfill For Storage:	412	cy stone
Backfill to Grade Excluding Stone:	731	cy fill

***Construction quantities are approximate and should be verified upon final design*

System Layout



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GEOTECHNICAL REPORT

ALTA CALIFORNIA
GEOTECHNICAL INC.

170 North Maple Street, Suite 108
Corona, CA 92880
www.altageotechnical.com

WALBERN DEVELOPMENTS
29222 Rancho Viejo Road, Suite 207
San Juan Capistrano, California 92675

June 20, 2018
Project No. 2-0128

Attention: Mr. Matt Waken

Subject: ***GEOTECHNICAL INVESTIGATION***
Foothill East project on Foothill Boulevard at Monte Vista Avenue
Cities of Claremont and Upland, California

References: Appendix

Dear Mr. Waken:

Presented herein is Alta California Geotechnical, Inc.'s (Alta's) geotechnical investigation of the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard in the Cities of Claremont and Upland, California. This report is based on Alta's recent subsurface investigation, laboratory testing, engineering analyses, and review of the referenced reports.

Alta's review of the geotechnical data and conceptual plan indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions;
- Recommendations for remedial and site grading, including unsuitable soil removals;
- Geotechnical site construction recommendations;
- Preliminary foundation design parameters.

locations of the test pits are shown on enclosed Plate 1 and the test pit logs are presented in Appendix B.

Laboratory testing was performed on bulk samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

Alta conducted infiltration testing on June 1, 2018 in general conformance with the San Bernardino County Technical Guidance Document for WQMP. Infiltration testing utilizing the shall percolation test procedure was undertaken in two, five (5) foot-deep test pits (P-1 and P-2), and in two, ten (10) foot-deep test pits (P-3 and P-4). The test pits were presoaked, and the water level reading were recorded every 10 minutes until the readings stabilized. The data was then adjusted to provide an infiltration rate utilizing the Porchet Method. A summary of the results is presented in Table 3-1, which do not include a factor of safety. Recommendations for infiltration BMP design are presented in Section 6.2.

Table A-Summary of Infiltration Testing (No Factor of Safety)

Test Designation	P-1	P-2	P-3	P-4
Approximate Depth of Test	5.0 ft	5.0 ft	10.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches	4 inches	4 inches
Tested Infiltration Rate	10 inches/hr	10 inches/hr	10 inches/hr	10 inches/hr

be maintained. Caving was observed in the test pits onsite, indicating that backcuts in the upper soils may need to be shallower than 1:1.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

Preliminary infiltration testing was conducted at the site as part of this investigation, and the results are presented in Section 3.2. Based on our testing, the infiltration rates at the site are high. As such, infiltration-type WQMP systems are feasible.

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping

subgrade. Care should be taken in designing systems that control the storm water as much as possible. A methodology for dealing with overflow should the infiltration system become clogged or full should be developed and maintained.

It is recommended that the Project Geotechnical Consultant observe the BMP excavations during construction to verify that the infiltration rates presented herein are appropriate. If it is determined that rates may be variable, additional infiltration testing should be undertaken.

If infiltration-type storm water systems are proposed, additional infiltration testing may be required at site-specific locations when the location and elevations for infiltration structures are determined.

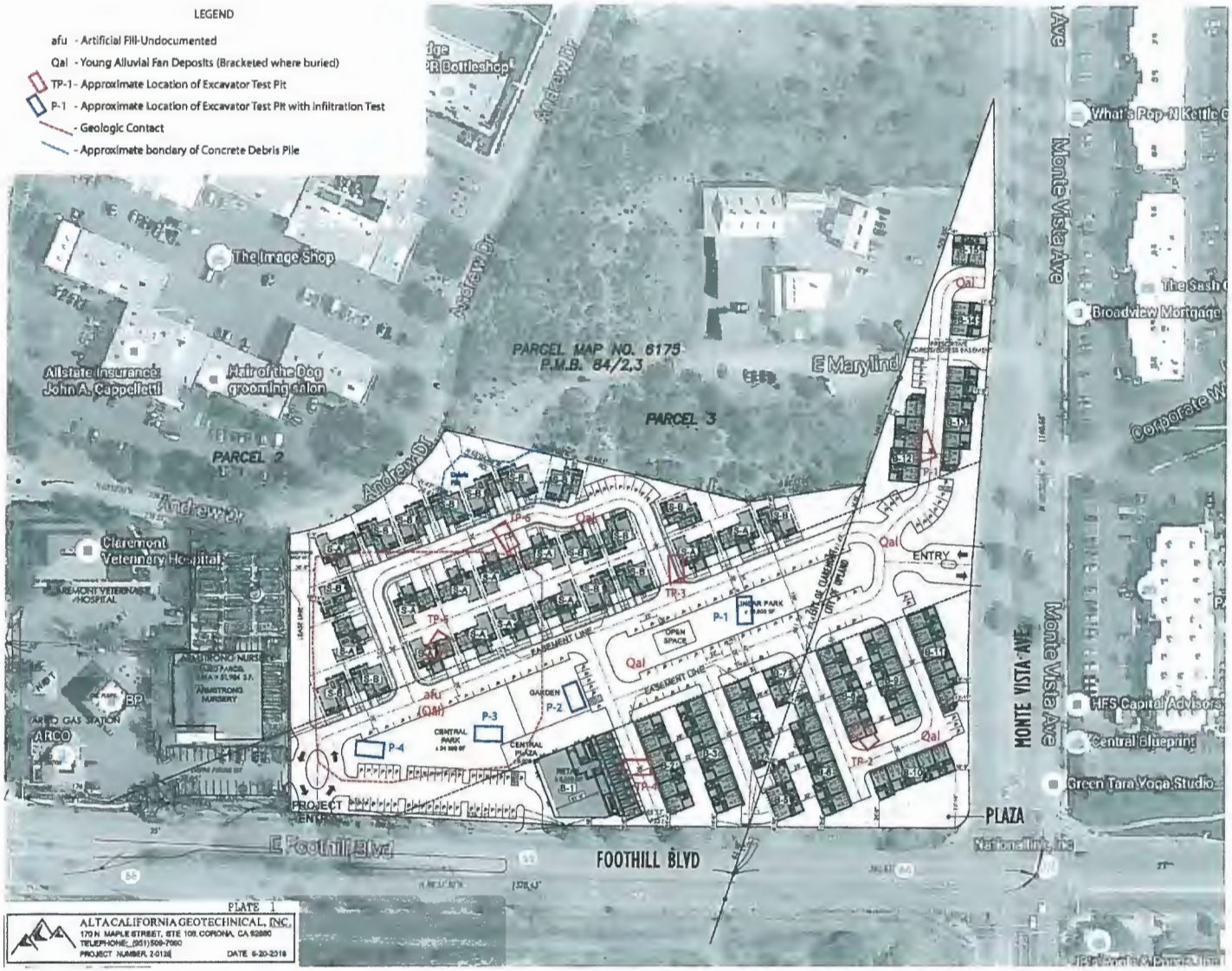
6.4 Boundary Conditions

The site is bounded in areas by existing improvements such as Foothill Drive, Monte Vista Avenue, Andrew Drive and the Armstrong Nursery. Construction of retaining/screen walls or other improvements along these boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story, wood-frame residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to the individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design



SITE SUMMARY

Developable Acres: ±6.4 ac.

Unit Mix:

Single Family Detached

S-A Plan (2,500 sf):	±12 units (44%)
S-B Plan (2,200 sf):	±15 units (56%)
	±27 units

Townhomes

±21'x38' Towns:	±61 units
Carriage Towns:	±7 units
	±68 units

Mixed Use

Flats:	±10 units
TOTAL UNITS:	±105 units

Density: ±16.4 du/ac

Parking:

Garages:	±200 spaces	(2/unit)
Driveways:	±27 spaces	(10'x18')
On street:	±84 spaces	(8'x22' Parallel) (9'x18' Perpendicular)
Total:	±311 spaces	(3.0 sp/unit)

Retail Parking: ±43 spaces

Setbacks:

Front		
	Residential:	7'
	Retails:	5'
Sides		5'
Rear		5'

Building Separation:

SFD		10'
Townhomes		
	Front to Front	20'
	Side to Side	6' Min.
	Rear	28'

Street Width:

Main:	26'
Main w/ Parallel parking one side (8x22):	34'
Main w/ Parallel parking both sides:	42'
Private Drive:	26' (SFD: 24')

ktgy

WALBERN DEVELOPMENTS

Walbern Development
28222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walberndevelopment.com

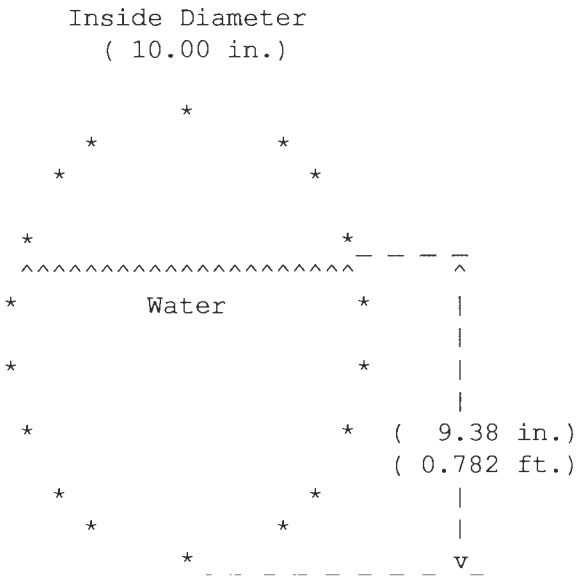
Foothill East
Claremont, CA
#2018-0231

SITE PLAN

0 30 60 120

A1.0

Andreasen Engineering
580 N. Park Ave.
Pomona, Calif. 91768
(909)623-1595



Circular Channel Section

OFF-SITE AREA "O"

Flowrate	3.939	CFS > Q_{25} = 2.93CFS OK
Velocity	7.413	fps
Pipe Diameter	*10.000	inches
Depth of Flow	9.380	inches
Depth of Flow	0.782	feet
Critical Depth	0.798	feet
Depth/Diameter (D/d)	* 0.938	
Slope of Pipe	→ 2.000	% ASSUMED
X-Sectional Area	0.531	sq. ft.
Wetted Perimeter	2.199	feet
AR^(2/3)	0.206	
Mannings 'n'	* 0.011	
Min. Fric. Slope, 10 inch Pipe Flowing Full	2.314	%

* GIVEN

ANDREASEN ENGINEERING, INC.
Civil Engineering • Land Surveying • Municipal Engineering

Andreasen Engineering, Inc, response to City of Claremont Drainage Comments.

It appears that City did not have the drainage report, dated 10/16/18, for your review based on the City's comments below. We will responses to drainage review comments:

2. Sub-Areas map is missing.
   - *Response: Please look at "Hydrology Work Map in the Drainage Report" date 10/16/18. All on-site subareas are shown. Subareas A through D. Also the off-site drainage areas, Subareas A through C on the north side of project are shown on topographic map by Arrow Engineering. Two hydrology work maps were submitted.*

3. Provide map showing location of proposed CONTECH infiltration device.
   - *Response: The CONTECH device is shown on the hydrology work map Subarea "D".*

4.Clarify required storage of the CONTECH system versus the provide infiltration calculation.
   - *Response: The CONTECH system will store assigned volume where the footprint made by the CONTECH CMP and surrounding stone at the bottom are used for infiltration as shown in Drainage Report page 23.*

5. Clarify any discrepancy between the contech calculations provides by Andreasen Engineering, Inc. and Everest Environmental Why are they different, or are these multiple locations.
   - *Response: We provide Everest Environmental with our target volume for the CONTECH system and they have updated SUSMP. There is one CONTECH system.*

6. Does the catch basin shown on Monte vista Ave. currently connected to the existing culvert that passes underneath Foothill Blvd.? The conceptual utility plan shows a proposed storm water by-pass connection to the culvert in question that drains to the private property on the south side if Foothill Blvd. This is not acceptable.
   - *Response: Historically northern area drains to the pit on the south side of Foothill Blvd. There are two existing concrete box culvert constructed in 1947 to less the runoff impact on Foothill Blvd, (Route 66) and other areas. There is an existing catch basin on the northeast corner of Monte Vista Ave. and Foothill Blvd. that drains to the pit. This propose catch basin in acceptable to drain to the pit. This in the City of Upland for their comments.*

- *Response: The existing property drain from north to south, not south to west. Historically tributary drainage areas entered the existing box culvert from mile up-stream. The area north of project will be route through the site and connected to the existing box culvert as they historically have, less the project limits that stored and infiltrated.*

19. The drains that will take drainage north of the project site do not seem to be covered in the drainage report. The subarea was missing, and needs to be provided, please include the subareas that will be tributary to these lets as part of the drainage/hydrology study, and reference section.

- *Response: Runoffs from the north areas are covered in the hydrology calculations (pages 11-13) and the hydraulic calculations (pages 21-23a). The subarea map is shown on Arrow Engineering, Schematic Grading Plan"*

Stephen Ventura, R.C.E.
Vice-President

2/3/20
Date

REGISTERED PROFESSIONAL ENGINEER
STEPHEN VENTURA
C 32437
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

APPENDIX F-2:

Standard Urban Stormwater Mitigation Plan (SUSMP), Claremont Commons. Everest Environmental, Inc. June 27, 2018, revised January 28, 2020

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STANDARD URBAN STORMWATER MITIGATION PLAN
(SUSMP)

CLAREMONT COMMONS

NORTHWEST CORNER OF INDIAN HILL BOULEVARD AND MONTE VISTA AVENUE

CITY OF CLAREMONT, IN LOS ANGELES COUNTY

Prepared for:
Clare Properties, LLC
9595 Wilshire Boulevard, Suite 600
Beverly Hills, CA 90212

Prepared By:
Everest Environmental, Inc.
6297 East Avenue
Rancho Cucamonga, CA 91739

EVEREST ENVIRONMENTAL

Site Specific

STANDARD URBAN STORMWATER MITIGATION PLAN (SUSMP)

For

CLAREMONT COMMONS

At

NORTHWEST CORNER OF INDIAN HILL BOULEVARD AND MONTE VIST AVENUE CLAREMONT, CA 91711

PREPARED FOR :

CLARE PROPERTIES, LLC
9595 WILSHIRE BOULEVARD, SUITE 600
BEVERLY HILLS, CA 90212
MATTHEW J. WAKEN
(310) 860-5409 (TELEPHONE)
matt@walbern.com

PREPARED BY:

6297 EAST AVENUE
RANCHO CUCAMONGA, CA 91739
(909) 957-4239 (TELEPHONE)
RYAN C. PARIS, CPESC
ryan.paris@everestenvironmental.com

DATE PREPARED:

June 27, 2018

REVISED:

January 28, 2020

OWNER'S CERTIFICATION

STANDARD URBAN STORMWATER MITIGATION PLAN

FOR THE CLAREMONT COMMONS

This Standard Urban Stormwater Mitigation Plan for Single and Multi-Family Housing construction has been prepared for Clare Properties, LLC by Everest Environmental, Inc. It is intended to comply with the requirements of the City of Claremont, County of Los Angeles, requiring the preparation of a project specific SUSMP.

I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for the gathered information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are Significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Los Angeles County Stormwater Quality Management Plan (SQMP), and the intent of the stormwater and urban runoff NPDES Permit and Waste Discharge Requirements for the County of Los Angeles, Los Angeles County Flood Control District and the incorporated Cities of Los Angeles County under the jurisdiction of the Los Angeles Regional Water Quality Control Board. A copy of this SUSMP will be maintained at the project Site/office.

This SUSMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party having responsibility for implementing portions of this SUSMP. At least one copy of the approved and certified copy of this SUSMP shall be available on the subject property in perpetuity. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the SUSMP.

Signed:

Name:

Title:

Company: Clare Properties, LLC

Address: 9595 Wilshire Boulevard, Suite 600, Beverly Hills, CA 90212

Telephone #:

Date:

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Appendices

Appendix A - Vicinity Map and Site Plan
Appendix B - BMP Details
Appendix C - SUSMP Calculations
Appendix D - Educational Materials
Appendix E – Soils Information

Section I Applicant Information

The SUSMP Applicant is as follows:

Clare Properties, LLC
9595 Wilshire Boulevard, Suite 600
Beverly Hills, CA 90212

Matthew J. Waken
matt@walbern.com
Office: 310.860.5409

Section II SUSMP Preparer

This SUSMP document has been prepared by:

6297 East Avenue
Rancho Cucamonga, CA 91739

Ryan Paris, CPESC # 5722
ryan.paris@everestenvironmental.com
(909) 957-4239 (telephone)

Section III Project Contact Person

The Site Contact Person is as follows:

Clare Properties, LLC
9595 Wilshire Boulevard, Suite 600
Beverly Hills, CA 90212

Matthew J. Waken
matt@walbern.com
Office: 310.860.5409

Section IV Project Description

Project Description: The proposed project will occur over 9.5 acres at northwest corner of Indian Hill Boulevard and Monte Vista Avenue, primarily in the City of Claremont in Los Angeles County, and also with a portion in the City of Upland in San Bernardino County. The project intends to complete the construction of 27 single-family residence and 67 multi-family units, including parkways, garages, and greenspace/common area. Site features include precise grading and excavation, the construction of housing units including exterior and interior finishes, placement of driveways/parkways, and construction of drainage systems complete with retention/infiltration BMPs in order to capture and infiltrate the "first flush" or ¾" of precipitation.

Project Features: The project site is primarily undeveloped property but contains a small building pad in disrepair. The site is bound by Indian Hill Boulevard to the south, Monte Vista Avenue to the east, undeveloped land and industrial facility to the north, and commercial/retail development to the west. The property is accessed via existing East Marylind Avenue from Monte Vista Avenue. The site encompasses 9.5 acres and is not known to contain environmentally sensitive areas, or water features. Topographically, the project site slopes gently down toward the southwest with elevations ranging from approximately 1,362 feet above mean sea level (MSL) at the northeast end to approximately 1,330 feet MSL at the southwest end (GoogleEarth, 2018). Site features include run-on to the northern boundary of the property. In order to move this water though the site, the design team has proposed a v-gutter along the northern boundary which will connect to an underground storm drain systems that will simply pass though the site and connect directly to the storm drain beneath Foothill Boulevard. See the proposed utility/storm drain map in Appendix A.

The site currently drains via sheet flow overland drainage to the southwest corner of the site to the existing curb and gutter on Foothill Boulevard. Flows continue within the curb and gutter west prior to entering Los Angeles Flood Control owned storm drain systems via a storm drain inlet at the northeast corner of Foothill Boulevard and Claremont Boulevard (lat. 34.107064 lon. -117.702631). Underground storm drain pipe carries flows to the San Antonio Creek Channel, a completely hardened and engineered drainage conveyance. Flows from the site comingle with the San Antonio Creek Channel approximately 0.4 miles from the project site, then on to Chino Creek 5.7 miles from the site, then on to Chino Creek Reach 1B. Chino Creek outfalls to the Prado Flood Control Basin 11.5 miles from the project discharge point.

Post construction drainage characteristics create a single drainage management area provided by an onsite stormdrain system which discharges to an underground proprietary retention/infiltration Contech CMP Detention System. This system has

been designed to detain all flows generated from a 50-yr, 24-hour event, which generates 106,550 cubic feet. After accounting for 72 hours of infiltration, and the Contech Pipe Retention, the site will be able to retain and infiltrate 132,305 cubic feet. This is significantly in excess of the basic Design Capture Volume (DCV) of 17,949cf for the 85th percentile storm. Since conditions exist which mandate collection of a 50yr-24hr event, site design will satisfy SUSMP requirements in excess by retaining and infiltrating 114,356 cubic feet more than that of the 85th percentile storm event.

The end use of this proposed project is single and multi-family housing. Expected pollutants from these facilities include sediments from typical fall-out, oils and grease (hydrocarbons), metals, nutrients, pesticides and trash and debris. Potentially, the site discharges may contain organic compounds.

Per the Los Angeles Regional Water Quality Control Board (LARWQCB) 303(d) List of Impaired Water Bodies, San Antonio Creek is listed for pH, Chino Creek Reach 2 is impaired for pH, and Coliform Bacteria, with Chino Creek Reach 1B listed for COD and Nutrients. The Prado Flood Control Basin is listed for pH. Through infiltration, the sites treatment control BMP is efficient in the high removal of sediments, metals, oil and grease, organics, nutrients, trash, and bacteria.

The tract will be owned and operated by Clare Properties and creation of a Home Owners Association (HOA).

Discretionary Permits: An NPDES Permit for Stormwater Discharges Associated with Construction Activity is required for this project which is greater than 1 acre of soil disturbance.

A. SUSMP Category

SUSMP Categories	
	1. Single-family hillside hes (only development of one acre or more of surface area is subject to the SUSMP numerical design criteria requirement).
✓	2. Home subdivisions of 10 units or more. This includes single family residences, multi-family residence, condominiums, apartments, etc.
	3. Industrial/commercial developments of 100,000 square feet or more of impervious area. Commercial developments include non-residential developments such as hospitals, educational institutions, recreational facilities, mini-malls, hotels, office buildings, warehouses, and light industrial facilities.
	4. Automotive service facilities (with SIC codes 5013, 5014, 5541, 7532-7534, 7536-7539).
	5. Retail gasoline outlets (5,000 square feet or more of impervious area and Average Daily Traffic (ADT) of 100 or more vehicles).
	6. Restaurants (SIC 5812) (5,000 square feet or more of surface area).
	7. Parking lots of 5,000 square feet or with more than 25 or more parking spaces exposed to storm water. Parking lot is defined as land area or facility for the temporary storage of motor vehicles.
	8. Developments of 2,500 square feet of impervious surface or more adjacent to (within 200 feet) or discharging directly into environmentally sensitive areas such as areas designated in the Ocean Plan as areas of special biological significance or waterbodies listed on the CWA Section 303(d) list of impaired waters.
	8. Redevelopment projects resulting in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site.

This project falls under the "10+ Unit Subdivision" SUSMP category.

B. Project Area

- The project area encompasses 9.5 acre. The total contributive drainage area 9.5 acres.

C. Soil Disturbance

- The project orders if work include soil disturbance of approximately 9.5 acres.

D. Retention Capacity

- Post construction drainage characteristics create a single drainage management area provided by an onsite stormdrain system which discharges to an underground proprietary retention/infiltration Contech CMP Detention System. This system has been designed to detain all flows generated from a 50-yr, 24-hour event, which generates 106,550 cubic feet. After accounting for 72 hours of infiltration, and the Contech Pipe Retention, the site will be able to retain and infiltrate 132,305 cubic feet. This is significantly in excess of the basic Design Capture Volume (DCV) of 17,949cf for the 85th percentile storm. Since conditions exist which mandate collection of a 50yr-24hr event, site design will satisfy SUSMP requirements in excess by retaining and infiltrating 114,356 cubic feet more than that of the 85th percentile storm event.

E. Ground Water Table

- *According to the regional ground water contour maps prepared by the California Division of Mines and Geology (2000), the highest historic ground water level beneath the site has been on the order of 100 feet."*

F. Soil Conditions

- According tom the United States Department of Agriculture, Natural Resource Conservation Service, onsite soils consist of Soboba stony loamy sand, and Soboba stony loamy sand. Both of these soils are reportedly, very well draining and possess a high ability to transmit water.

Section V Historical Use

- The property is currently vacant, with remnants of a demolished building evident in the remaining concrete page which covers less than 2 percent of the land area.

Section VI Development Use

- The site will be utilized as single and multi-family housing.

Section VII Construction Schedule

- Unknown at this time.

Section VIII Pollutant Identification

Pollutants of Concern Summary Table

Pollutant Type	Expected		Potential		Listed for Receiving Water	
	Yes	No	Yes	No	Yes	No
Bacteria/Virus	✓		✓		✓	
Heavy Metals	✓		✓			✓
Nutrients	✓		✓		✓	
Pesticides	✓		✓			✓
Organic Compounds		✓	✓			✓
Sediments	✓		✓			✓
Trash & Debris	✓		✓			✓
Oxygen Demanding Substances		✓		✓		✓
Oil & Grease	✓		✓			✓
pH		✓	✓		✓	
Other		✓		✓		✓

Section IX Selected BMPs

Site Design BMPs

The following table shows site design BMPs that are included in this project. A description of each BMPs follows :

Technique	Included?		Brief Description of Method
	Yes	No	
Minimize Impervious Area/Maximize Permeability (C-Factor Reduction)	X		The project design 126,180sf, or nearly 3 acres of landscaped, pervious surface. This high overall percentage of pervious land area maximizes thee sits permeability and reduces the C-Factor.
Minimize Directly Connected Impervious Areas (DCIAs) (C-Factor Reduction)	X		The project design incorporates disconnections for all impervious areas through the use of landscaped buffers, and the inclusion of the Contec system.
Create Reduced or "Zero Discharge" Areas (Runoff Volume Reduction)	X		The project design 126,180sf, or nearly 3 acres of landscaped, pervious surface. These areas will create zero run-off conditions under low precipitation events, and during irrigation.
Conserve Natural Areas (C-Factor Reduction)		X	Not a project feature

Non-Structural Control BMPs

The following tables show source control BMPs (routine non-structural and routine structural) included in this project and those that were not included.

Routine Non-Structural BMPs

Identifier	Name	Check One		If not applicable, state brief reason
		Included	Not Applicable	
N1	Education for Property Owners, Tenants and Occupants	X		
N2	Activity Restrictions	X		
N3	Common Area Landscape Management	X		
N4	BMP Maintenance	X		
N5	Title 22 CCR Compliance (How development will comply)		X	Not applicable to proposed land use.
N6	Local Industrial Permit Compliance		X	The project will not require any issuance of local industrial permit.
N7	Spill Contingency Plan		X	Not applicable to proposed land use.
N8	Underground Storage Tank Compliance		X	There is no underground storage tank designed for this project.
N9	Hazardous Materials Disclosure Compliance		X	There will be no materials which require Materials Disclosure.
N10	Uniform Fire Code Implementation		X	Not applicable to proposed land use.
N11	Common Area Litter Control		X	No common areas are included in the design.
N12	Employee Training		X	No employees proposed.
N13	Housekeeping of Loading Docks		X	There is no loading dock designed for this project.
N14	Common Area Catch Basin Inspection	X		
N15	Street Sweeping Private Streets and Parking Lots	X		
N16	Commercial Vehicle Washing		X	There will be no commercial vehicle washing allowed at the project site.

❖ N1 - Education for Property Owners, Tenants and Occupants

Provide Educational Materials for all Education for Property Owners, Tenants and Occupants upon occupancy. Make sure that Property Owners, Tenants and Occupants understand storm water discharge prohibitions, wastewater discharge requirements, and the best management practices assigned for this area. Use a training log or similar method to document training.

See training log at the back of this section.

❖ N2 - Activity Restrictions

Restrictions include :

1. No discharging of specified wastes via hosing, or direct discharging to gutters, catch basins and storm drains.
2. Do not clean up spills by hosing into the gutters, catch basins or storm drains. If the spill could enter a storm drain, protect the drain with sand bags, absorbent rags, or a pile of dirt. The parkway drain can be temporarily sealed with plastic sheeting.
3. Do not clean equipment outdoors in any area where water may flow to a street, gutter, catch basin, and storm drain.
4. Never pour grease, oil, cleaning solutions, or waste grease down a catch basin, storm drain or into a dumpster. Use a recycler or liquid disposal company.

❖ N3 - Common Area Landscape Management

Only California Native and/or drought tolerant species shall be selected for use. Ensure that Landscape Maintenance Contractors are aware of Water Quality Guidelines and provide them with Educational Materials. Follow federal, state, Los Angeles County or City of Claremont guidelines governing the use, storage, and disposal of fertilizers and pesticides. Use fertilizers only if testing indicates that it is necessary. Use pesticides only if there is an actual pest problem. Do not use pesticides if rain is expected. Collect lawn and planter clippings, pruning waste and tree trimmings. Do not place them in gutters. Do not blow or rake leaves, etc. into the street.

❖ N4 - BMP Maintenance

See Section V for the identification of responsibility for implementation of each non-structural BMP and scheduled cleaning of all BMP structural facilities.

❖ N14 Common Area Catch Basin Inspection

The catch basins within the property boundary are privately owned and maintained drainage systems. The inlet is required to be inspected and, if necessary, cleaned prior to the start of the rainy season, no later than October 15th each year.

❖ N15 Street Sweeping Private Streets and Parking Lots

Sweep paved areas quarterly, and at least once prior to the start of the rainy season, no later than October 15th of each year. The property manager shall also monitor the conditions of the pavement to identify any accumulation of petroleum products or incidental spills that may from time to time occur. If it is determined that there is an accumulations of pollutants, it shall be the owner's responsibility to order the necessary spot cleaning of the parking lot. The developer may contract with a landscape maintenance firm to provide this service during regularly scheduled maintenance, which should consist of litter patrol, and emptying trash receptacles in common areas.

Structural Control BMPs

Name	Check One		If not applicable, state brief reason
	Included	Not Applicable	
Provide storm drain system stenciling and signage	X		
Design and construct outdoor material storage areas to reduce pollution introduction		X	No outdoor storage is planned for this project.
Design and construct trash and waste storage areas to reduce pollution introduction	X		
Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	X		
Protect slopes and channels and provide energy dissipation		X	The onsite slope will sheet flow eliminating the need for energy dissipation.
Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)		X	
a. Dock areas		X	There are no loading docks designed for this project.
b. Maintenance bays		X	There are no maintenance bays designed for this project.
c. Vehicle wash areas		X	There are no vehicle washing areas designed for this project.
d. Outdoor processing areas		X	There are no outdoor processing areas designed for this project.
e. Equipment wash areas		X	There are no equipment washing areas designed for this project.
f. Fueling areas		X	There are no fueling areas designed for this project.
g. Hillside landscaping		X	Hillsides are not a topographical feature.
h. Wash water control for food preparation areas		X	There are no food preparation areas designed for this project.
i. Community car wash racks		X	There are no community car wash racks designed for this project.

❖ Storm Drain Stenciling

All drainage inlets on the project site will include stenciling consistent with Los Angeles County and City of Claremont specifications. Annual inspection shall occur to ensure that stenciling is legible.

❖ Trash Storage Areas

The trash storage area has been specifically designed to eliminate the possibility of run-on and lessen run-off. Only covered and contained dumpsters will be utilized onsite.

By requiring that all trash receptacles be covered at all times and designating trash storage areas away from high/concentrated flow areas the project has effectively limited the potential for trash and debris from being transported to the storm drain system.

❖ Efficient Irrigation Systems and Landscape Management

Any/all project landscaping will utilize efficient irrigation systems through the use of drip or reduced water systems. By efficiently irrigating landscaped areas the project will lessen the opportunity of non-stormwater, nuisance flow discharge.

Follow federal, state, Los Angeles County or City of Claremont guidelines governing the use, storage, and disposal of fertilizers and pesticides. Use fertilizers only if testing indicates that it is necessary. Use pesticides only if there is an actual pest problem. Do not use pesticides if rain is expected. Collect lawn and planter clippings, pruning waste and tree trimmings. Do not place them in gutters. Do not blow or rake leaves, etc. into the street.

Low Impact Development (LID)BMPs

The following table shows LID BMPs that are included in this project. A description of each BMP follows:

Treatment Control BMPs

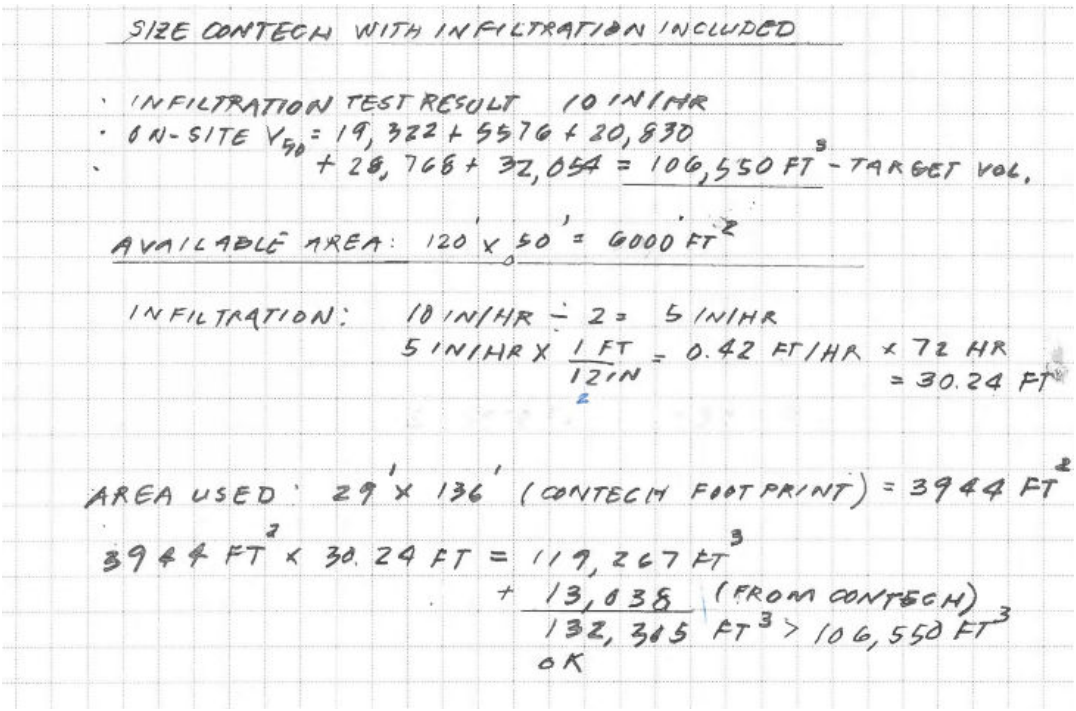
Name	Included?		Reason for Inclusion
	Yes	No	
Vegetated (Grass) Strips		X	
Vegetated (Grass) Swales		X	
Proprietary Control Measures	X		Contec Underground CMP Detention Systems for capture and infiltration of the DCV.
Dry Detention Basin		X	
Wet Detention Basin		X	
Constructed Wetland		X	
Detention Basin/Sand Filter		X	
Porous Pavement Detention		X	
Porous Landscape Detention		X	
Infiltration Pit		X	
Infiltration Trench		X	
Biofiltration			

The Los Angeles County Municipal Storm Water Permit, Order NO. R4-2012-0175 requires new development projects to retain on-site the Stormwater Quality Design Volume (SWQDv) defined as runoff from:

a) The 0.75-inch, 24-hour rain event or
b) The 85th percentile, 24-hour rain event, as determined from the Los Angeles County 85th percentile precipitation isohyetal map, **whichever is greater.** Except where the project is Technically Infeasible or where the project has an opportunity for Regional Ground Water Replenishment.

❖ Contec Underground CMP Detention Systems

Post construction drainage characteristics create a single drainage management area provided by an onsite stormdrain system which discharges to an underground proprietary retention/infiltration Contech CMP Detention System. This system has been designed to detain all flows generated from a 50-yr, 24-hour event, which generates 106,550 cubic feet. After accounting for 72 hours of infiltration, and the Contech Pipe Retention, the site will be able to retain and infiltrate 132,305 cubic feet. This is significantly in excess of the basic Design Capture Volume (DCV) of 17,949cf for the 85th percentile storm. Since conditions exist which mandate collection of a 50yr-24hr event, site design will satisfy SUSMP requirements in excess by retaining and infiltrating 114,356 cubic feet more than that of the 85th percentile storm event.



SIZE CONTECH WITH INFILTRATION INCLUDED

- INFILTRATION TEST RESULT 10 IN/HR
- ON-SITE V_{50} = 19,322 + 5576 + 20,830 + 28,768 + 32,054 = 106,550 FT^3 - TARGET VOL.

AVAILABLE AREA: 120' x 50' = 6000 FT^2

INFILTRATION: 10 IN/HR ÷ 2 = 5 IN/HR

5 IN/HR x $\frac{1\ FT}{12\ IN}$ = 0.42 FT/HR x 72 HR = 30.24 FT

AREA USED: 29' x 136' (CONTECH FOOT PRINT) = 3944 FT^2

3944 FT^2 x 30.24 FT = 119,267 FT^3

+ 13,038 (FROM CONTECH)

132,305 FT^3 > 106,550 FT^3

OK

Section X Inspection/Operation & Maintenance Responsibility for BMPs

The Post Development BMP Inspection and Maintenance Responsibility Frequency Matrix in this Section lists the specific maintenance and inspection activities to be performed, and the frequency with which each shall be performed. $1200 per year shall be allocated to maintenance and operation of the BMPs outlined herein.

Contact:

Clare Properties, LLC
9595 Wilshire Boulevard, Suite 600
Beverly Hills, CA 90212

Matthew J. Waken
matt@walbern.com
Office: 310.860.5409

Source Control BMPs

BMP	Responsible Party	Inspection & Maintenance Frequency
N1 - Education for Property Owners, Tenants and Occupants Provide Educational Materials for all Education for Property Owners, Tenants and Occupants upon occupancy. Make sure that Property Owners, Tenants and Occupants understand storm water discharge prohibitions, wastewater discharge requirements, and the best management practices assigned for this area. Use a training log or similar method to document training.	Clare Properties LLC	Provide Educational Materials prior to occupancy.
N3 - Common Area Landscape Management The maintenance will involve trimming bushes and shrubs, repairing and adjusting the irrigation system, and trimming any trees. Soils testing will be performed prior to fertilizer application, to ensure that the proper type and quantity of fertilizer is used. Include language stating that fertilizer and pesticide application will be prohibited within 48 hours of forecasted rain events.	Clare Properties LLC	Maintenance will be completed at least twice monthly.
N11 - Common Area Litter Control Maintenance will involve colleting trash and debris	Clare Properties LLC	Maintenance will be completed at least weekly.
N14 - Common area Catch Basin Inspection Inspection and maintenance storm drainage system including al inlets, drainage ways, and dry-wells. Ensure that all areas are free from standing water and vectors, specifically 48 hours after the conclusion of a rain event.	Clare Properties LLC	Inspection will occur on an annual basis at the beginning of the rainy season, on or before October 15th, as well as, after any/all significant storm events.
N15 - Street Sweeping Private Streets and Parking Lots Maintenance will involve cleaning and controlling litter with-in parking areas, driving isle, and storage areas.	Clare Properties LLC	Maintenance will be completed at least monthly during the rainy season, and once a quarter during the dry season.

Structural Control BMPs

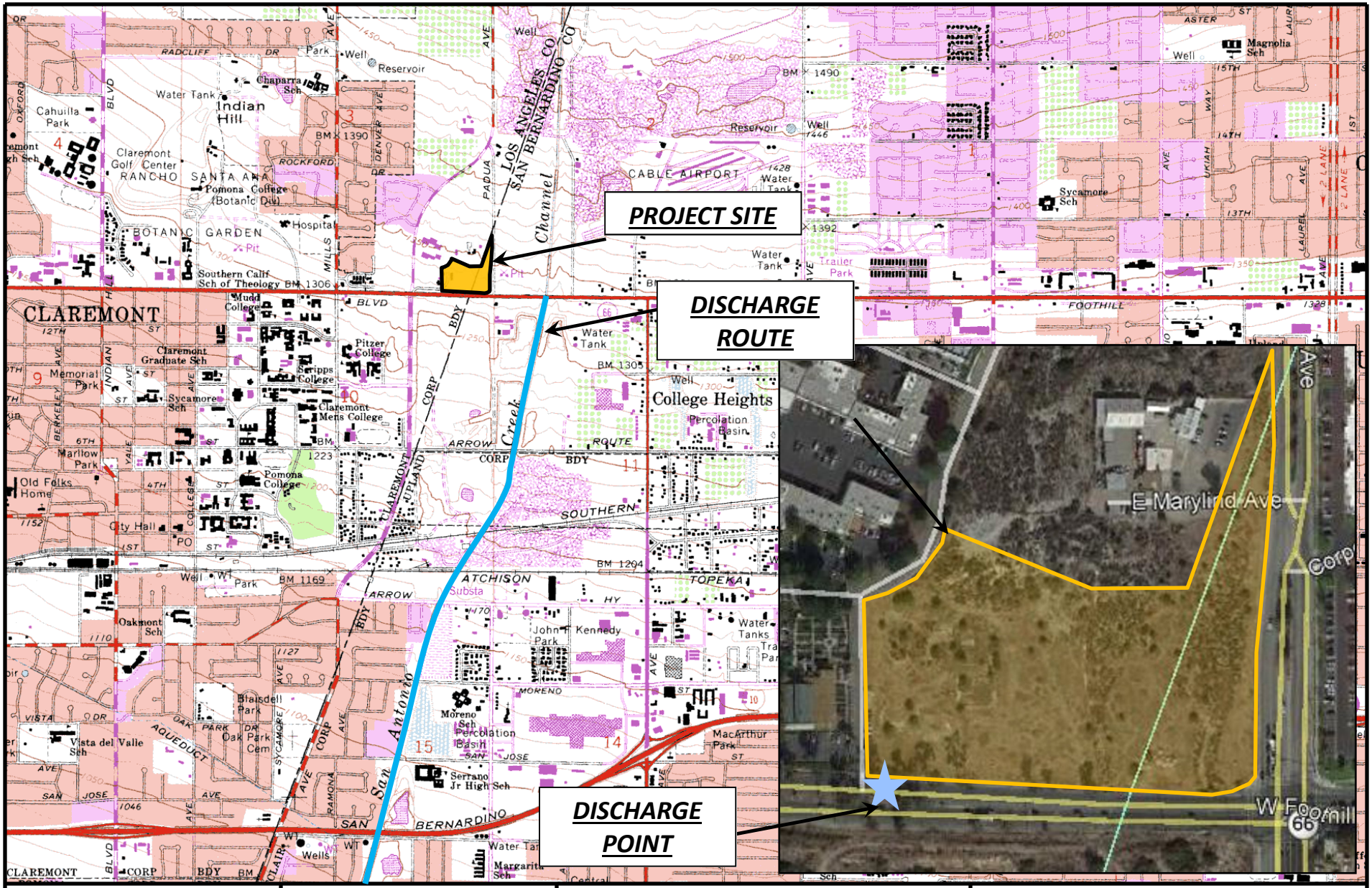
BMP	Responsible Party	Inspection & Maintenance Frequency
Storm Drain Stenciling Maintenance will involve verifying that the storm drain stenciling is visible.	Clare Properties LLC	Maintenance will be completed at least once annually.
Efficient Irrigation Maintenance will involve verifying al irrigation systems are functioning properly. Broken, leaking, or otherwise compromised irrigation system features will be replaced immediately. Ensure that all landscaped areas are free from standing water and vectors.	Clare Properties LLC	Maintenance will be completed at least twice monthly.

Treatment Control BMPs

BMP	Responsible Party	Inspection & Maintenance Frequency
Contec CMP Detention System Ensure that all areas are free from standing water and vectors, specifically 72 hours after the conclusion of a rain event.	Tipping Pomona, LLC	See Maintenance Manual in Appendix B

Appendix A

Vicinity Map and Site Plan



PREPARED BY:	PREPARED FOR:	CLAREMONT COMMONS FOOTHILL AND MONTE VISTA	VICINITY MAP
EVEREST ENVIRONMENTAL	Clare Properties, LLC 9595 Wilshire Boulevard, Suite 600 Beverly Hills, CA 90212		



PROPOSED SITE STATISTICS

SUSMP AREA.....414,245sf

SURFACE TYPES

PROPOSED ROOF-TOP..... 103,900sf
PROPOSED AC/PCC 184,975sf
PROPOSED LANDSCAPING 126,180sf

IMPERVIOUS PERCENTAGES of WQMP AREA

PROPOSED IMPERVIOUS 288,065sf
PROPOSED PERVIOUS 126,180sf

POST-DEVELOPMENT..... 69.5% IMP.

LEGEND

- ROOF-TOP
- AC/PCC SURFACE
- LANDSCAPING
- CONTEC CMP DETENTION SYSTEM
- DRAINAGE INLET

ktgy

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Clare Properties LLC
9595 Wilshire Boulevard, Suite 600
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580 North Park Avenue, Pomona, California 91768
(909) 623-1595 Fax (909) 620-0016

EVEREST ENVIRONMENTAL

CLAREMONT COMMONS

SUSMP EXHIBIT

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EVEREST ENVIRONMENTAL

CLAREMONT COMMONS

SUSMP EXHIBIT

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PROPOSED SITE STATISTICS

SUSMP AREA.....414,245sf

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PROPOSED ROOF-TOP..... 103,900sf
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EVEREST ENVIRONMENTAL

CLAREMONT COMMONS

SUSMP EXHIBIT

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Appendix B

BMP Details

BMP Detail Sheets

- Contec Maintenance Guids
- SC-73, Landscape Maintenance
- SC-74, Drainage System Maintenance
- SD-12, Efficient Irrigation
- SD-13, Storm Drain Signage

Contech® CMP Detention Inspection and Maintenance Guide

Underground stormwater detention and infiltration systems must be inspected and maintained at regular intervals for purposes of performance and longevity.

Inspection

Inspection is the key to effective maintenance of CMP detention systems and is easily performed. Contech recommends ongoing, quarterly inspections. The rate at which the system collects pollutants will depend more on site specific activities rather than the size or configuration of the system.

Inspections should be performed more often in equipment washdown areas, in climates where sanding and/or salting operations take place, and in other various instances in which one would expect higher accumulations of sediment or abrasive/corrosive conditions. A record of each inspection is to be maintained for the life of the system.

Maintenance

CMP detention systems should be cleaned when an inspection reveals accumulated sediment or trash is clogging the discharge orifice.

Accumulated sediment and trash can typically be evacuated through the manhole over the outlet orifice. If maintenance is not performed as recommended, sediment and trash may accumulate in front of the outlet orifice. Manhole covers should be securely seated following cleaning activities. Contech suggests that all systems be designed with an access/inspection manhole situated at or near the inlet and the outlet orifice. Should it be necessary to get inside the system to perform maintenance activities, all appropriate precautions regarding confined space entry and OSHA regulations should be followed.

Systems are to be rinsed, including above the spring line, annually soon after the spring thaw, and after any additional use of salting agents, as part of the maintenance program for all systems where salting agents may accumulate inside the pipe.

Maintaining an underground detention or infiltration system is easiest when there is no flow entering the system. For this reason, it is a good idea to schedule the cleanout during dry weather.

The foregoing inspection and maintenance efforts help ensure underground pipe systems used for stormwater storage continue to function as intended by identifying recommended regular inspection and maintenance practices. Inspection and maintenance related to the structural integrity of the pipe or the soundness of pipe joint connections is beyond the scope of this guide.



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CMP DETENTION SYSTEMS

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Building & Grounds Maintenance SC-41



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, and abnormal pH. Utilizing the following protocols will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

Approach

Pollution Prevention

- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Encourage proper lawn management and landscaping, including use of native vegetation.
- Encourage use of Integrated Pest Management techniques for pest control.
- Encourage proper onsite recycling of yard trimmings.
- Recycle residual paints, solvents, lumber, and other material as much as possible.

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Suggested Protocols

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a waste water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash water runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in he catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement. Ensure that this practice does not kill grass.

Landscaping Activities

- Do not apply any chemicals (insecticide, herbicide, or fertilizer) directly to surface waters, unless the application is approved and permitted by the state.
- Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage, or by composting. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures on exposed soils.
- Check irrigation schedules so pesticides will not be washed away and to minimize non-stormwater discharge.

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paint brushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.

- Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.
- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. In which case you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover with secondary containment during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

Mowing, Trimming, and Planting

- Dispose of leaves, sticks, or other collected vegetation as garbage, by composting or at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures when soils are exposed.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Consider an alternative approach when bailing out muddy water; do not put it in the storm drain, pour over landscaped areas.
- Use hand or mechanical weeding where practical.

Fertilizer and Pesticide Management

- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- Follow manufacturers' recommendations and label directions. Pesticides must never be applied if precipitation is occuring or predicted. Do not apply insecticides within 100 feet of surface waters such as lakes, ponds, wetlands, and streams.
- Use less toxic pesticides that will do the job, whenever possible. Avoid use of copper-based pesticides if possible.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains.
- Use the minimum amount needed for the job.
- Calibrate fertilizer distributors to avoid excessive application.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.

- Apply pesticides only when wind speeds are low.
- Work fertilizers into the soil rather than dumping or broadcasting them onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Dispose of empty pesticide containers according to the instructions on the container label.
- Use up the pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and County Agricultural Commissioner. Provide secondary containment for pesticides.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Be sure the frequency of training takes into account the complexity of the operations and the nature of the staff.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Alternative pest/weed controls may not be available, suitable, or effective in many cases.

Requirements

Costs

- Overall costs should be low in comparison to other BMPs.

Maintenance

- Sweep paved areas regularly to collect loose particles, and wipe up spills with rags and other absorbent material immediately, do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Fire Sprinkler Line Flushing

Building fire sprinkler line flushing may be a source of non-stormwater runoff pollution. The water entering the system is usually potable water though in some areas it may be non-potable reclaimed wastewater. There are subsequent factors that may drastically reduce the quality of the water in such systems. Black iron pipe is usually used since it is cheaper than potable piping but it is subject to rusting and results in lower quality water. Initially the black iron pipe has an oil coating to protect it from rusting between manufacture and installation; this will contaminate the water from the first flush but not from subsequent flushes. Nitrates, poly-phosphates and other corrosion inhibitors, as well as fire suppressants and antifreeze may be added to the sprinkler water system. Water generally remains in the sprinkler system a long time, typically a year, between flushes and may accumulate iron, manganese, lead, copper, nickel and zinc. The water generally becomes anoxic and contains living and dead bacteria and breakdown products from chlorination. This may result in a significant BOD problem and the water often smells. Consequently dispose fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drain or infiltration due to potential high levels of pollutants in fire sprinkler line water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

King County - ftp://dnr.metrokc.gov/wlr/dss/spcm/Chapter%203.PDF

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San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP) -
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Parking/Storage Area Maintenance SC-43



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The following protocols are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook).
- Keep accurate maintenance logs to evaluate BMP implementation.

Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.

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- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel and dispose of litter in the trash.

Surface cleaning

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- If water is used follow the procedures below:
  - Block the storm drain or contain runoff.
  - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- When cleaning heavy oily deposits:
  - Use absorbent materials on oily spots prior to sweeping or washing.
  - Dispose of used absorbents appropriately.

Surface Repair

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, nad implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

Requirements

Costs

Cleaning/sweeping costs can be quite large, construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

SC-43 Parking/Storage Area Maintenance

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination form contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Use only as much water as necessary for dust control, to avoid runoff.

References and Resources

http://www.stormwatercenter.net/

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

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Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) http://www.basma.org

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)
http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf

Landscape Maintenance SC-73



Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	☑

Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

Approach

Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

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- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

Suggested Protocols

Mowing, Trimming, and Weeding

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
  - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
  - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
  - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
  - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
  - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
  - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
  - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a know in location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in "agricultural use" areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

Requirements

Costs

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

Maintenance

Not applicable

Supplemental Information

Further Detail of the BMP

Waste Management

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

Contractors and Other Pesticide Users

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

References and Resources

King County Stormwater Pollution Control Manual. Best Management Practices for Businesses. 1995. King County Surface Water Management. July. On-line: http://dnr.metrokc.gov/wlr/dss/spcm.htm

Los Angeles County Stormwater Quality Model Programs. Public Agency Activities http://ladpw.org/wmd/npdes/model_links.cfm

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Drainage System Maintenance SC-74



Photo Credit: Geoff Brosseau

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Approach

Suggested Protocols

Catch Basins/Inlet Structures

- Municipal staff should regularly inspect facilities to ensure the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

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- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a steam or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies

(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
  - Is there evidence of spills such as paints, discoloring, etc.
  - Are there any odors associated with the drainage system
  - Record locations of apparent illegal discharges/illicit connections
  - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
  - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

Spill Response and Prevention

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from "environmental fees" or special assessment districts to fund their illicit connection elimination programs.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.

- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.

- Arrangements must be made for proper disposal of collected wastes.

- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

Supplemental Information

Further Detail of the BMP

Storm Drain flushing

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to

cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

Flow Management

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows we allowed to spread out.

Stream Corridor Planning

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for steam alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to he reclaimed.

Examples

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank aid watershed instability arid floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

References and Resources

Ferguson, B.K. 1991. Urban Stream Reclamation, p. 324-322, Journal of Soil and Water Conservation.

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Orange County Stormwater Program
http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

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United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Illegal Dumping Control. On line: http://www.epa.gov/npdes/menuofbmps/poll_7.htm

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Storm Drain System Cleaning. On line: http://www.epa.gov/npdes/menuofbmps/poll_16.htm

Efficient Irrigation SD-12



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

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- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage SD-13



Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include "NO DUMPING

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– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.

- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Appendix C

SUSMP Calculations

Peak Flow Hydrologic Analysis

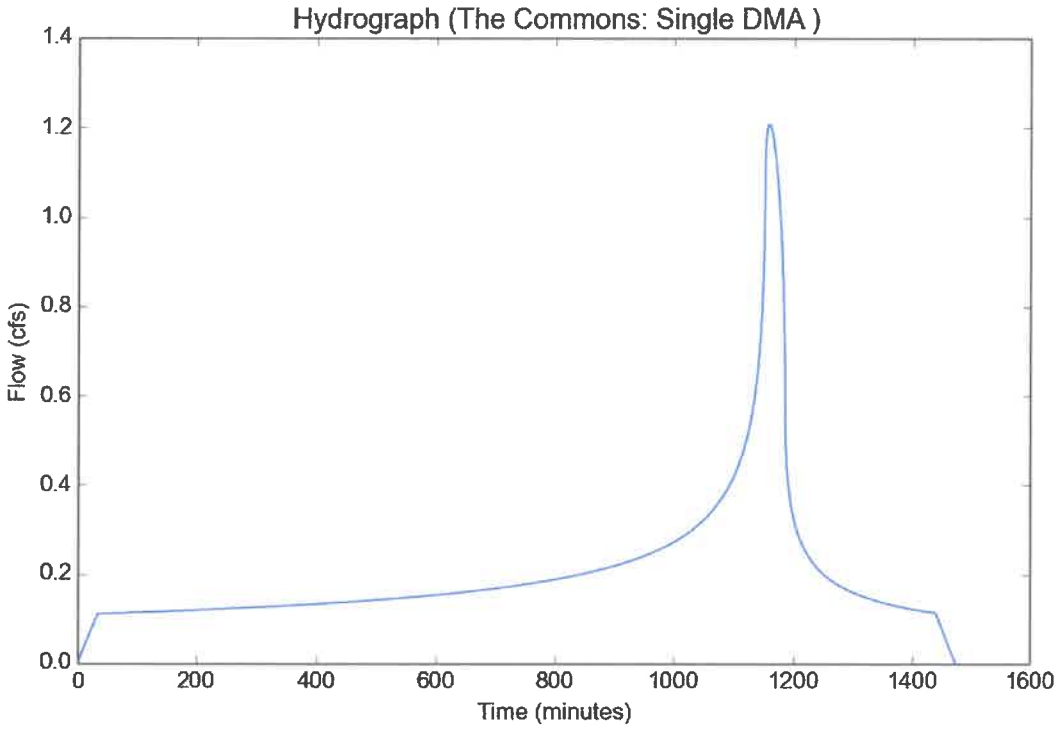
File location: C:/Users/Steve/Desktop/HYDROCALC FILE/The Commons - Single DMA.pdf
Version: HydroCalc 0.3.1-beta

Input Parameters

Project Name	The Commons
Subarea ID	Single DMA
Area (ac)	9.5
Flow Path Length (ft)	500.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	0.8
Percent Impervious	0.695
Soil Type	15
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.8
Peak Intensity (in/hr)	0.1939
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.656
Time of Concentration (min)	34.0
Clear Peak Flow Rate (cfs)	1.2082
Burned Peak Flow Rate (cfs)	1.2082
24-Hr Clear Runoff Volume (ac-ft)	0.412
24-Hr Clear Runoff Volume (cu-ft)	17948.4254

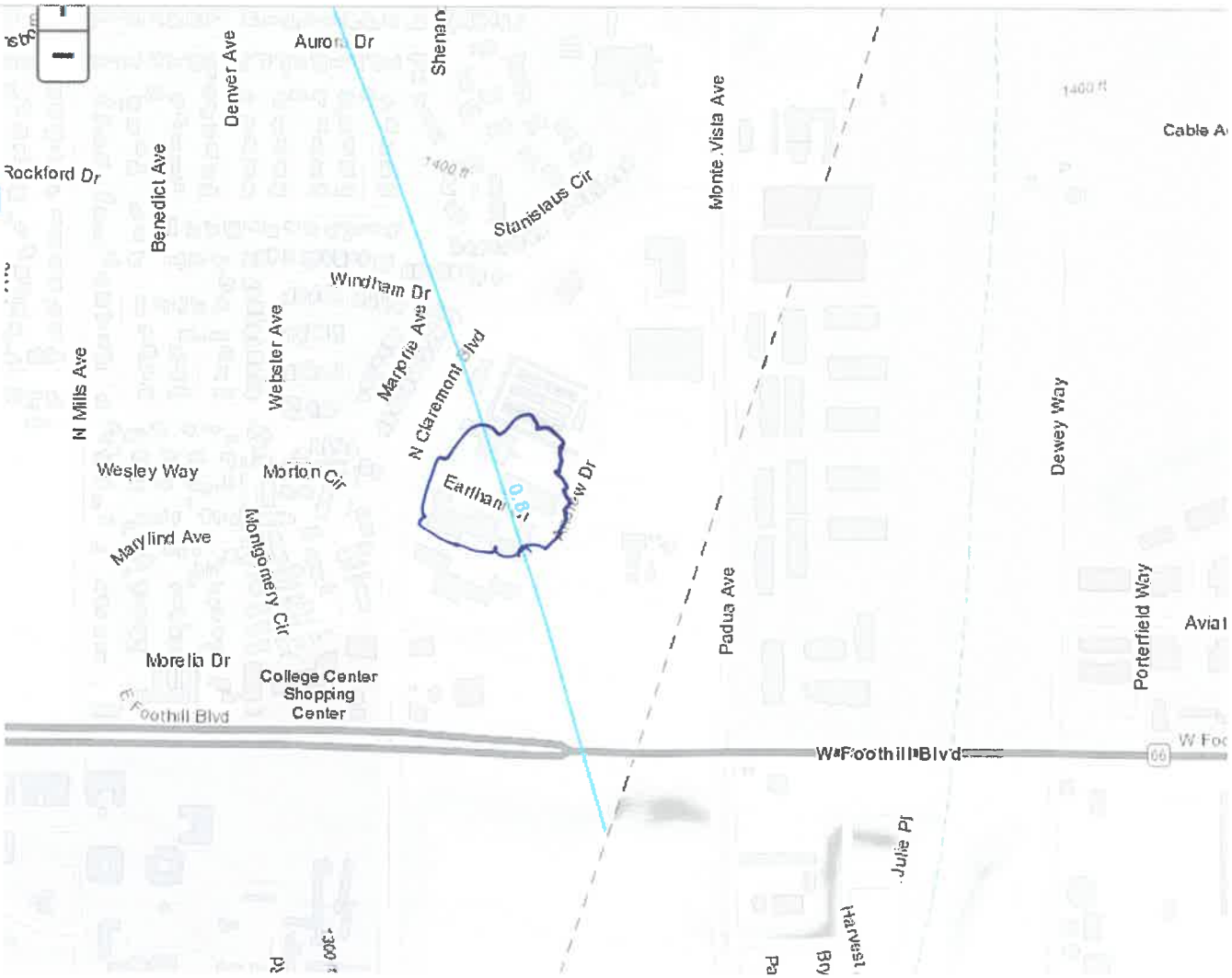


DPA Zones
Soils 2004
Final 85th Percentile, 24-hr Rainfall
Final 95th Percentile, 24-hr Rainfall
1-year, 1-hour Rainfall Intensity

SEARCH

Enter Address, Cross Street, or Parcel No..
(ex: 900 S. Fremont Ave., Fremont@Valley, 5342005904)
Foothil bl & Monte Vista Claremont Search

Address Search Results:
Foothil bl AND Monte Vista Claremont



Wednesday, Jun 13, 2018 11:23 AM

ANDREASEN ENGINEERING, INC.
580 North Park Avenue
Pomona, CA 91768
(909) 623-1595
FAX (909) 620-0016

JOB COMMONS
SHEET NO. _____ OF _____
CALCULATED BY SV. DATE 10/15/16
CHECKED BY _____ DATE _____
SCALE _____

SIZE CONTECH WITH INFILTRATION INCLUDED

- INFILTRATION TEST RESULT 10 IN/HR
- ON-SITE V_{50} = 19,322 + 5576 + 20,830 + 28,768 + 32,054 = 106,550 FT^3 - TARGET VOL.

AVAILABLE AREA: 120' x 50' = 6000 FT^2

INFILTRATION: 10 IN/HR ÷ 2 = 5 IN/HR

$5\ IN/HR \times \frac{1\ FT}{12\ IN} = 0.42\ FT/HR \times 72\ HR = 30.24\ FT$

AREA USED: 29' x 136' (CONTECH FOOT PRINT) = 3944 FT^2

3944 FT^2 x 30.24 FT = 119,267 FT^3
+ 13,038 (FROM CONTECH)
132,305 FT^3 > 106,550 FT^3
OK

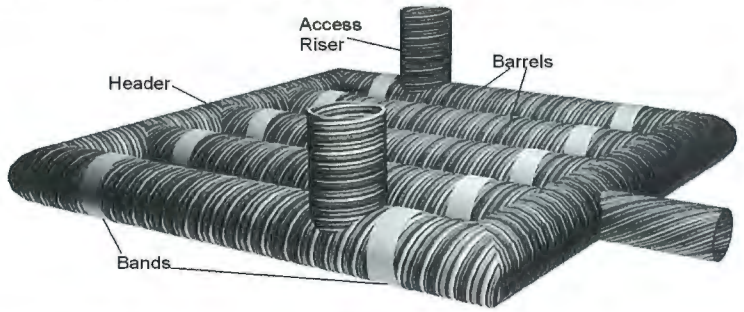
DYODS™

Design Your Own Detention System

CONTECH CMP DETENTION SYSTEMS

CONTECH CONSTRUCTION PRODUCTS INC.

For design assistance, drawings, and pricing send completed worksheet to:
dyods@contech-cpi.com



Project Summary

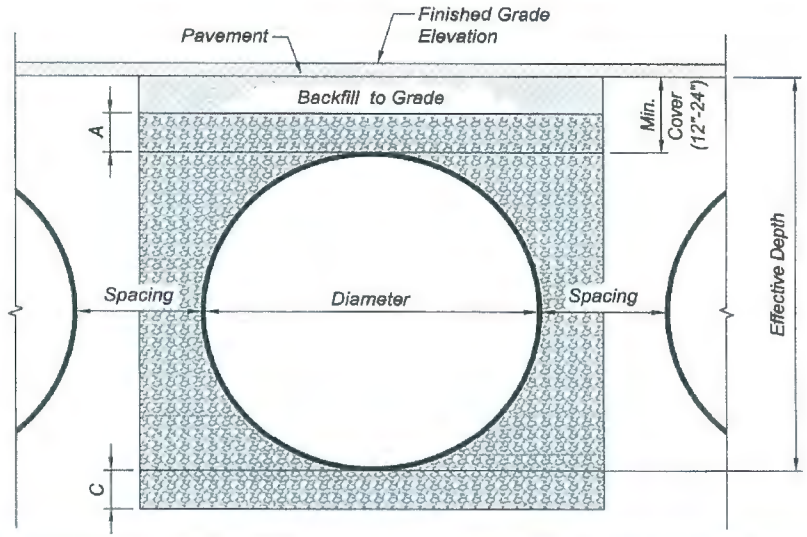
Date:	10/15/2018
Project Name:	Commom
City / County:	Cities of Claremont & Upland
State:	CA
Designed By:	Stephen
Company:	Andreasen
Telephone:	909-523-1592

Enter Information in Blue Cells

Corrugated Metal Pipe Calculator

Storage Volume Required (cf):	13,000
Limiting Width (ft):	30.00
Invert Depth Below Asphalt (ft):	10.00
Solid or Perforated Pipe:	Perforated
Shape Or Diameter (in):	48
Number Of Headers:	1
Spacing between Barrels (ft):	2.00
Stone Width Around Perimeter of System (ft):	0.5
Depth A: Porous Stone Above Pipe (in):	6
Depth C: Porous Stone Below Pipe (in):	6
Stone Porosity (0 to 40%):	40

12.57 ft^2 Pipe Area



System Sizing

Pipe Storage:	8,583	cf	
Porous Stone Storage:	4,455	cf	
Total Storage Provided:	13,038	cf	100.3% Of Required Storage
Number of Barrels:	5	barrels	
Length per Barrel:	131.0	ft	
Length Per Header:	28.0	ft	
Rectangular Footprint (W x L):	29. ft x 136. ft		

CONTECH Materials

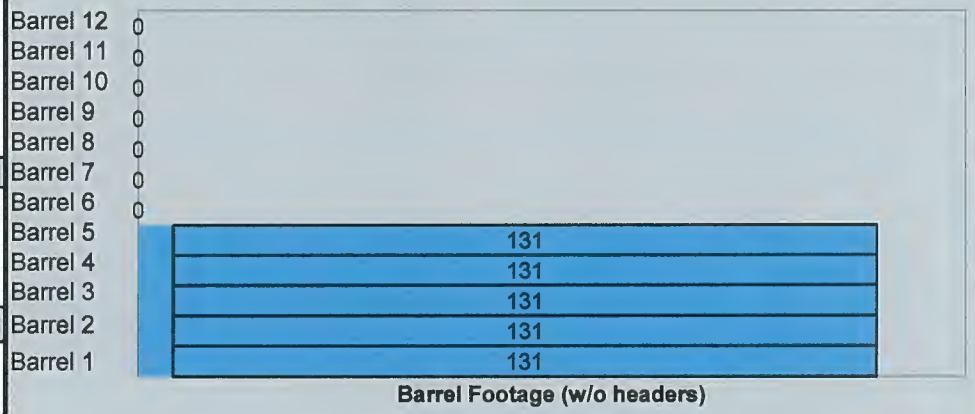
Total CMP Footage:	683	ft
Approximate Total Pieces:	32	pcs
Approximate Coupling Bands:	31	bands
Approximate Truckloads:	4	trucks

Construction Quantities**

Total Excavation:	1461	cy
Porous Stone Backfill For Storage:	412	cy stone
Backfill to Grade Excluding Stone:	731	cy fill

***Construction quantities are approximate and should be verified upon final design*

System Layout



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Appendix D

Educational Materials

- City of Los Angeles Employee Guide
- Los Angeles County "Stormwater Program"

CITY OF LOS ANGELES

EMPLOYEE GUIDE

Preventing Stormwater Pollution

We have a mission...

handed to us...

MESSAGE FROM RICHARD RIORDAN MAYOR OF LOS ANGELES:

As employees of the City of Los Angeles, you keep our City in good working order on a daily basis. Over the years, as the city has grown, so have your roles in maintaining services that are integral to its vitality.

Today, we are asking for your help in reducing stormwater pollution. Carelessly dropped trash and improperly disposed pesticides are damaging our waterways and beaches, and we should all be concerned. We must move quickly to reduce pollution so that our children and grandchildren can enjoy clean waters in Santa Monica and San Pedro Bays.

As Mayor of Los Angeles, I am asking each of you to join with me to prevent stormwater runoff pollution. When you use the "best management practices" in this workbook, not only do you reduce pollution flowing into our oceans, but you also serve as role models for your community. Thank you for doing your part to protect and keep Los Angeles one of the greatest cities in America.



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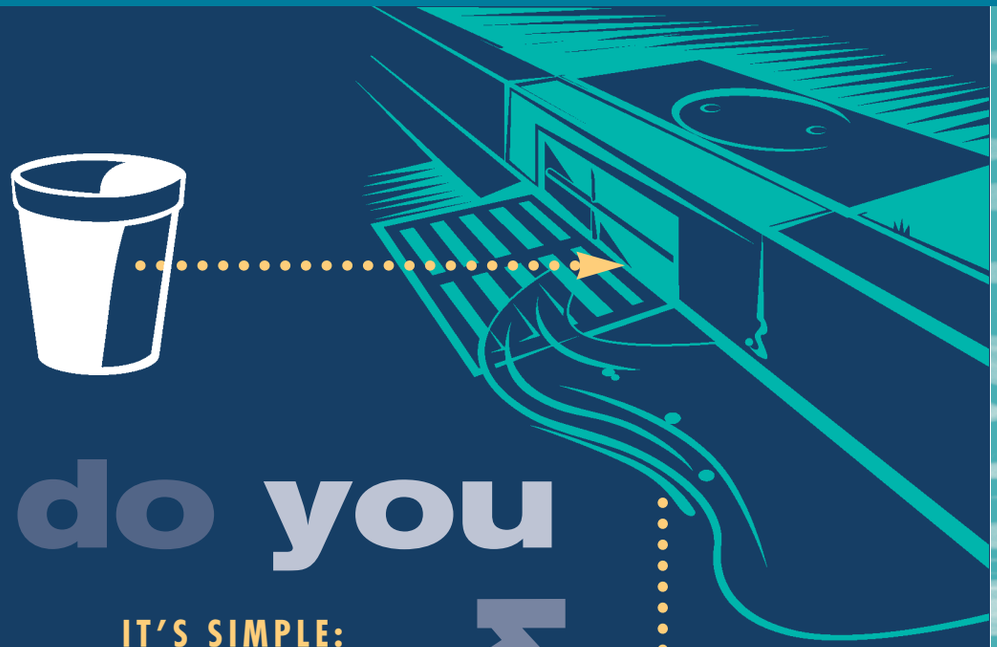
as government employees...

We are the leaders...

This handbook
is a tool for you to use as
part of the City's commitment
to stop stormwater pollution.
The following guidelines have
been developed to help us reach
this goal. Take this tool with you
and use these Best Management
Practices (BMPs) wherever
you work in the City.

Santa Monica Bay,
San Pedro Bay, and our
rivers are being polluted on a
daily basis. The number one cause
is urban runoff – water that washes
everything left on city streets and in
gutters through the storm drain system.
This amounts to 10 to 25 million
gallons of water a day during dry
weather flowing untreated into
rivers and the ocean. The time
to clean up our water is now
– and it starts with
us!

# of our future environment...



do you know where it goes?

IT'S SIMPLE:

What goes into a storm drain and is flushed with rainwater, or daily urban runoff...

...goes untreated into our rivers and oceans...

...clean air, clean land, clean water and we start TODAY.



...and pollutes our waters.

what can we do?

URBAN FORM	WASTE SYSTEM	END RESULT
gutters driveways streets catch basins	**storm drain**	untreated water released to rivers and ocean
flush toilets sinks showers washing machines	**sewer**	treated water released to ocean
trash cans dumpsters	**landfill**	untreated wastes into landfill
reuse and recycle	**recycling**	no effect on waterways

Know your storm drains.

Be aware of what causes pollution and what effect it has on our water...

These wastes from work and every day activities are among the most common stormwater and urban runoff pollutants.







Used motor oil and grease — automotive maintenance, urban housekeeping, yard and warehouse activities, construction, spills and illegal dumping

Foam cups, plastics, cigarette butts, and paper — litter, general housekeeping (in all types of work and leisure)

Trimmings from trees, landscaping, and lawns — grounds and building maintenance, landscaping activities, tree and park maintenance, home and yard maintenance

Antifreeze, cleaners, and solvents — automotive maintenance, urban housekeeping and landscaping, building and grounds maintenance, spills and illegal dumping

Pesticides, fertilizers, herbicides — grounds and building maintenance, landscaping activities, tree and park maintenance, urban housekeeping, overwatering

Sediment — erosion from construction, landscaping, building and grounds maintenance

Pet droppings, viruses and bacteria — urban housekeeping, non-stormwater connections to storm drains, leaking septic tanks



&



CLOSES OUR BEACHES FROM CONTAMINATED STORMWATER

CAUSES ILLNESS IN SWIMMERS, WADERS, AND SURFERS

CONTAMINATES AND KILLS FISH AND OTHER MARINE LIFE

CLOGS STORM DRAINS AND CAUSES NEIGHBORHOOD FLOOD CONDITIONS

HARMS THE FRESHWATER HABITAT OF OUR RIVERS

AFFECTS TOURISM

REDUCES OUR QUALITY OF LIFE

COSTS TAXPAYERS MILLIONS OF DOLLARS FOR LOCAL CLEAN UP

All City of Los Angeles employees can reduce the volume of litter, foam cups, plastic, paper, and other debris on city streets, rivers, beaches and bays by waste reduction and recycling... something you already do every day.



reduce

reuse

recycle

- Recycle paper, cans, glass, and plastics in your office
- Order smaller volumes of office supplies to avoid waste
- Use washable drinking cups in the office
  (ceramic, glass, plastic)
- Follow all City recycling and waste reduction guidelines

All City employees dispose of some amount of waste ... and disposing with care to prevent urban and environmental pollution will make Los Angeles a cleaner, healthier place to live and work.

dispose with care...



- Keep trash dumpster lids closed
- Pick up dropped trash
- Sweep dumpster areas frequently
- Clean up wastes with a broom rather than water
- Keep liquid wastes out of dumpsters
- Do not put any hazardous or harmful wastes in dumpsters or trash containers. Do not put these wastes in storm drains or municipal sewers
- Call the Stormwater Hotline — 800-974-9794 — for information on how to safely dispose of anything that may be dangerous
- If your dumpster leaks, get it fixed or get a new one

City employees can reduce toxic chemicals, heavy metals, cleaning solutions, and automotive fluids (like oil, grease, antifreeze, and solvents) from entering waterways by preventing spills on the job or cleaning them up immediately when they happen



WASH WATER DRAINING TO THE STREET IS ONE WAY THAT LITTER, OIL, ROTTING LEAVES, AND TOXIC POLLUTANTS ARE TRANSPORTED FROM OUR JOB SITES AND HOMES TO STORM DRAINS AND INTO OUR WATERWAYS.

prevent spills...

PREVENTION

- Take the time to use precautions to prevent spills
- Sweep and dry mop frequently to reduce the amount of dirt, fluids, and other residues that accumulate where you work
- Sweep or dry mop whenever possible, especially outside
- Have a spill prevention plan

CLEAN SPILLS THE RIGHT WAY

- Have a spill cleanup plan
- Clean up spills promptly if they do happen
- Clean up without water whenever possible
- Keep absorbents on hand to help clean up spills
- Have rags handy for cleanup

All City employees... particularly those who maintain the City's cars, trucks, and other vehicles... and those who operate and maintain equipment... can prevent pollution in the stormwater system by good housekeeping and diligent maintenance.



maintain equipment diligently

FUELING:

- Prevent spills
- Cover fueling areas to reduce exposure to rainfall
- Sweep or use other dry methods rather than hose down the fuel area for cleaning
- Post signs warning against "topping off"
- Read and follow the guidelines that apply in the City's pamphlet: "Best Management Practices for Gasoline Stations" (call the Stormwater Hotline for more information: 800-974-9794)

VEHICLE AND EQUIPMENT MAINTENANCE:

- Keep your work area clean
- Inspect for leaks, malfunctions, and staining on or around vehicles and equipment
- Drain oil filters before disposal or recycling
- Drain and contain all fluids from wrecked vehicles or equipment that has to be replaced
- Store cracked batteries in a non-leaking secondary container
- Do not leave full drip pans or other open containers of used liquids sitting around

INVENTORY:

- Maintain an organized inventory of materials ... know what you have in the shop or yard
- Label and track recycling of waste materials (e.g., used oil, spent solvents, batteries)

OUTDOOR VEHICLE AND EQUIPMENT STORAGE AND PARKING:

- Use drip pans for vehicles and equipment waiting for maintenance
- Park under cover to prevent exposure to rainfall

WASHING AREAS:

- Avoid washing parts or equipment outside
- Wash equipment or vehicles only in designated areas where sumps or drains collect wash water for releasing into the sanitary sewer system
- Use barriers or absorbent pads to prevent dirty, polluted wash water from entering a storm drain inlet
- Contain and recycle wash water. Don't let wash water flow into the gutter or storm drain. However, City *residents* are currently allowed to do this

BASIC DO'S AND DON'TS:

- Do use good housekeeping practices and be diligent about following routine maintenance procedures
- Don't allow spills, leaks, wastes or washwater from vehicles or equipment to enter the storm drain

All City employees who work in warehouses, or store materials in yards or shops, can help reduce waste and pollution by making sure none of those materials get spilled or washed into the storm drain system.

handle and store materials safely



FOLLOW INSTRUCTIONS:

- Read and follow handling instructions for all the materials you store

STORAGE CONTAINERS:

- Make sure storage containers are spill-proof; inspect for leaks and perform routine maintenance
- Inspect storage tanks and piping systems for leaks or failures and perform routine maintenance
- Use safeguards (such as berms or secondary containment basins) against accidental releases of liquids from the storage area
- Store materials in appropriate containers

STORE UNDER COVER:

- Protect stored materials from rainwater
- Store materials indoors and on pallets, if possible
- Cover materials stored outdoors with sheets or plastic or other types of cover to prevent exposure to rainfall
- Store hazardous materials according to federal, state, and local requirements

All City employees — who clean our municipal buildings, City sidewalks and plazas; trim the tens of thousands of street trees throughout Los Angeles; and maintain our parks and grounds —can make an enormous difference in whether or not dirt, grime, and chemicals reach our region's rivers and beaches.

maintain buildings and grounds wisely



BUILDINGS, SIDEWALKS, PLAZAS, PARKING LOTS:

- Clean up without water whenever possible by sweeping or wiping
- Prevent and clean up spills
- Clean up debris and litter so they do not get washed into storm drains
- Avoid using detergents in steam or pressure washing
- Clean catch basins and storm drains regularly

PROPERTY AND GROUNDS MAINTENANCE:

- Control soil erosion
- Recycle lawn clippings, trimmings from trees and other landscaping
- Use only the right types and amounts of fertilizer, herbicides, and/or pesticides for your landscaping
- Do not overwater (excess water transports pollutants off your property into the storm drain system)
- Avoid applying fertilizers, pesticides, or herbicides during rainy weather

All City employees who work in construction, either as laborers, inspectors or managers, have a crucial responsibility to control erosion and pollutants from building materials at the job site. You can prevent pollution of stormwater and drinking water, wildlife habitat, neighborhoods and recreation areas in the urban environment.

prevent pollution during construction

GOOD HOUSEKEEPING:

- Sediments and other pollutants must be retained on-site; they cannot wash into streets, gutters or storm drains
- Toxic materials must be stored properly and may not contaminate either the soil or surface waters
- Concrete wastes must be retained on-site and disposed of properly; do not wash these into the streets, gutters, or storm drains
- Solid wastes must be placed in covered containers/ dumpsters
- Slopes must be stabilized

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

- California State Water Resources Control Board issued a general ordinance that requires construction sites larger than 5 acres to prepare and follow a SWPPP; this ordinance may be updated to include smaller sites. For more information on preparing these plans, call the Stormwater Hotline 800-974-9794.



PRINCIPLES IN SELECTING BEST MANAGEMENT PRACTICES FOR CONSTRUCTION PROJECTS

- Practice good housekeeping
- Contain waste
- Minimize disturbed areas
- Stabilize disturbed areas
- Protect slopes and channels
- Control site perimeter — prevent materials and pollutants from leaving the site
- Control erosion on-site

All City employees who design Los Angeles' future municipal buildings and cultural centers, parks and pedestrian corridors, treatment plants, transportation systems, harbors, airports – the physical structures and infrastructure of L.A. – have the knowledge and the opportunity to fulfill the adage: "an ounce of prevention is worth more than a pound of cure".

plan and design

City facilities that

integrate pollution

prevention

PLANNING BMP'S FOR CITY FACILITIES

1. Specify irrigation systems that will shut-off before runoff starts and won't irrigate after a big storm.
2. Design landscaping with with low irrigation requirements.
3. Leave a vegetative barrier to act as a filter for pollutants.
4. Incorporate pervious drainage systems on site such as landscaped swales or unlined channels for runoff.
5. Use porous pavements, alternative surfaces, or reducing the size of the paved surface.
6. Design to minimize the potential for pollutants to contact rainfall or runoff. For example, eliminate outdoor storage of hazardous materials, and provide secondary containment for the storage area.
7. Preserve natural drainage features and depressions that store rainfall on new site development.
8. Design trash container areas to prevent off-site transport of trash and exposure to stormwater runoff.
9. Add standard stenciling or signage to all new storm drain facilities.



SOME TREATMENT CONTROL BMPS APPROPRIATE FOR NEW PROJECTS ARE:

1. Constructed wetlands
2. Extended detention basins
3. Infiltration basins
4. Infiltration trenches
5. Vegetated swales and strips
6. Wet ponds

All City employees can serve not only as caretakers and watchdogs, but also role models for Los Angeles' residents and businesses.

This doesn't mean you have to clean up after others, but there is a 24-hour hotline to report pollution on public property that you believe will harm our waterways and beaches.



help train others

- Help residents to understand the importance of preventing stormwater pollution.
- Don't ignore urban pollution. If you see a clogged catch basin, a spill or illegally discarded waste in Los Angeles City property, call the Stormwater Hotline to report it: 800-974-9794. The Department of Public Works has crews ready to respond. *All you have to do is pick up the phone.*
- Train employees in your department to use these guidelines and Best Management Practices (BMPs).

Our actions are supported by...

FEDERAL CLEAN WATER ACT

The 1987 amendments to the Clean Water Act require standards for discharging stormwater into our nation's waterways. Cities are required to have a permit for discharging into storm drains that lead into rivers, lakes, or the ocean. The permit is called a "National Pollutant Discharge Elimination System (NPDES)" permit.

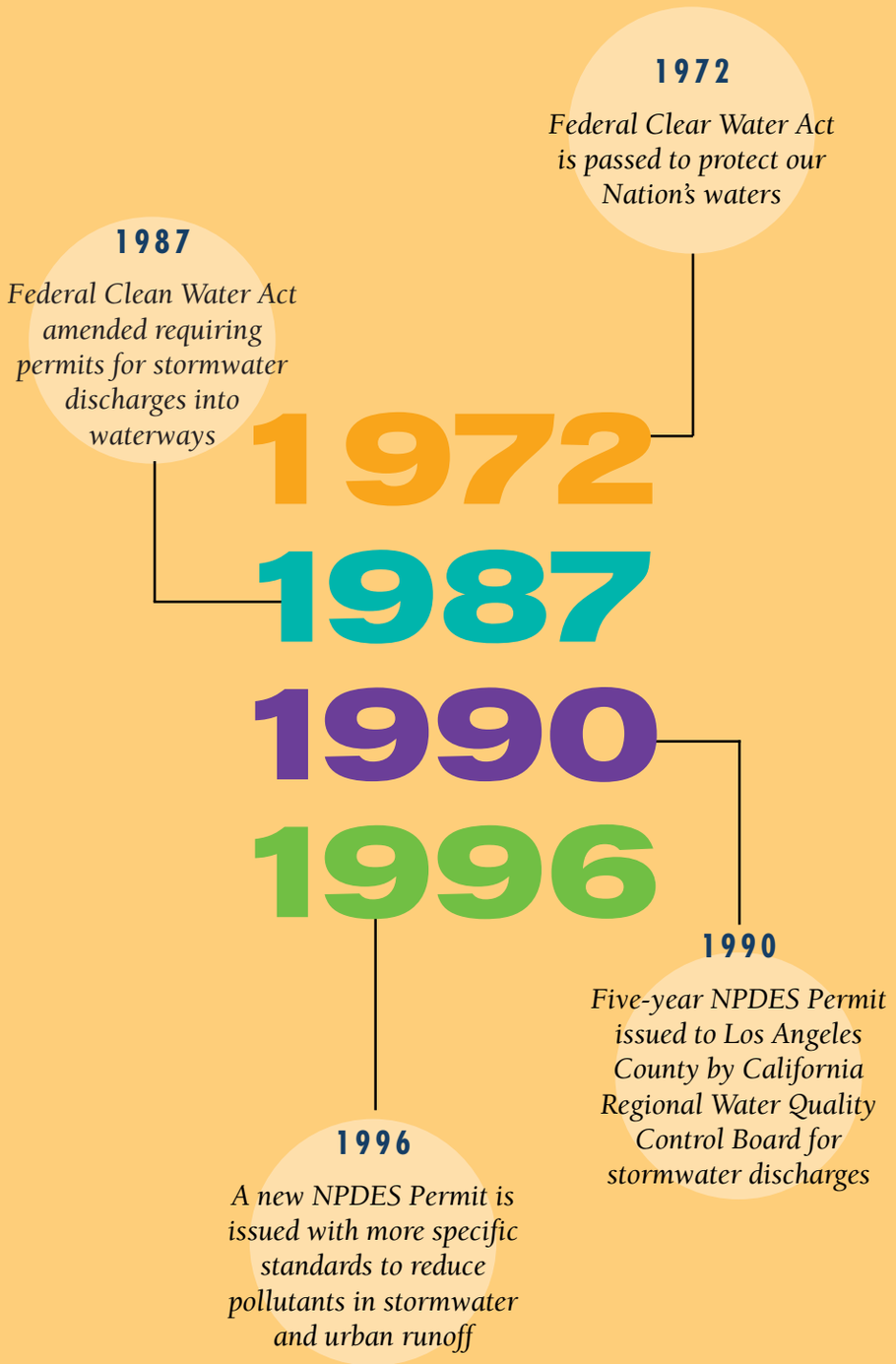
OUR NPDES PERMIT

An NPDES Permit allows clean stormwater discharges into rivers, lakes or the ocean. The current permit was issued in 1996 by the California Regional Water Quality Control Board (Los Angeles Region) and requires a decrease in pollutants to stormwater and urban runoff.

Our Permit is based upon a foundation of education rather than harsh enforcement actions. The Permit requires that all City employees receive training in stormwater pollution prevention. Knowing the general principles that can significantly reduce pollution helps make compliance with stormwater permits and regulations easy. However, the City is responsible to the Regional Board for all employees' actions and may be fined for polluting activities.

STORMWATER ORDINANCE

In 1998, the City of Los Angeles passed its stormwater ordinance. It gave the City local legal authority to enforce the NPDES Permit. While education is the key to successful stormwater pollution prevention, we still have the means to take corrective actions with serious offenders. Any commercial, industrial, or construction business found discharging waste or wastewater into the storm drain system may be subject to legal penalties.



Organization of the City's Stormwater Permit

1996 Municipal Stormwater Permit

Model Programs

- Development Construction
- Development Planning
- Illicit Connections/Illicit Discharges
- Public Agency Activities
- Public Education

Some City employees will receive additional training in these model programs to further reduce stormwater pollution

We lead by example

Stormwater Hotline

800-974-9794

The hotline is operated by the City of Los Angeles. It's intended for City employees and residents. When calls are received, City workers will go out to clean up spills and remedy situations so that people are not exposed to any dangerous pollutants and the environment is safe.

Call the hotline...

- to report spills
- to report abandoned waste
- to report any situation that may pollute storm drains, local waterways and beaches
- to report a clogged storm drain or catch basin
- to request other stormwater educational materials
- to get flood zone information
- to get more information on anything presented in this workbook

Making the video











Credits

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Stormwater Hotline

800-974-9794

STORMWATER
PROGRAM
CITY OF LOS ANGELES

Prepared by:

City of Los Angeles
Department of Public Works
Bureau of Sanitation
Stormwater Management Division

www.CityofLA.org/san/swmd

PRINTED ON RECYCLED PAPER BY THE CITY PRINT SHOP



STORMWATER PROGRAM

CITY OF LOS ANGELES



D E A R

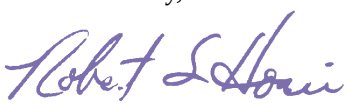
I N T E R E S T E D C I T I Z E N,

The City of Los Angeles has two large water drainage systems: the sewers and the storm drains. The sewer system collects wastewater from inside homes and businesses and carries it to a treatment plant where it is cleaned before being released into the ocean. Since the early 1980s, the City of Los Angeles has implemented a multi-billion dollar program to improve its four wastewater treatment plants and 6,500 miles of sewer lines. The results have been truly impressive.

Now the City has begun an aggressive program that affects the storm drain system. Every street and neighborhood is connected to these storm drains. They collect water and litter from outside our homes and businesses and carry it, untreated, directly to the ocean. The purpose of the system is to prevent the flooding that in earlier decades caused great hardship and even loss of life. Polluted stormwater is a major concern for everyone in Los Angeles because it is the source of a great deal of coastal water pollution.

Where does all this trash and pollution come from? It all comes from different activities that are part of our daily routine. Therefore, we hope that you will take the time to read this booklet and join us in a community effort to inform people about stormwater pollution, how it affects every person in Southern California and how we can reduce it. Each of us must make the connection that storm drains are for rainwater only.

Yours truly,



Robert S. Horii
City Engineer
City of Los Angeles



GLOSSARY

CATCH BASIN *an entryway to the storm drain system usually located at street corners*

MONITORING *gathering samples from the storm drains and coastal waters and testing their content in the laboratory*

NONPOINT SOURCE POLLUTANT *pollutants from different, sometimes unidentified sources, that combine in the storm drain system and are flushed onto beaches and coastal waters*

POINT SOURCE POLLUTANT *pollutants from a single, identifiable source such as a factory or refinery*

URBAN RUNOFF *excess water from light rains, garden hoses, industrial operations, and various urban cleaning activities, such as car washing and hosing driveways; this excess water is not absorbed into the ground and carries potentially harmful substances into our neighborhoods, the storm drain system, and the ocean*

WET WEATHER FLOWS *water entering storm drains during rainstorms*

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STORMWATER HISTORY



Near the turn of the century, the Los Angeles River often posed a threat to life and property

Flooding near Vermont and Adams (1932)





1910 1920 1930 1940

Los Angeles had grown so rapidly by the late 1800s that a public works program was established to meet the City's needs. Projects included roads, street lights, a fresh water aqueduct, a sewer system, and a flood control system.

Massive floods had twice changed the course of the Los Angeles River – floods that caused the loss of homes, businesses, and lives. The problem was compounded by the City's rapid growth. Rains that had previously soaked into open fields and hillsides ran off newly paved streets and swelled creeks and rivers, causing worse flooding than before.

Planners and residents chose to protect the community from continued loss of life and property by building a concrete-lined flood control system that would drain the heavy, unpredictable flows directly to the ocean. In the 1930s the U.S. Army Corps of Engineers began constructing the Los Angeles River and Ballona Creek flood control channels. During the following decades, most of the region's other natural creeks and streams were incorporated into this system.

STORMWATER PROGRAM



Construction of West Slauson Storm Drain (1935)

Los Angeles grows into a major urban area (1950)



Clean Water Act Amendments(1972)



City of Los Angeles Stormwater Program begins (1990)



1950 1960 1970 1980 1990

As the City grew into the San Gabriel and San Fernando Valleys, more concrete was poured to build houses, factories, stores, and roads. Modern technology introduced products such as motor oil and pesticides, products that have had a dramatic effect on our urban and coastal environments. These chemical residues, carried in urban runoff, flow down driveways and streets into gutters and storm drains, eventually reaching the ocean.

After years of legislative concern, Congress voted in 1972 to increase local efforts to reduce pollution of our rivers, lakes, streams, and coastal waters. Large dischargers such as sewage treatment plants, refineries, and factories were targeted first and ordered to clean up their waste.

In anticipation that more would be required of urban centers, the City of Los Angeles in 1990 joined with Los Angeles County and other local cities in a new, early action program that was geared to the area's needs. They obtained a permit to design innovative pollution control and prevention projects to improve the quality of urban runoff and stormwater flowing through their storm drains.

CITY OF LOS ANGELES

"Our nation has been blessed with a bountiful supply of water, but it is not a blessing we can regard with complacency."

John F. Kennedy



Pollutants enter the storm drain system every day...

NEED FOR ACTION

Dramatic progress has occurred over the past 20 years in the effort to clean up the nation's waterways. In fact, Los Angeles' coastal waters are cleaner today than they have been in decades. Still, we have to do much more to reduce water pollution.

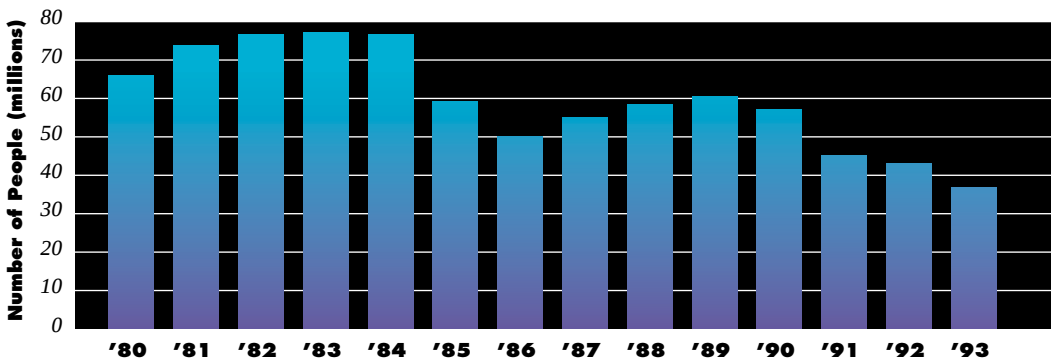
Recent studies have identified some 160 chemicals that cause concern. In sufficient concentrations, several seem to cause illness. Many originate as point source and nonpoint source pollutants – byproducts of manufacturing, cleaning, and other activities. Some of these substances, along with other pollutants, settle out or are washed from the air. Residue from tires scraping the pavement, leaked or spilled motor oil, pet waste, pesticides, paint, grease, and litter are other substances that contaminate the water that washes off our streets. Whatever is carried into the storm drains eventually goes to the beaches and the ocean. This urban runoff amounts to tens of millions of gallons a day, even in dry weather.

... and flow through the system to our beaches and coastal waters



The result? Foreign matter, including potentially harmful viruses and bacteria are now found in our coastal waters along with soil particles, other solids, and litter. When we fish, swim or walk along the beach, we are exposed to this pollution and debris. Marine plants and animals suffer constant exposure. At risk is the fragile environment of Santa Monica and San Pedro Bays.

STORMWATER PROGRAM



Beach attendance along Santa Monica Bay, 1980-1993



Storm drain outlets are not safe places to play

At risk, too, is the enjoyment of the area's beaches. The number of people visiting Los Angeles beaches in 1993 was only half the number who came in 1983 even though tourism and population have increased. Two-thirds of those recently surveyed said that they won't swim in the ocean because they suspect it's polluted.

Los Angeles County workers post signs warning of the dangers of swimming or wading within 100 yards of storm drain outlets when water is flowing from them into the surf. State officials have suggested that we avoid eating certain species of bottom-feeding fish found in local waters.

The solution to these concerns is a coordinated effort to reduce polluted runoff and the dumping of litter and trash into storm drains. We must reduce pollution at the source.



We need to protect our natural resources

CITY OF LOS ANGELES

"In the long run, the fate of each community still lies in the hands of the people who live there."

Margaret Mead



Catch basins are neighborhood entry points to the stormwater system



Underground drains carry runoff to larger channels such as this

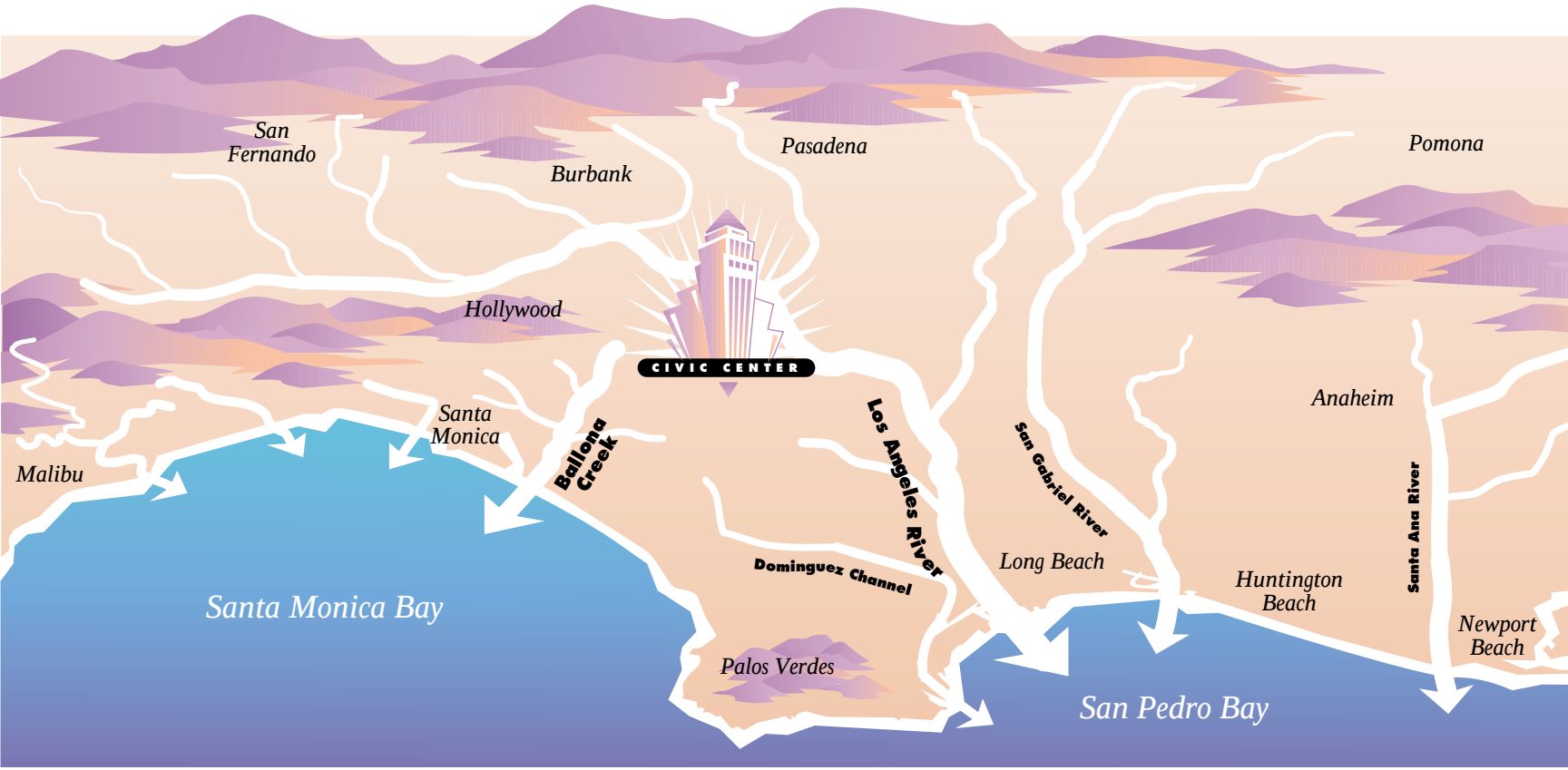


The Los Angeles River is the largest channel in the area



Runoff reaches the ocean through outlets at our beaches

T H E



The stormwater system for the City of Los Angeles consists of more than 1500 miles of major pipes and channels; the two largest stormwater channels are the Los Angeles River and Ballona Creek

STORM DRAIN SYSTEM

In the City of Los Angeles, stormwater and urban runoff from our streets are funneled down gutters to approximately 100,000 catch basins. These are inlets to a 1,500-mile long maze of pipes, open channels, and outlets that make up the storm drain system. During storms, wet weather flows can amount to billions of gallons in a single day. Even during dry weather, urban runoff adds up to tens of millions of gallons daily.

Because such large volumes would overwhelm the region's sewage treatment plants, the storm drain system is separate from the City's sewer system. This provides maximum efficiency and public safety.

Sewage is treated before it is released to the ocean, but stormwater and runoff from the streets are not. *Whatever enters the storm drains ends up in the water we call our playground: the ocean, bays, and coastal wetlands. For this reason, stormwater and urban runoff have become a focus of environmental action.*



Call to make an appointment, then take unwanted products that may contain harmful chemicals to a HAZMOBILE collection site



Do not over-water your lawn or garden. Water that isn't absorbed into the ground may carry pollutants to the ocean



Maintain your vehicle so it won't leak oil, antifreeze, and other fluids

STORMWATER PROGRAM

W H A T W E

Healing our coastal waters is up to each of us. The solution is not at the end of the pipes where the runoff and stormwater empty into the ocean. The solution is at the source, where we live and work. We need to take a moment to change some small part of our daily routines. Try some of these suggestions and clean up our neighborhoods and the ocean. Phone numbers of local agencies that can help you help the environment are at the back of this booklet. Please make the connection that storm drains are for rainwater only and:

- *Conserve water and keep it out of the gutter. Take your car to a car wash that recycles its water. Use a broom, not water, to sweep driveways and sidewalks. Do not overwater your lawn or garden.*
- *Recycle motor oil, paint, and other household products or shop at a store that will recycle them for you.*
- *Adopt your neighborhood storm drains. Report illegal dumping into storm drains and any catch basins that need cleaning.*
- *Purchase less toxic, biodegradable gardening and household products.*
- *Dispose of pet waste in the trash or in your toilet. Leaving waste on the lawn sends harmful bacteria into the storm drains whenever you water or the rains come.*
- *Place yard trimmings and leaves into City-issued containers or start your own compost program. Do not sweep debris into the streets or catch basins.*

"Our main business is not to see what lies dimly at a distance, but to do what lies clearly at hand."

Thomas Carlyle

C A N A L L D O

The Stormwater Management Division in the Department of Public Works, Bureau of Engineering, is coordinating an aggressive, City-wide program to reduce pollution in stormwater and urban runoff. The Division focuses on the area affected by the City's largest drainage channels: the Los Angeles River and Ballona Creek.

- *Federal law calls for fines of up to $25,000 per day for illegal dumping into the storm drain system. The City of Los Angeles' team of inspectors works with business and industry to reduce or eliminate pollutants from their facilities and to find legal means of disposal.*
- *Several pilot projects are assessing pollution prevention strategies. Some of these include an enhanced street sweeping program using more efficient machines, a localized pumping system that diverts runoff from a storm drain into a sewer, and parking lot filters to catch pollutants before they reach storm drains.*
- *The City's Public Education/Outreach Program aims to stop pollution at the source. A school curriculum and assembly program combine stormwater pollution with other environmental issues. General outreach efforts target the mass media and include public service announcements for television and radio as well as billboards and press releases. A grass roots effort focuses on recruiting volunteers to stencil "No Dumping--This Drains to Ocean" on neighborhood catch basins and to distribute educational materials to area residents.*



Coastal waters are continuously monitored for pollutants. Field inspectors use state-of-the-art equipment to analyze storm drain flows to help trace potential pollutant sources



The City cleans and maintains catch basins on a year-round basis to prevent flooding and reduce pollution. These field crews also help educate residents about the need to keep catch basins clear of litter and debris

STORMWATER PROGRAM

HOW TO LEARN MORE

(800)974-9794	*City of Los Angeles*	*To learn more about the Stormwater Public Education Program, speaker and school programs*
(213)237-1209	*City of Los Angeles*	*To inquire about business-generated hazardous waste*
(800)HEALBAY (432-5229)	*Area-wide*	*To adopt your neighborhood storm drains by joining Gutter Patrol*
(800)974-9794 **(800)303-0003**	*City of Los Angeles* *County of Los Angeles*	*To report dumping in catch basins or storm drain channels*
(800)974-9794 **(818)458-HELP(4357)**	*City of Los Angeles* *County of Los Angeles*	*To report catch basins that need cleaning*
(800)98TOXIC (988-6942)	*City of Los Angeles*	*To call HAZMOBILE to set up a hazardous waste drop-off*
(800)552-5218	*County of Los Angeles*	*To take hazardous materials to a hazardous waste disposal center*
(800)773-CITY(2489) **(800)552-5218**	*City of Los Angeles* *County of Los Angeles*	*To inquire about recycling*

CITY OF LOS ANGELES

Richard J. Riordan, Mayor

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600 South Spring Street

Suite 400

Los Angeles, CA 90014



STORMWATER MANAGEMENT DIVISION

Printed on Recycled Paper

Appendix E

Soils Report

ALTA CALIFORNIA
GEOTECHNICAL INC.

170 North Maple Street, Suite 108
Corona, CA 92880
www.altageotechnical.com

WALBERN DEVELOPMENTS
29222 Rancho Viejo Road, Suite 207
San Juan Capistrano, California 92675

June 20, 2018
Project No. 2-0128

Attention: Mr. Matt Waken

Subject: ***GEOTECHNICAL INVESTIGATION***
Foothill East project on Foothill Boulevard at Monte Vista Avenue
Cities of Claremont and Upland, California

References: Appendix

Dear Mr. Waken:

Presented herein is Alta California Geotechnical, Inc.'s (Alta's) geotechnical investigation of the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard in the Cities of Claremont and Upland, California. This report is based on Alta's recent subsurface investigation, laboratory testing, engineering analyses, and review of the referenced reports.

Alta's review of the geotechnical data and conceptual plan indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions;
- Recommendations for remedial and site grading, including unsuitable soil removals;
- Geotechnical site construction recommendations;
- Preliminary foundation design parameters.

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

DAVID A. MURPHY/CEG 1813
Reg. Exp.: 10-31-19
Certified Engineering Geologist
President

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1.0 INTRODUCTION

The following report presents Alta's findings, conclusions and geotechnical recommendations for the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California.

1.1 Purpose

The purpose of this report is to examine the existing onsite geotechnical conditions and assess their impacts on the proposed development. The property is depicted on the enclosed Site Plan (Plate 1). This report is suitable for use in developing grading plans and preliminary construction cost estimates.

1.2 Scope of Work

Alta's *Scope of Work* for this geotechnical investigation included the following:

- Reviewing the referenced reports and air photos (Appendix A);
- Site geologic mapping;
- Excavating, logging, and sampling ten (10) excavator test pits to a maximum depth of 20-feet below the existing surface (Appendix B);
- Conducting preliminary infiltration testing;
- Conducting laboratory testing on samples obtained during our investigation (Appendix C);
- Evaluating engineering geologic and geotechnical engineering data, including laboratory data, to develop recommendations for site remedial grading, import soil, foundations and utilities;
- Preparing this report and accompanying exhibits.

1.3 Report Limitations

The conclusions and recommendations presented in this report are based on the field and laboratory information generated during this investigation, and a review of the referenced reports. The information contained in this report is

intended to be used for development of grading plans and preliminary construction cost estimates.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The irregular-shaped, approximately 6.4± -acre Foothill East project is located in the northwest corner of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California. The property slopes gently to southwest from approximate elevations 1360 to 1330. It is bounded on the south by Foothill Blvd, on the east by Monte Vista Avenue, on the west by an Armstrong Garden Center, and north by Andrew Drive and open space. Some concrete flatwork exists in the western portion of the site and a concrete debris pile exists along the north western boundary. Moderate growth of shrubs and weeds cover most of the site.

Historic aerial photos are available as far back as 1938. The photos indicate that a structure previously stood on the western portion of the site but was demolished by 1994. Running water once flowed over the site before the San Antonio Creek Channel had been constructed. (Historic Aerials, 2018).

2.2 Proposed Development

It is our understanding that the site is to be redeveloped into a mixed residential and commercial development. Alta anticipates that conventional cut-and-fill grading techniques will be used to develop the site for the support of wood-frame and stucco construction with shallow foundations and reinforced concrete slabs-on-grade, and associated improvements.

3.0 SITE INVESTIGATION

3.1 Investigation and Laboratory Testing

Alta conducted a subsurface investigation on May 30, 2018 consisting of the excavation, logging and select sampling of ten (10) excavator test pits. The

locations of the test pits are shown on enclosed Plate 1 and the test pit logs are presented in Appendix B.

Laboratory testing was performed on bulk samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

Alta conducted infiltration testing on June 1, 2018 in general conformance with the San Bernardino County Technical Guidance Document for WQMP. Infiltration testing utilizing the shall percolation test procedure was undertaken in two, five (5) foot-deep test pits (P-1 and P-2), and in two, ten (10) foot-deep test pits (P-3 and P-4). The test pits were presoaked, and the water level reading were recorded every 10 minutes until the readings stabilized. The data was then adjusted to provide an infiltration rate utilizing the Porchet Method. A summary of the results is presented in Table 3-1, which do not include a factor of safety. Recommendations for infiltration BMP design are presented in Section 6.2.

Table A-Summary of Infiltration Testing (No Factor of Safety)

Test Designation	P-1	P-2	P-3	P-4
Approximate Depth of Test	5.0 ft	5.0 ft	10.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches	4 inches	4 inches
Tested Infiltration Rate	10 inches/hr	10 inches/hr	10 inches/hr	10 inches/hr

4.0 GEOLOGIC CONDITIONS

4.1 Geologic and Geomorphic Setting

Regionally, the subject site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of southern California where right lateral major active fault zones predominately trend northwest-southeast. The Peninsular Ranges province is composed of plutonic and metamorphic rock, with lesser amounts of Tertiary volcanic and sedimentary rock, Quaternary drainage in-fills and sedimentary veneers.

4.2 Stratigraphy

Based on our literature review and subsurface investigation, the site is underlain by minor amounts of undocumented artificial fill and young alluvial cobbles and sands. These geologic units are briefly described below. Their distribution is shown on enclosed Plate 1.

4.2.1 Undocumented Artificial Fill (No map symbol)

The undocumented artificial fill encountered at the site consists primarily of gray and grey brown gravelly sand in a dry, moderately dense condition. The unit was logged to a depth of two and a half (2.5) feet below the ground surface and is directly underlain by young alluvial fan deposits.

4.2.2 Young Alluvial Fan Deposits (Map symbol Qal)

The site is underlain by Holocene-age fan deposits sourced from alluvial fan outwash from nearby canyons and drainages. The alluvial deposits encountered at the site consist primarily of gray, gray brown, and tan brown cobble and gravels with sand in a dry, very loose to moderately dense condition. The unit was logged to a depth of 20 feet below the ground surface. Caving was observed in the test pits as noted in the Test Pit logs in Appendix B.

4.3 Geologic Structure

4.3.1 Tectonic Framework

Jennings and Bryant (2010) defined eight structural provinces within California that have been classified by predominant regional fault trends and similar fold structure. These provinces are in turn divided into blocks and sub-blocks that are defined by "major Quaternary faults." These blocks and sub-blocks exhibit similar structural features. Within this framework, the subject site is located within Structural Province I, which is controlled by the dominant northwest trend of the San Andreas Fault and is divided into two blocks, the Coast Range Block and the Peninsular Range Block. The Peninsular Range Block, on which this site is located, is characterized by a series of parallel, northwest trending faults that exhibit right lateral dip-slip movement. These faults are terminated by the Transverse Range block to the north and extend southward to the Baja Peninsula. These northwest trending faults divide the Peninsular Range block into eight sub-blocks. The Santa Ana Sub-block, one of the eight sub-blocks, is bound on the east by the Elsinore fault zone and on the west by the Newport-Inglewood fault zone.

4.3.2 Regionally Mapped Active Faults

Several large, active fault systems including the Elsinore-Whittier, Newport-Inglewood, and the San Andreas occur in the region surrounding the site. These fault systems have been studied extensively and in a large part control the geologic structure of southern California.

4.3.3 Geologic Structure

Based upon our site investigation and literature review, the onsite sediments are of Holocene age, and are not fractured, folded, or faulted.

4.4 Groundwater

Groundwater was not encountered during this investigation. Nearby wells indicate that groundwater in the area is greater than 115± feet below the ground surface. The seismic hazard zone report for the area (CDMG, 1998) indicates that historic high groundwater elevation is approximately 40 to 50 feet below the existing ground surface.

4.5 Earthquake Hazards

The subject site is located in southern California, which is a tectonically active area. The type and magnitude of seismic hazards affecting a site are dependent on the distance to the causative fault and the intensity and magnitude of the seismic event. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction and/or ground lurching.

4.5.1 Local and Regional Faulting

The nearest known active faults (movement occurring ≤ 11,000 years ago) are the Sierra Madre fault, the Clamshell-Sawpit fault, and the San Jacinto fault, located approximately 2.8, 12.6, and 14.5 miles from the site (USGS, 2008).

4.5.2 Seismicity

Ground shaking hazards caused by earthquakes along other active regional faults exist. The 2016 California Building Code requires use-modified spectral accelerations and velocities for most structural designs. Seismic design parameters using soil profile types identified in the 2016 California Building Code are presented in Section 7.3.

4.5.3 Surface Rupture

Active faults are not known to exist within the project and a review of Special Publication 42 indicates the site is not within the California State

designated Alquist-Priolo earthquake fault zones (Bryant and Hart, 2007). Accordingly, the potential for fault surface rupture on the subject site is very low.

4.5.4 Liquefaction

Seismic agitation of relatively loose saturated sands, silty sands, and some silts can result in a buildup of pore pressure. If the pore pressure exceeds the overburden stresses, a temporary quick condition known as liquefaction can occur. Liquefaction effects can manifest in several ways including: 1) loss of bearing; 2) lateral spread; 3) dynamic settlement; and 4) flow failure. Lateral spreading has typically been the most damaging mode of failure.

In general, the more recent that a sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that must be considered are: groundwater, confining stresses, relative density, and the intensity and duration of seismically-induced ground shaking.

Groundwater was not encountered during the subsurface investigation which extended to a depth of 20 feet. The regional groundwater map indicates that the historic high groundwater level is 40 to 50 feet (CDMG, 1998). Based on the depth of groundwater and the underlying soil type (primarily gravel), it is our opinion that the potential for liquefaction is minimal at the site.

4.5.5 Dry Sand Settlement

Dry sand settlement is the process of non-uniform settlement of the ground surface during a seismic event. Based on our subsurface investigation and our removal/recompaction recommendations, the

potential for dry sand settlement is anticipated to be low and within foundation design tolerances.

4.5.6 Seismically Induced Landsliding

Due to a lack of slopes within or nearby the property, seismically induced landsliding is not anticipated to pose a danger to the site.

5.0 ENGINEERING PROPERTIES AND ANALYSIS

5.1 Materials Properties

Presented herein is a general discussion of the engineering properties of the onsite materials that will be encountered during construction of the proposed project. Descriptions of the soil (Unified Soil Classification System) are presented on the boring logs in Appendix B.

5.1.1 Excavation Characteristics

Based on the data provided from the subsurface investigation, it is our opinion that the majority of the onsite materials possess favorable excavation characteristics such that conventional equipment can be utilized. Gravels, cobbles, and boulders will be encountered in excavations onsite. The largest dimension boulder encountered during our subsurface investigation was three (3) feet in diameter.

5.1.2 Over-Sized Rock

Over-sized rock (>12-inches) will be generated from excavations onsite. This rock may be incorporated into the compacted fill section based on the recommendations presented in Section 6.2.2.

5.1.3 Compressibility

The undocumented artificial fill and upper portions of the young alluvial fan deposits onsite are considered compressible and unsuitable to support the proposed improvements. Recommended removal depths are presented in Section 6.1.2.

5.1.4 Hydro-Consolidation

Hydro-consolidation is the effect of introducing water into soil that is prone to collapse. Upon loading and initial wetting, the soil structure and apparent strength are altered resulting in almost immediate settlement. That settlement can have adverse impacts on engineered structures, particularly in areas where it is manifested differentially. Differential settlements are typically associated with differential wetting, irregularities in the subsurface soil conditions, or irregular loading patterns.

Based on the composition of the onsite soils (primarily gravel) and the anticipated minimal fill loads, the potential for hydro-collapse onsite is minimal and should be within foundation tolerances upon the completion of the recommended unsuitable soil removals.

5.1.5 Expansion Potential

Expansion index testing was performed on samples taken during our subsurface investigation. Based on the results, it is anticipated that the majority of materials onsite are "very low" to "low" in expansion potential ($0 \leq EI \leq 50$, Appendix C) when tested per ASTM D: 4829.

5.1.6 Earthwork Adjustments

The values presented in Table 5-2 are deemed appropriate for estimating purposes and may be used in an effort to balance earthwork quantities. As is the case with every project, contingencies should be made to adjust the earthwork balance when grading is in-progress and actual conditions are better defined.

TABLE 5-2 Earthwork Adjustment Factors		
Geologic Unit	**Adjustment Factor Range**	**Average**
Young Alluvial Fan Deposits/afu	Shrink 10% to 20%	15%

5.1.7 Chemical Analyses

Chemical testing was performed on samples of material underlying the proposed site. Soluble sulfate test results indicate that the soluble sulfate concentrations of the soils tested are classified as negligible (Class S0) per ACI 318-14. Negligible chloride levels were detected in the onsite soils. Additional discussions on corrosion are presented in Section 7.9. Corrosion tests results are presented in Appendix C.

5.2 Engineering Analysis

Presented below is a general discussion of the engineering analysis methods that were utilized to develop the conclusions and recommendations presented in this report.

5.2.1 Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases. If it is desired to use Coulomb forces, a separate analysis specific to the application can be conducted.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Alta's findings during our subsurface investigation, the laboratory test results, our staff's previous experience in the area, it is Alta's opinion that the development of the site is feasible from a geotechnical perspective. Presented below are Alta's

recommendations that should be incorporated into site development and construction plans. All grading shall be accomplished under the observation and testing of the project geotechnical consultant in accordance with the recommendations contained herein and the City of Upland/Claremont criteria.

6.1 Remedial Grading Recommendations

6.1.1 Site Preparation

Vegetation, construction debris, and other deleterious materials are unsuitable as structural fill material and should be disposed of off-site prior to commencing grading/construction. Any septic tanks, seepage pits or wells should be abandoned as per the County of Los Angeles/San Bernardino Department of Health Services.

6.1.2 Disposal of Existing Concrete

Existing concrete flatwork and debris associated with the previously demolished structure should be removed prior to the placement of engineered fill. The demolished concrete may be incorporated into compacted, engineered fills after it is crushed to a maximum size of six (6) inches. Prior to placement as engineered fill any protruding steel rebar should be cut from the concrete pieces and disposed of offsite. These recommendations should be approved by the Cities of Claremont and Upland.

6.1.3 Unsuitable Soil Removals

The undocumented artificial fill and the uppermost portions of the young alluvial fan deposits onsite are compressible and as such, are not suitable to support the proposed structures. Accordingly, it is recommended to completely remove the undocumented artificial fills and the highly weathered portions of the underlying alluvial across the site and as close to the property boundaries as possible.

Accordingly, in design fill and shallow cut areas, it is recommended to remove and re-compact the upper five (5) feet of existing soils on the building pads. In design cut areas, the building pad should be overexcavated to provide a minimum of two (2) feet below the bottom of the footings (Provided the 5-foot minimum removal is provided). This recommended removal combined with the foundation recommendations presented in Section 7.1 should provide suitable support for the proposed structures.

For fill areas in streets, in general, a minimum removal and recompaction of the upper two (2) feet of native soils is recommended. For cuts greater than two feet (2) in street areas, removals are not required. For cuts less than two (2) feet, the two (2) foot removal and recompaction applies.

The Project Geotechnical Consultant should observe the removal bottom prior to placing fill. If unsuitable soils such as undocumented artificial fill are exposed upon the completion of the removals recommended above, additional removals may be required. This recommended removal is based on the assumptions that limited fill above the existing ground surface will be placed onsite.

6.2 General Earthwork Recommendations

6.2.1 Compaction Standards

All fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D-1557. Fill material should be moisture conditioned to optimum moisture or above, and as generally discussed in Alta's Earthwork Specification Section presented in Appendix E. Compaction shall be

achieved with the use of sheepsfoot rollers or similar kneading type equipment. Mixing and moisture conditioning will be required in order to achieve the recommended moisture conditions. Over-sized material should be handled based on the recommendations presented below in Section 6.2.2.

6.2.2 Over-Sized Rock Disposal Requirements

Oversized rock (>12 inches) is present in the underlying young alluvial fan deposits onsite. It is recommended that either the oversized rock be placed in fills in non-structural areas, or deep enough so as not to impact footing and utility construction. Placement of individual rocks in fill shall be conducted as per the details provided on Plate G- 15 (Appendix F).

6.2.3 Groundwater/Seepage

It is anticipated that groundwater will not be encountered during construction. It is possible that perched water conditions could be encountered depending on the time of year construction occurs.

6.2.4 Documentation of Removals

All removal/over-excavation bottoms should be observed and approved by the project Geotechnical Consultant prior to fill placement. Consideration should be given to surveying the removal bottoms and undercuts after approval by the geotechnical consultant and prior to the placement of fill. Staking should be provided in order to verify undercut locations and depths.

6.2.5 Treatment of Removal Bottoms

At the completion of removals/over-excavation, the exposed removal bottom should be ripped to a minimum depth of eight (8) inches, moisture-conditioned to above optimum moisture content and compacted in-place to the project standards.

6.2.6 Fill Placement

After removals, scarification, and compaction of in-place materials are completed, additional fill may be placed. Fill should be placed in eight-inch bulk maximum lifts, moisture conditioned to optimum moisture content or above, compacted and tested as grading/construction progresses until final grades are attained.

6.2.7 Mixing

Mixing of materials may be necessary to prevent layering of different soil types and/or different moisture contents. The mixing should be accomplished prior to and as part of compaction of each fill lift.

6.2.8 Import Soils

Import soils, if necessary, should consist of clean, structural quality, very low expansive, compactable materials similar to the on-site soils and should be free of trash, debris or other objectionable materials. The project Geotechnical Consultant should be notified not less than 72 hours in advance of the locations of any soils proposed for import. Import sources should be sampled, tested, and approved by the project Geotechnical Consultant at the source prior to the importation of the soils to the site. The project Civil Engineer should include these requirements on plans and specifications for the project.

6.2.9 Utility Trenches

6.2.9.1 Excavation

Utility trenches should be supported, either by laying back excavations or shoring, in accordance with applicable OSHA standards. Slight to moderate caving was observed in Alta's trenches, as such, the existing site soils are classified as Soil Types "B" and "C" per OSHA standards. Upon completion of

the recommended removals and recompaction, the artificial fill will be classified as Soil Type "B", while the underlying alluvium will still be classified as either "B or "C". The Project Geotechnical Consulting should be consulted if geologic conditions vary from what is presented in this report.

6.2.9.2 Backfill

Trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D-1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks, or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils. Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

Under-slab trenches should also be compacted to project specifications. If select granular backfill (SE > 30) is used, compaction by flooding will be acceptable.

6.2.10 Backcut Stability

Temporary backcuts, if required during unsuitable soil removals, should be made no steeper than 1:1 without review and approval of the geotechnical consultant. Flatter backcuts may be necessary where geologic conditions dictate and where minimum width dimensions are to

be maintained. Caving was observed in the test pits onsite, indicating that backcuts in the upper soils may need to be shallower than 1:1.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

Preliminary infiltration testing was conducted at the site as part of this investigation, and the results are presented in Section 3.2. Based on our testing, the infiltration rates at the site are high. As such, infiltration-type WQMP systems are feasible.

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping

subgrade. Care should be taken in designing systems that control the storm water as much as possible. A methodology for dealing with overflow should the infiltration system become clogged or full should be developed and maintained.

It is recommended that the Project Geotechnical Consultant observe the BMP excavations during construction to verify that the infiltration rates presented herein are appropriate. If it is determined that rates may be variable, additional infiltration testing should be undertaken.

If infiltration-type storm water systems are proposed, additional infiltration testing may be required at site-specific locations when the location and elevations for infiltration structures are determined.

6.4 Boundary Conditions

The site is bounded in areas by existing improvements such as Foothill Drive, Monte Vista Avenue, Andrew Drive and the Armstrong Nursery. Construction of retaining/screen walls or other improvements along these boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story, wood-frame residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to the individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design

recommendations should be made based upon specific structure sitings, loading conditions, and as-graded soil conditions.

It is anticipated that the majority of onsite soils will possess "very low" to "low" expansion potential when tested in general accordance with ASTM Test Method D: 4829. For budgeting purposes, the following foundation design requirements for a range of potential expansion characteristics are presented.

7.1.1 Foundations

Foundations may be preliminary designed based on the values presented in Table 7-1 below.

Table 7-1
Foundation Design Parameters*

Allowable Bearing	2000 lbs/ft^2 assuming a minimum footing width and embedment of 12 inches.
Lateral Bearing	250 lbs/ft^2 at a depth of 12 inches plus 250 lbs/ft^2 for each additional 12 inches of embedment to a maximum of 2000 lbs/ft^2
Sliding Coefficient	0.35
Differential Settlement	Dynamic: Differential = 1-inch in 40 feet Static: Differential = 0.5 inch in 40 feet

*These values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building code and structural design considerations may govern depth and reinforcement requirements and should be evaluated.

7.1.2 Conventional Slab/Foundation Systems

Based on the onsite soils conditions and information supplied by the 2016 CBC, conventional slab/foundation systems may be designed in accordance with Tables 7-1 and 7-2.

TABLE 7-2 CONVENTIONAL FOUNDATION DESIGN PARAMETERS	
Expansion Potential	***Very Low to Low***
Soil Category	I
Design Plasticity Index	10
Minimum Footing Embedment	12 inches*
*The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.	
Minimum Footing Width	12-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.
Minimum Footing Reinforcement	No. 4 rebar, two (2) on top, two (2) on bottom
Minimum Slab Thickness	4 inches (actual)
Minimum Slab Reinforcement	No. 3 rebar spaced 18 inches on center, each way
Under-Slab Requirement	See Section 7.2
Slab Subgrade Moisture	Minimum of 110 percent of optimum moisture to a depth of 12 inches prior to placing concrete.
Footing Embedment Adjacent to Swales and Slopes	If exterior footings adjacent to drainage swales are to exist within five (5) feet horizontally of the swale, the footing should be embedded sufficiently to assure embedment below the swale bottom is maintained. Footings adjacent to slopes should be embedded such that at least five- (5) feet is provided horizontally from edge of the footing to the face of the slope.
Garages	A grade beam reinforced continuously with the garage footings shall be constructed across the garage entrance, tying together the ends of the perimeter footings and between individual spread footings. This grade beam should be embedded at the same depth as the adjacent perimeter footings. A thickened slab, separated by a cold joint from the garage beam, should be provided at the garage entrance. Minimum dimensions of the thickened edge shall be six (6) inches deep. Footing depth, width and reinforcement should be the same as the structure. Slab thickness, reinforcement and under-slab treatment should be the same as the structure.

7.1.3 Post-Tensioned Slabs/Foundation Design Recommendations

Post-tensioned slabs for the project may be preliminarily designed utilizing the parameters presented in Tables 7-1 and 7-3. The parameters presented herein are based on methodology provided in the Design of Post-Tensioned Slabs-On-Ground, Third Edition, by the Post-Tensioning Institute, in accordance with the 2016 CBC.

TABLE 7-3
POST-TENSION SLAB DESIGN PARAMETERS

Category	Expansion Potential	Minimum Embedment	Edge Lift		Center Lift	
			Em (ft)	Ym (inch)	Em (ft)	Ym (inch)
I	Very Low to Low	12 inches	5.1	0.61	9.0	0.26
Slab Subgrade Moisture						
Category I	Minimum 110% of optimum moisture to a depth of 12 inches prior to pouring concrete					
Embedment*						
The minimum outer footing embedment presented herein are based on expansion indexes. The structural engineer should verify the minimum embedment based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code. If mat slabs are utilized, alternate embedment depths can be provided.						
Moisture Barrier						
A moisture barrier should be provided in accordance with the recommendations presented in Section 7.2						
The parameters presented herein are based on procedures presented in the Design of Post-Tensioned Slabs-On-Ground, Third Edition. No corrections for vertical barriers at the edge of the slab, or for adjacent vegetation have been assumed. The design parameters are based on a Constant Suction Value of 3.9 pF.						

7.2 Moisture Barrier

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive and should be capable of effectively preventing the migration of water and reducing the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as Visqueen, placed between two to four inches of clean sand, has been used for this purpose. The use of this system or other systems can be considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

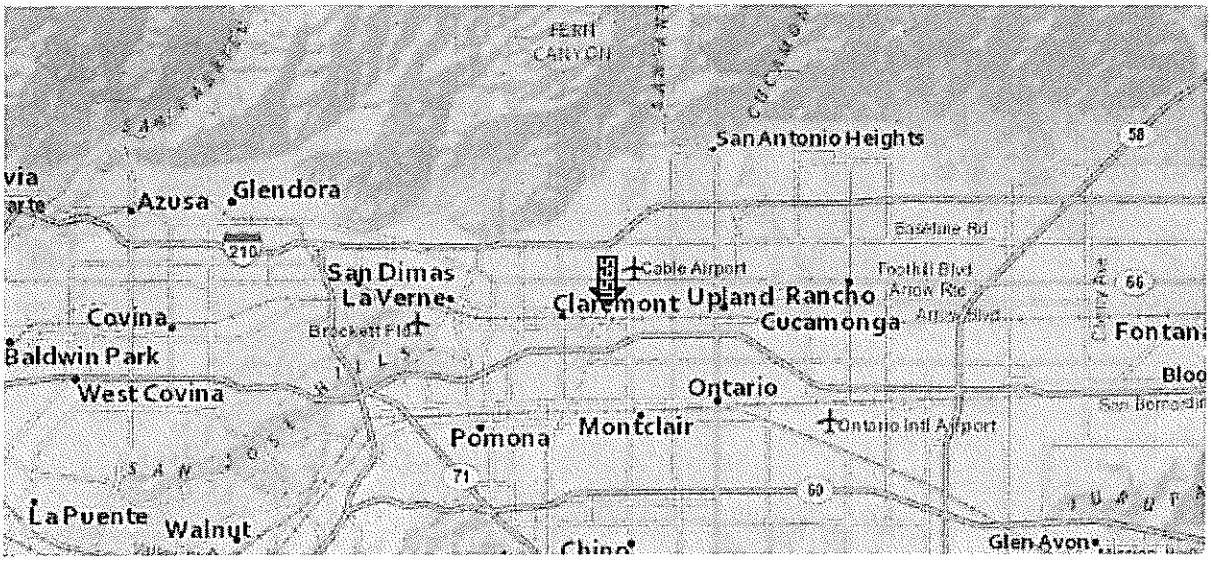
7.3 Seismic Design

The site has been identified as "D" site class in accordance with Table 20.3-1 of ASCE 7-10. Utilizing this information, the computer program USGS Seismic Design Maps Version 3.1.0 and ASCE 7-10 criterion, the spectral response accelerations that can be utilized for the project are presented on Figure 1. These parameters should be verified by the structural engineer. Additional parameters should be

USGS Design Maps Summary Report

User–Specified Input

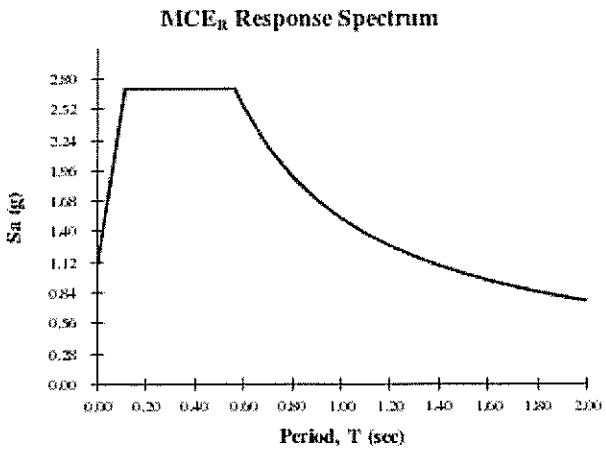
Report Title	2-0128 Tue June 19, 2018 17:07:43 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.1076°N, 117.7001°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

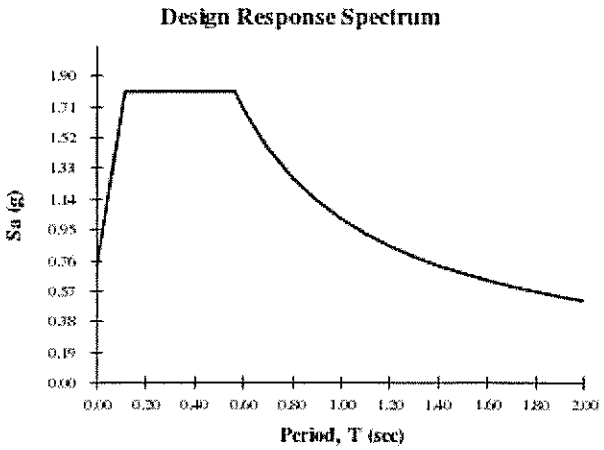


USGS–Provided Output

S_S =	2.706 g	S_{MS} =	2.706 g	S_{DS} =	1.804 g
S_1 =	1.016 g	S_{M1} =	1.525 g	S_{D1} =	1.016 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

FIGURE 1

determined by the structural engineer based on the Occupancy Category of the proposed structures.

7.4 Fence and Garden Walls

Block walls, if used, should be embedded a minimum of 2 feet below the lowest adjacent grade. Construction joints (not more than 20 feet apart) should be included in the block wall construction. Side yard walls should be structurally separated from the rear yard wall.

7.5 Footing Excavations

Soils from the footing excavations should not be placed in slab-on-grade areas unless properly compacted and tested. The excavations should be cleaned of all loose/sloughed materials and be neatly trimmed at the time of concrete placement. The Project Geotechnical Consultant should observe the footing excavations prior to the placement of concrete to determine that the excavations are founded in suitably compacted material.

7.6 Retaining Walls

Retaining walls should be founded on engineered fill and should be backfilled with granular soils that allow for drainage behind the wall. Suitable free-draining backfill material may need to be imported to the site. Foundations may be designed in accordance with the recommendations presented in Table 7-1, above. Unrestrained walls, free to horizontally move 0.0005H (for dense cohesionless backfill), may be designed to resist lateral pressures imposed by a fluid with a unit weight determined in accordance with the Table 7-4 below. The table also presents design parameters for restrained (at-rest) retaining walls. These parameters may be used to design retaining walls that may be considered as restrained due to the method of construction or location (corner sections of unrestrained retaining walls).

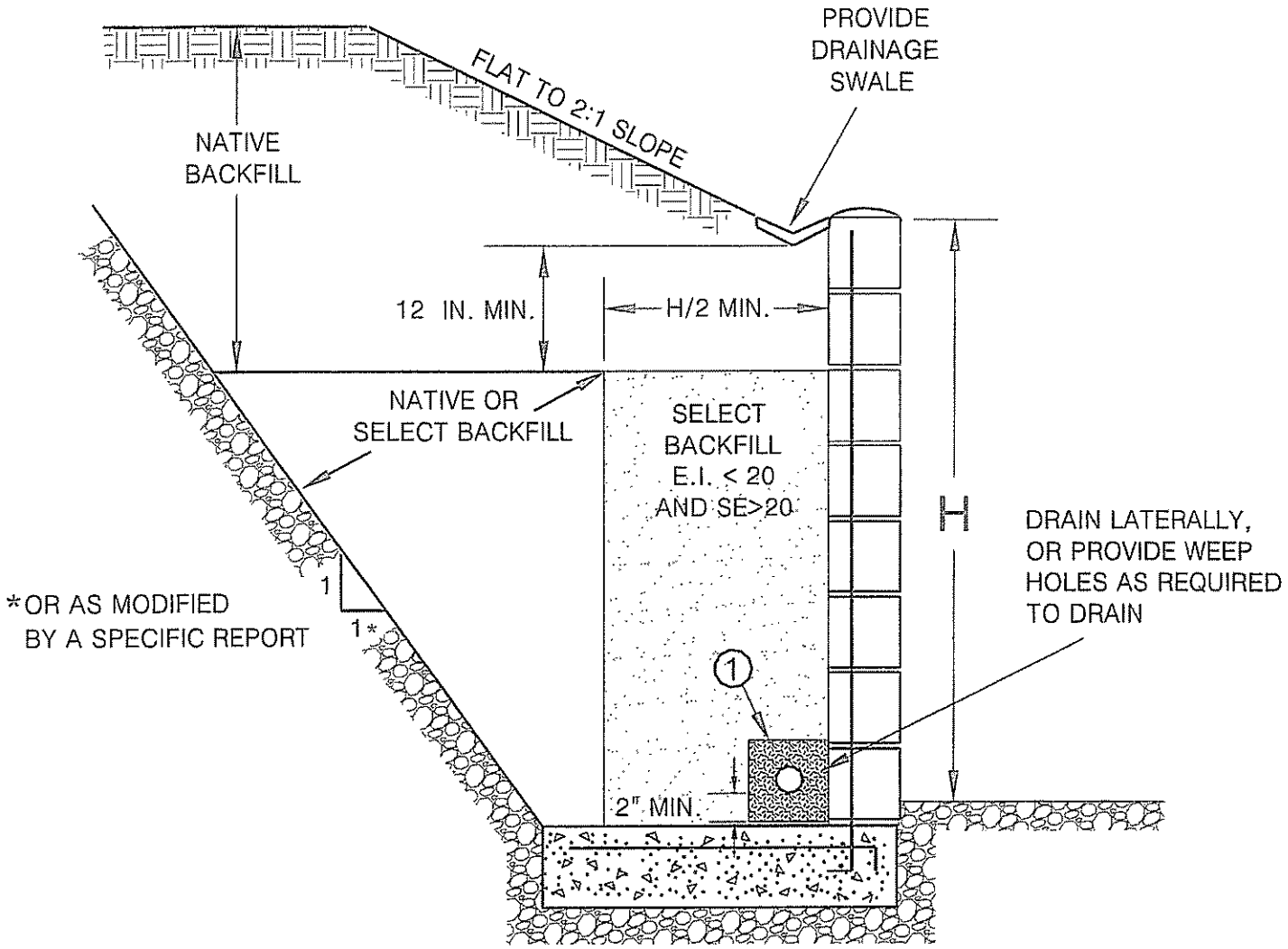
TABLE 7-4 Equivalent Fluid Pressures for 90% Compacted Fill (Select Material)		
Backfill	**Active Pressure (psf/ft)**	**At-Rest Pressure (psf/ft)**
Level	35	55

Per the requirements of the 2016 CBC, the seismic force acting on the retaining walls with backfill exceeding 6-feet in height may be resolved utilizing the formula $24H^2$ lb/lineal ft (H=height of the wall). This force acts at approximately 0.6H above the base of the wall (inverted triangle). The seismic value can be converted as required by the retaining wall engineer. Retaining walls should be designed in general accordance with Section 1807A.2 of the 2016 CBC.

- Restrained retaining walls should be designed for "at-rest" conditions.
- The design loads presented in the above table are to be applied on the retaining wall in a horizontal fashion and as such friction between wall and retained soils should not be allowed in the retaining wall analyses.
- Additional allowances should be made in the retaining wall design to account for the influence of construction loads, temporary loads, and possible nearby structural footing loads.
- Select backfill should be granular, structural quality backfill with a Sand Equivalent of 20 or better and an ASCE Expansion Index of 20 or less. The backfill must encompass the full active wedge area. The upper one foot of backfill should be comprised of native on-site soils (see Plate A).
- The wall design should include waterproofing (where appropriate) and backdrains or weep holes for relieving possible hydrostatic pressures. The backdrain should be comprised of a 4-inch perforated PVC pipe in a 1 ft. by 1 ft., ¾-inch gravel matrix, wrapped with a geofabric. The backdrain should be installed with a minimum gradient of 2 percent and should be outletted to an appropriate location. For subterranean walls this may include drainage by sump pumps.
- No backfill should be placed against concrete until minimum design strengths are achieved in compression tests of cylinders.

It should be noted that the allowable bearing and lateral bearing values presented in Table 7-1 are based on level conditions at the toe. Modified design

RETAINING WALL BACKFILL DETAIL



(1)

PIPE: 4-INCH PERFORATED PVC, SCHEDULE 40, SDR35 OR APPROVED ALTERNATE MINIMUM 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE

ROCK: MINIMUM VOLUME OF 1 CU. FT. OF 3/4-IN. MAX. ROCK PER. LINEAL FOOT OF PIPE, OR APPROVED ALTERNATE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

parameters can be presented for retaining walls with sloping condition at the toe. Other conditions should be evaluated on a case by case basis.

7.7 Exterior Slabs and Walkways

Exterior concrete slabs and walkways should be designed and constructed in consideration of the following recommendations.

7.7.1 Subgrade Compaction

The subgrade below exterior concrete slabs should be compacted to a minimum of 90 percent relative compaction as determined by ASTM Test Method: D 1557.

7.7.2 Subgrade Moisture

The subgrade below concrete slabs should be moisture conditioned to a minimum of 110 percent of optimum moisture prior to concrete placement.

7.7.3 Concrete Slab Thickness

Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

7.7.4 Concrete Slab Reinforcement

Utilization of reinforcement for flatwork and driveways is subject to a cost/benefit analysis. Reinforcement will decrease the amount of cracking that may occur in flatwork, however, planning for occasional repairs may be more cost effective. Utilizing closely spaced control joints is likely more cost-effective than utilizing reinforcement. The majority of the soils onsite are classified as very low to low in expansion potential. Consideration should be given to reinforcing flatwork with irregular (non-square/rectangular) shapes.

7.7.5 Control Joints

Weakened plane joints should be installed on walkways at intervals of approximately eight feet (maximum) or less. Exterior slabs should be designed to withstand shrinkage of the concrete.

7.8 Concrete Design

As stated in Section 5.1.7, negligible concentrations of sulfates were detected in the onsite soils. Therefore, the use of sulfate resistant concrete is not required per ACI 318-14 at this time. Post-grading conditions should be evaluated, and final recommendations made at that time.

7.9 Corrosion

The onsite soils are corrosive to buried metal objects. Consideration should be given to protecting buried metals from corrosion. Typical measures may include using non-corrosive backfill, protective coatings, wrapping, plastic pipes, or a combination of these methods. A corrosion engineer should be consulted if specific design recommendations are required by the improvement designer.

Per ACI 318-14, an exposure class of C1 would be applicable to metals encased in concrete (rebar in footings) due to being exposed to moisture from surrounding soils.

7.10 Site Drainage

Positive drainage away from the proposed structures should be provided and maintained. Roof, pad and lot drainage should be collected and directed away from the structures toward approved disposal areas through drainage terraces, gutters, down drains, and other devices. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures. Residents or Homeowner Associations should be made aware that they are responsible for maintenance and cleaning of

all drainage terraces, down drains, and other devices that have been installed to promote site and structure drainage.

7.11 Pavement Design

Pavement sections for the proposed streets shall be designed based on laboratory testing conducted on samples taken from the soil subgrade. Preliminarily, based on an assumed R-Value of 30, the pavement may be designed utilizing the sections presented in Table 7-4. These sections should be verified upon the completion of grading, based on R-Value testing.

Table 7-4
Preliminary Pavement Sections

Traffic Index	Pavement Section Options OR	
5.0	3-inch AC on 6-inch AB	4-inch AC on 4-inch AB
5.5	3-inch AC on 7-inch AB	4-inch AC on 5-inch AB
6.0	3.5-inch AC on 7.5-inch AB	4-inch AC on 6.5-inch AB
AC-Asphalt Concrete AB-Caltrans Class II Base		

The underlying subgrade soil should be suitably moisture conditioned, processed and compacted to a minimum 90 percent of the laboratory maximum density (ASTM: D 1557) to at least twelve (12) inches below subgrade. After subgrade compaction, the exposed grade should then be "proof"-rolled with heavy equipment to ensure the grade does not "pump" and is verified as non-yielding. Aggregate base should consist of Class 2 (Caltrans) aggregate base and should be compacted to at least 95 percent of the maximum laboratory dry density as determined in accordance with ASTM Test Method: D 1557.

Preparation for compaction operations and pavement construction operations should be accomplished in accordance with the current requirements of the City of Claremont/Upland and under the observation and testing of the project geotechnical consultant.

8.0 LOT MAINTENANCE

Ongoing maintenance of the improvements is essential to the long-term performance of structures. As such, the owners must implement certain maintenance procedures. The attached " Maintenance and Improvement Considerations" presented in the Appendix D may be included as part of the sales packet to educate the owners in issues related to drainage, maintenance, backyard improvements, etc. The following recommendations should also be implemented.

8.1 Lot Drainage

Roof, pad and lot drainage should be collected and directed away from structures and slopes and toward approved disposal areas. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures and slopes. Residents should be made aware that they are responsible for maintenance and cleaning of all drainage terraces, down drains, and other devices that have been installed to promote structure and slope stability.

8.2 Burrowing Animals

Residents or owners should undertake a program for the elimination of burrowing animals.

9.0 FUTURE PLAN REVIEWS

This report represents a geotechnical review of the site. As the project design for the project progresses, site specific geologic and geotechnical issues should be considered in the design and construction of the project. Consequently, future plan reviews may be necessary. These reviews may include reviews of:

- Grading Plans
- Foundation Plans
- Utility Plans

These plans should be forwarded to the project Geotechnical Consultant for review.

10.0 CLOSURE

10.1 Geotechnical Review

For the purposes of this report, multiple working hypotheses were established for the project, utilizing the available data and the most probable model is used for the analysis. Future information collected during the proposed grading operations is intended to evaluate the hypothesis and as such, some of the assumptions summarized in this report may need to be changed. Some modifications of the grading recommendations may become necessary, should the conditions encountered in the field differ from the conditions hypothesized in this report.

Plans and sections of the project specifications should be reviewed by Alta to evaluate conformance with the intent of the recommendations contained in this report. If the project description or final design varies from that described in herein, Alta must be consulted regarding the applicability of the recommendations contained herein and whether any changes are required. Alta accepts no liability for any use of its recommendations if the project description or final design varies and Alta is not consulted regarding the alterations.

10.2 Limitations

This report is based on the following: 1) the information obtained from Alta's laboratory testing included herein; and 2) from the information presented in the referenced reports. The findings and recommendations are based on the results of the subsurface investigation, laboratory testing, and office analysis combined with an interpolation and extrapolation of conditions between and beyond the subsurface excavation locations. However, the materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not

observed. The results reflect an interpretation of the direct evidence obtained. Work performed by Alta has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by a geotechnical consultant who is familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report.

The conclusions and recommendations included in this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of Alta.

Alta has no responsibility for construction means, methods, techniques, sequences, procedures, safety precautions, programs in connection with the construction, acts or omissions of the CONTRACTOR or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications.

APPENDIX A

REFERENCES

APPENDIX A

Selected References

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APPENDIX B

Subsurface Investigation

APPENDIX B

Subsurface Investigation

Alta's subsurface investigation consisted of excavating, logging, and sampling ten (10) excavator test pits. Details of the subsurface investigation are presented in Table B-1. The approximate locations of the exploratory excavations are shown on the accompanying site plan (Plate 1) and the Geotechnical Logs are attached.

TABLE B-1
SURFACE INVESTIGATION DETAILS

Equipment	Range of Depths	Sampling Methods	Sample Locations
Excavator	Up to 20 feet	1. Bulk	1. Bulk-Select Depth

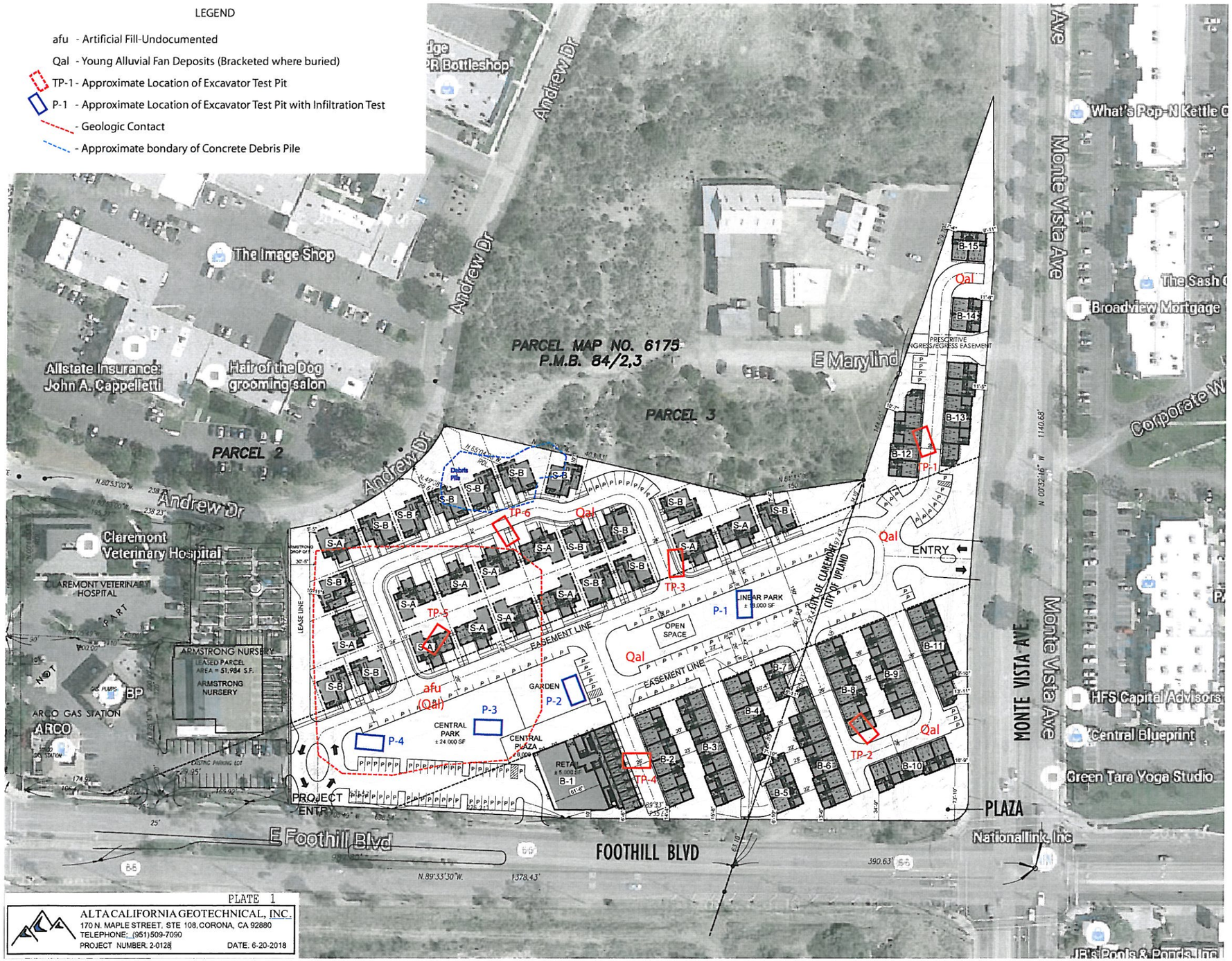

PLATE 1

ALTA CALIFORNIA GEOTECHNICAL, INC.
170 N. MAPLE STREET, STE 108, CORONA, CA 92880
TELEPHONE: (951) 509-7090
PROJECT NUMBER: 2-0128 DATE: 6-20-2018

SITE SUMMARY

Developable Acres: ±6.4 ac.

Unit Mix:

Single Family Detached

S-A Plan (2,500 sf):	±12 units (44%)
S-B Plan (2,200 sf):	±15 units (56%)
	±27 units

Townhomes

±21'x38' Towns:	±61 units
Carriage Towns:	±7 units
	±68 units

Mixed Use

Flats:	±10 units
TOTAL UNITS:	±105 units

Density: ±16.4 du/ac

Parking:

Garages:	±200 spaces	(2/unit)
Driveways:	±27 spaces	(10'x18')
On street:	±84 spaces	(8'x22' Parallel)
		(9'x18' Perpendicular)
Total:	±311 spaces	(3.0 sp/unit)

Retail Parking: ±43 spaces

Setbacks:

Front	
Residential:	7'
Retails:	5'
Sides	5'
Rear	5'

Building Separation:

SFD	10'
Townhomes	
Front to Front	20'
Side to Side	6' Min.
Rear	28'

Street Width:

Main:	26'
Main w/ Parallel parking one side (8x22):	34'
Main w/ Parallel parking both sides:	42'
Private Drive:	26' (SFD: 24')

ktgy

WALBERN DEVELOPMENTS

Walbern Development
29222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walberndevelopment.com

Foothill East
Claremont, CA
#2018-0231

SITE PLAN

0 30 60 120

A1.0

Project No.	2-0128
Date Excavated	May 31, 2018
Excavated by	James Coyne
Equipment	Caterpillar 375L Excavator

TABLE I

LOG OF TEST PITS

Test Pit No.	Depth (ft.)	USCS	Description
TP-1	0.0-20.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to fine grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 3', roots and debris, caving. @4ft. tan brown, loose to moderately dense, fine gravel <1", slight caving @5ft. coarse gravel <3" @10ft. medium to coarse grained @15ft. fine to coarse gravel <3" TOTAL DEPTH 20.0 FT NO GROUNDWATER OBSERVED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-2	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @2.5ft, trace boulders <2', roots @4.5ft, fine to medium grained tan brown, loose to moderately dense, fine gravel @9.0ft. fine to coarse gravel, trace boulder <1.5' TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 4.5 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -3	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 1.5', roots and debris, caving. @5ft. tan brown, loose to moderately dense, some sand @8ft. coarse gravel, some cobble TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -4	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 2.5', roots and debris, caving. @7.5 roots, slight caving @9ft. tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED above 9.0 ft.

Test Pit No.	Depth (ft.)	USCS	Description
TP -5	0.0-1.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	1.5-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @3ft. slight caving @9ft. tan brown, moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-6	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @5.0ft. fine to coarse grained, tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-1	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-2	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-3	0.0-2.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.5-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @8ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 8FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-4	0.0-2.0	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.0-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @7ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED NO CAVING OBSERVED

APPENDIX C

Laboratory Testing

LABORATORY TESTING

The following laboratory tests were performed on a representative sample in accordance with the applicable latest standards or methods from the ASTM, California Building Code (CBC) and California Department of Transportation.

Classification

Soils were classified with respect to the Unified Soil Classification System (USCS) in accordance with ASTM D-2487 and D-2488.

Particle Size Analysis

Modified hydrometer testing was conducted to aid in classification of the soil. The results of the particle size analysis are presented in Table C.

Expansion Index Tests

Two (2) expansion index tests were performed to evaluate the expansion potential of typical on-site soil. Testing was carried out in general conformance with ASTM Test Method D-4829. The results are presented in Table C.

Chemical Analyses

Chemical testing of a selected sample was performed by Alta. The results of these tests are presented on Table C.

TABLE C
SUMMARY OF LABORATORY TEST DATA
P.N. 2-0218

Boring/Pit No.	Depth (ft)	Soil Type	Soil Description	Group Symbol - Unified Soil Classification System	Maximum Dry Density		Direct Shear	Grain Size Analysis				Expansion Index	Sulfate Content (%)	Other Tests Remarks
					Maximum Density (pcf)	Optimum Moisture (%)		Gravel (% + No. 4 Screen)	% Sand	%Silt (0.074 to 0.005mm)	% Clay (-0.005 mm)			
TP-1	4	A	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	48	41	8	3	0	Not Detected	Chloride: 5ppm pH:6.3
TP-2	5	B	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	37	54	6	3	0	Not Detected	Chloride: 5ppm pH:6.4

APPENDIX D

Maintenance Considerations

MAINTENANCE AND IMPROVEMENT CONSIDERATIONS

General

Owners purchasing property must assume a certain degree of responsibility for improvements and for maintaining conditions around their home. Of primary importance from a geotechnical standpoint are maintaining drainage patterns and minimizing the soil moisture variation below all improvements. Such design, construction and owner maintenance provisions may include:

- Employing contractors for improvements who design and build in recognition of local building codes and specific site soils conditions.
- Establishing and maintaining positive drainage away from all foundations, walkways, driveways, patios, and other improvements.
- Avoiding the construction of planters adjacent to structural improvements. Alternatively, planter sides/bottoms can be sealed with an impermeable membrane and drained away from the improvements via subdrains into approved disposal areas.
- Sealing and maintaining construction/control joints within concrete slabs and walkways to reduce the potential for moisture infiltration into the subgrade soils.
- Utilizing landscaping schemes with vegetation that requires minimal watering. Watering should be done in a uniform manner, as equally as possible on all sides of the foundation, keeping the soil "moist" but not allowing the soil to become saturated.
- Maintaining positive drainage away from structures and providing roof gutters on all structures with downspouts that are designed to carry roof runoff directly into area drains or discharged well away from the foundation areas.
- Avoiding the placement of trees closer to the proposed structures than a distance of one-half the mature height of the tree.
- Observation of the soil conditions around the perimeter of the structure during extremely hot/dry or unusually wet weather conditions so that modifications can be made in irrigation programs to maintain relatively uniform moisture conditions.

Sulfates

Owners should be cautioned against the import and use of certain inorganic fertilizers, soil amendments, and/or other soils from offsite sources in the absence of specific information relating to their chemical composition. Some fertilizers have been known to leach sulfate compounds into soils and increase the sulfate concentrations to potentially detrimental levels.

Site Drainage

- The owners should be made aware of the potential problems that may develop when drainage is altered through construction of hardscape improvements. Ponded water, drainage over the slope face, leaking irrigation systems, overwatering, or other conditions which could lead to ground saturation must be avoided.
- No water should be allowed to flow over the slopes. No alteration of pad gradients should be allowed that would prevent pad and roof runoff from being directed to approved disposal areas.
- Drainage patterns have been established at the time of the fine grading should be maintained throughout the life of the structure. No alterations to these drainage patterns should be made unless designed by qualified professionals in compliance with local code requirements and site-specific soils conditions.

Slope Drainage

- Residents should be made aware of the importance of maintaining and cleaning all interceptor ditches, drainage terraces, down drains, and any other drainage devices, which have been installed to promote slope stability.
- Subsurface drainage pipe outlets may protrude through slope surfaces and/or wall faces. These pipes, in conjunction with the graded features, are essential to slope and wall stability and must be protected in-place. They should not be altered or damaged in any way.

Planting and Irrigation of Slopes

- Seeding and planting of the slopes should be planned to achieve, as rapidly as possible, a well-established and deep-rooted vegetal cover requiring minimal watering.
- It is the responsibility of the landscape architect to provide such plants initially and of the residents to maintain such planting. Alteration of such a planting scheme is at the resident's risk.
- The resident is responsible for proper irrigation and for maintenance and repair of properly installed irrigation systems. Leaks should be fixed immediately.
- Sprinklers should be adjusted to provide maximum uniform coverage with a minimum of water usage and overlap. Overwatering with consequent wasteful runoff and serious ground saturation must be avoided.
- If automatic sprinkler systems are installed, their use must be adjusted to account for seasonal and natural rainfall conditions.

Burrowing Animals

- Residents must undertake a program to eliminate burrowing animals. This must be an ongoing program in order to promote slope stability.

Owner Improvement

Owner improvements (pools, spas, patio slabs, retaining walls, planters, etc.) should be designed to account for the terrain of the project, as well as expansive soil conditions and chemical characteristics. Design considerations on any given lot may need to include provisions for differential bearing materials, ascending/descending slope conditions, bedrock structure, perched (irrigation) water, special geologic surcharge loading conditions, expansive soil stresses, and long-term creep/settlement.

All owner improvements should be designed and constructed by qualified professionals utilizing appropriate design methodologies, which account for the on-site soils and geologic conditions. Each lot and proposed improvement should be evaluated on an individual basis.

Setback Zones

Manufactured slopes maybe subject to long-term settlement and creep that can manifest itself in the form of both horizontal and vertical movement. These movements typically are produced as a result of weathering, erosion, gravity forces, and other natural phenomenon. A setback adjacent to slopes is required by most building codes, including the California Building Code. This zone is intended to locate and support the residential structures away from these slopes and onto soils that are not subject to the potential adverse effects of these natural phenomena.

The owner may wish to construct patios, walls, walkways, planters, swimming pools, spas, etc. within this zone. Such facilities may be sensitive to settlement and creep and should not be constructed within the setback zone unless properly engineered. It is suggested that plans for such improvements be designed by a professional engineer who is familiar with grading ordinances and design and construction requirements. In addition, we recommend that the

designer and contractor familiarize themselves with the site specific geologic and geotechnical conditions on the specific lot.

APPENDIX E

Earthwork Specifications

ALTA CALIFORNIA GEOTECHNICAL, INC.
EARTHWORK SPECIFICATIONS

These specifications present the generally accepted standards and minimum earthwork requirements for the development of the project. These specifications shall be the project guidelines for earthwork except where specifically superseded in preliminary geology and soils reports, grading plan review reports or by the prevailing grading codes or ordinances of the controlling agency.

A. GENERAL

1. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

2. The project Geotechnical Engineer and Engineering Geologist, or their representatives, shall provide observation and testing services, and Geotechnical consultation for the duration of the project.

3. All clearing, grubbing, stripping and site preparation for the project shall be accomplished by the Contractor to the satisfaction of the Geotechnical Engineer/Engineering Geologist.

4. It is the Contractor's responsibility to prepare the ground surface to receive fill to the satisfaction of the Geotechnical Engineer and to place, spread, mix, moisture condition, and compact the fill in accordance with the job specifications and as required by the Geotechnical Engineer. The Contractor shall also remove all material considered by the Geotechnical Engineer to be unsuitable for use in the construction of engineered fills.

5. The Contractor shall have suitable and sufficient equipment in operation to handle the amount of fill being placed. When necessary, equipment will be shut down temporarily in order to permit the proper preparation of fills.

B. PREPARATION OF FILL AREAS

1. Excessive vegetation and all deleterious material should be disposed of offsite as required by the Geotechnical Engineer.

   Existing fill, soil, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills shall be removed and hauled from the site. Where applicable, the Contractor may obtain the

approval of the Soils Engineer and the controlling authorities for the project to dispose of the above described materials, or a portion thereof, in designated areas onsite.

After removal of the deleterious materials have been accomplished, earth materials deemed unsuitable in their natural, in-place condition, shall be removed as recommended by the Geotechnical Engineer/Engineering Geologist.

2. Upon achieving a suitable bottom for fill placement, the exposed removal bottom shall be disced or bladed by the Contractor to the satisfaction of the Geotechnical Engineer. The prepared ground surfaces shall then be brought to the specified moisture content mixed as required, and compacted and tested as specified. In localities where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to contact the proper authorities to visit the site.

3. Any underground structure such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other structures not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer and/or the controlling agency for the project.

C. ENGINEERED FILLS

1. Any material imported or excavated on the property may be utilized as fill, provided the material has been determined to be suitable by the Geotechnical Engineer. Deleterious materials shall be removed from the fill as directed by the Geotechnical Engineer.

2. Rock or rock fragments less than twelve inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets and the distribution of the rocks is approved by the Geotechnical Engineer.

3. Rocks greater than twelve inches in the largest dimension shall be taken offsite, or placed in accordance with the recommendations of the Geotechnical Engineer in areas designated as suitable for rock disposal.

4. All materials to be used as fill, shall be tested in the laboratory by the Geotechnical Engineer. Proposed import materials shall be approved by the Geotechnical Engineer 48 hours prior to importation.

5. The fill materials shall be placed by the Contractor in lifts, that when compacted, shall not exceed six inches. Each lift shall be spread evenly and shall be

thoroughly mixed to achieve a near uniform moisture condition and a uniform blend of materials.

All compaction shall be achieved at or above the optimum moisture content, as determined by the applicable laboratory standard. The Contractor will be notified if the fill materials are too wet or too dry to achieve the required compaction standard.

6. When the moisture content of the fill material is below the limit specified by the Geotechnical Engineer, water shall be added and the materials shall be blended until a uniform moisture content, within specified limits, is achieved. When the moisture content of the fill material is above the limits specified by the Geotechnical Engineer, the fill materials shall be aerated by discing, blading, mixed with dryer fill materials, or other satisfactory methods until the moisture content is within the specified limits.

7. Each fill lift shall be compacted to the minimum project standards, in compliance with the testing methods specified by the controlling governmental agency, and in accordance with recommendations of the Geotechnical Engineer.

   In the absence of specific recommendations by the Geotechnical Engineer to the contrary, the compaction standard shall be the most recent version of ASTM:D 1557.

8. Where a slope receiving fill exceeds a ratio of five-horizontal to one-vertical, the fill shall be keyed and benched through all unsuitable materials into sound bedrock or firm material, in accordance with the recommendations and approval of the Geotechnical Engineer.

9. Side hill fills shall have a minimum key width of 15 feet into bedrock or firm materials, unless otherwise specified in the soil report and approved by the Geotechnical Engineer in the field.

10. Drainage terraces and subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency and/or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

11. The Contractor shall be required to maintain the specified minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as directed by the Geotechnical Engineer and/or the governing agency for the project. This may be achieved by either overbuilding the slope and cutting

back to the compacted core; by direct compaction of the slope face with suitable equipment; or by any other procedure which produces the required result.

12. The fill portion of fill-over-cut slopes shall be properly keyed into rock or firm material; and the fill area shall be stripped of all soil or unsuitable materials prior to placing fill.

    The design cut portion of the slope should be made first and evaluated for suitability by the Engineering Geologist prior to placement of fill in the keyway above the cut slope.

13. Pad areas in cut or natural ground shall be approved by the Geotechnical Engineer. Finished surfaces of these pads may require scarification and recompaction, or over excavation as determined by the Geotechnical Engineer.

D. CUT SLOPES

1. The Engineering Geologist shall observe all cut slopes and shall be notified by the Contractor when cut slopes are to be started.

2. If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Soil Engineer shall investigate, analyze and make recommendations to remediate these problems.

3. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the superjacent, prevailing drainage.

4. Unless otherwise specified in specific geotechnical reports, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

5. Drainage terraces shall be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the Geotechnical Engineer or Engineering Geologist.

E. GRADING CONTROL

1. Fill placement shall be observed and tested by the Geotechnical Engineer and/or his representative during grading.

   Field density tests shall be made by the Geotechnical Engineer and/or his representative to evaluate the compaction and moisture compliance of each fill lift. Density tests shall be conducted at intervals not to exceed two feet of fill

height. Where sheepsfoot rollers are used, the fill may be disturbed to a depth of several inches. Density determinations shall be taken in the compacted material below the disturbed surface at a depth determined by the Geotechnical Engineer or his representative.

2. Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture content is in evidence, that particular layer or portion thereof shall be reworked until the required density and/or moisture content has been attained. Additional fills shall not be placed over an area until the previous lift of fill has been tested and found to meet the density and moisture requirements for the project and the previous lift is approved by the Geotechnical Engineer.

3. When grading activities are interrupted by heavy rains, fill operations shall not be resumed until field observations and tests by the Geotechnical Engineer indicate the moisture content and density of the fill are within the specified limits.

4. During construction, the Contractor shall properly grade all surfaces to maintain good drainage and prevent the ponding of water. The Contractor shall take remedial action to control surface water and to prevent erosion of graded areas until such time as a permanent drainage and erosion devices have been installed.

5. Observation and testing by the Geotechnical Engineer and/or his representative shall be conducted during filling and compacting operations in order that he will be able to state in his opinion that all cut and filled areas are graded in accordance with the approved specifications.

6. Upon the completion of grading activities and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work, final reports shall be submitted. No further excavation or fill placement shall be undertaken without prior notification of the Geotechnical Engineer and/or Engineering Geologist.

F. FINISHED SLOPES

All finished cut and fill slopes shall be planted and irrigated and/or protected from erosion in accordance with the project specifications, governing agencies, and/or as recommended by a landscape architect.

APPENDIX F

Grading Details

DETAIL FOR FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON

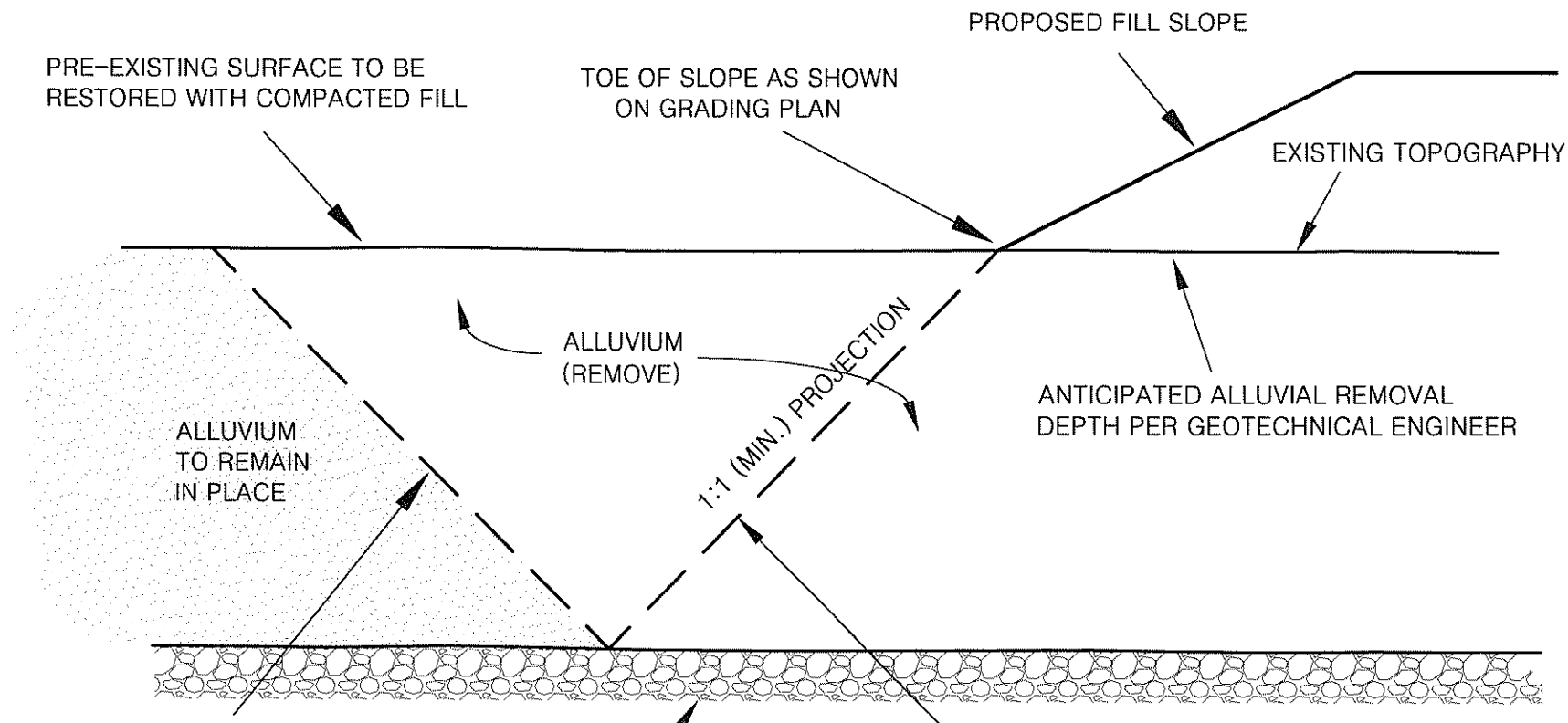

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PLATE G-1

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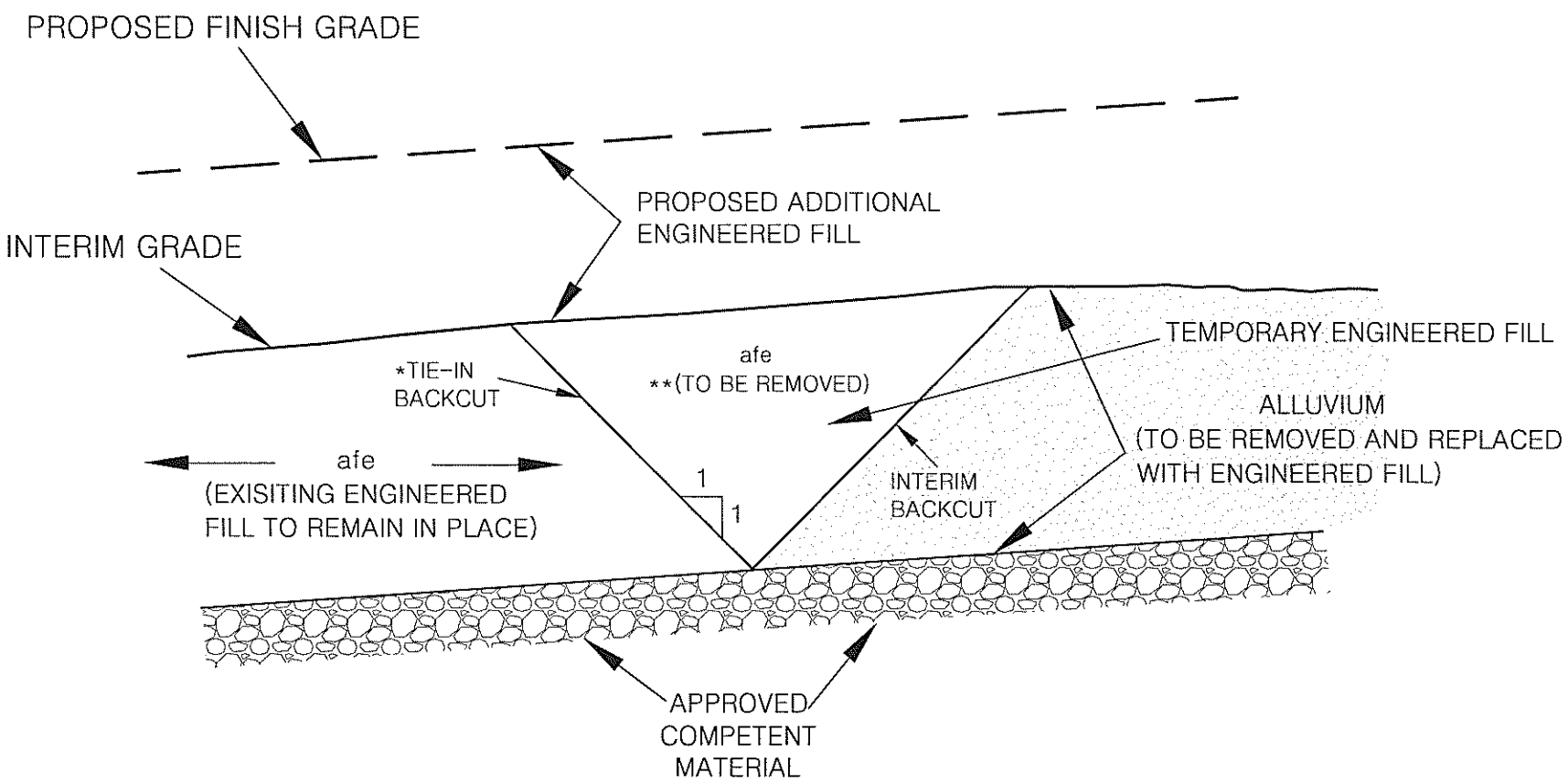
REMOVAL ADJACENT TO EXISTING FILL



*INITIATE 1:1 TIE-IN BACKCUT TO INTERCEPT TOE OF INTERIM BACKCUT

**AS PART OF TIE-IN FOR ADDITIONAL ENGINEERED FILL

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PLATE G-2

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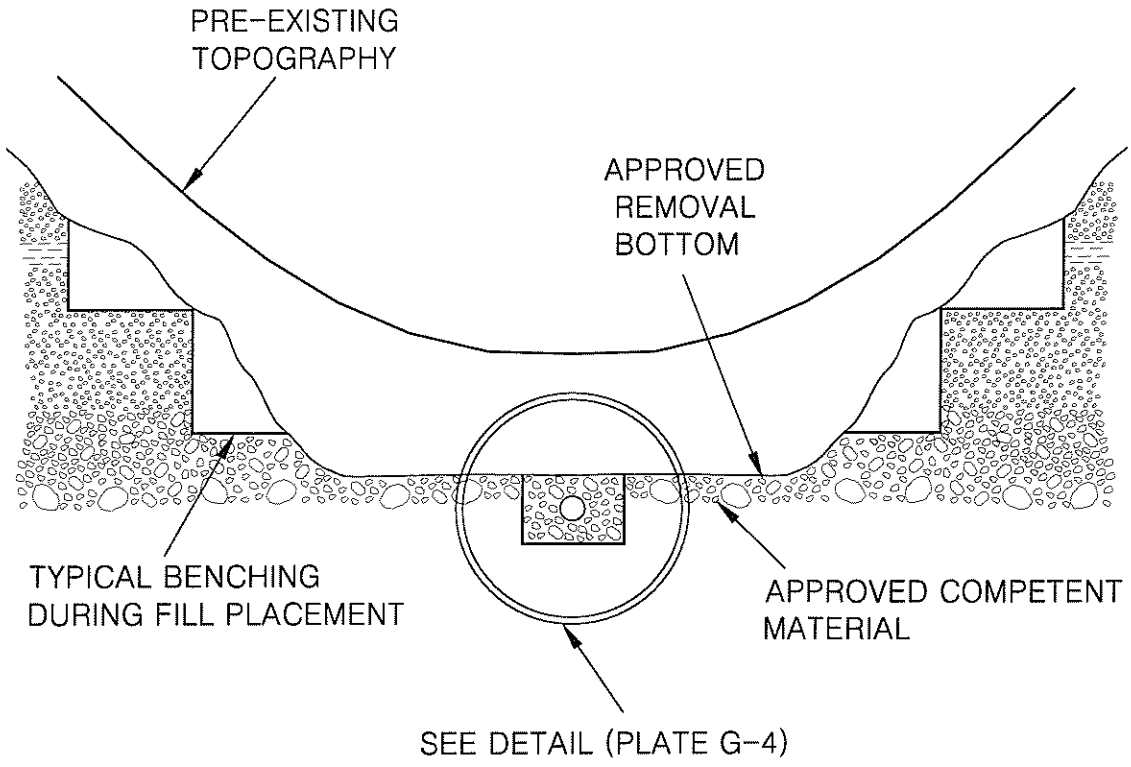
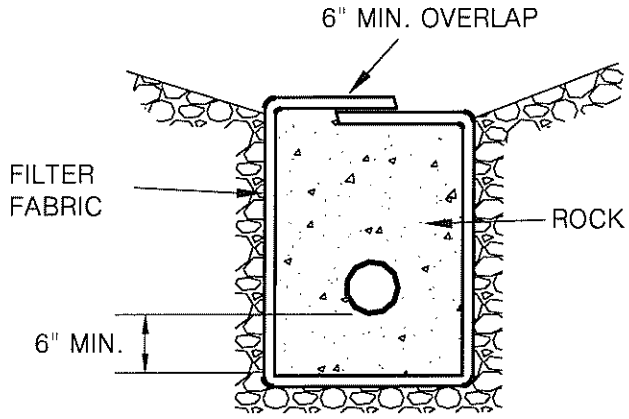
CANYON SUBDRAIN



CANYON SUBDRAIN DETAIL



PERFORATED PIPE SURROUNDED WITH ROCK AND FILTER FABRIC

ROCK: MIN. VOLUME OF 9 CU.FT. PER LINEAR FT. OF 3/4 IN. MAX. ROCK

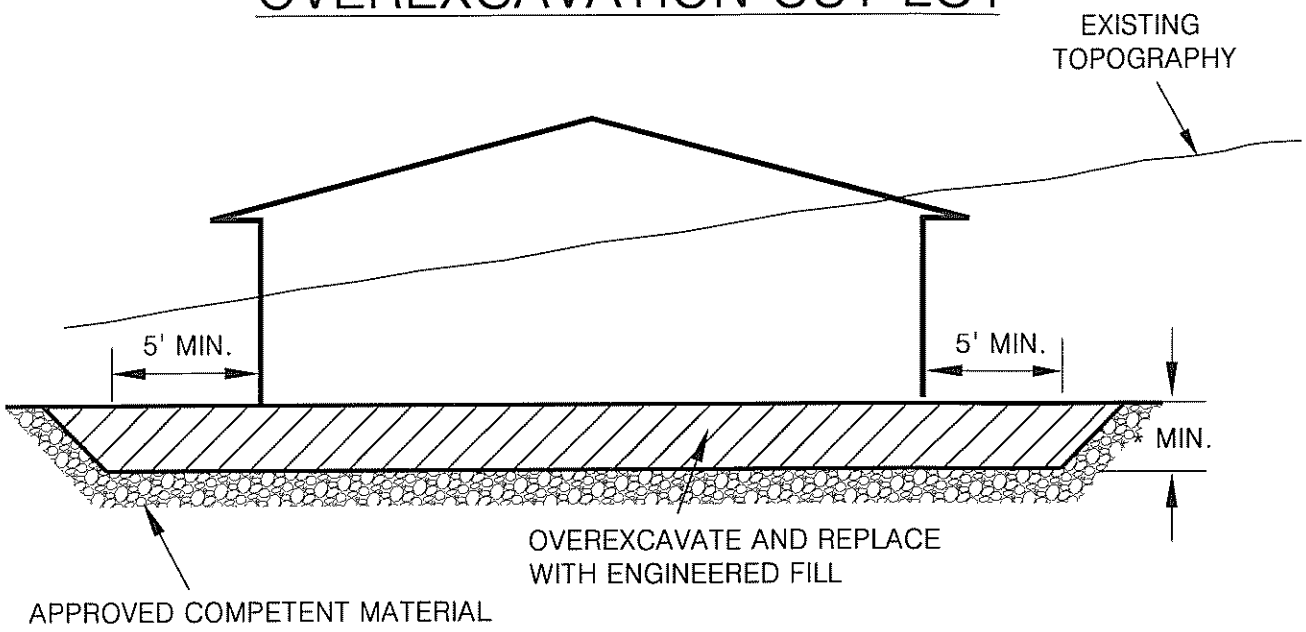
PIPE: 6 IN. ABS OR PVC PIPE WITH A MINIMUM OF 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

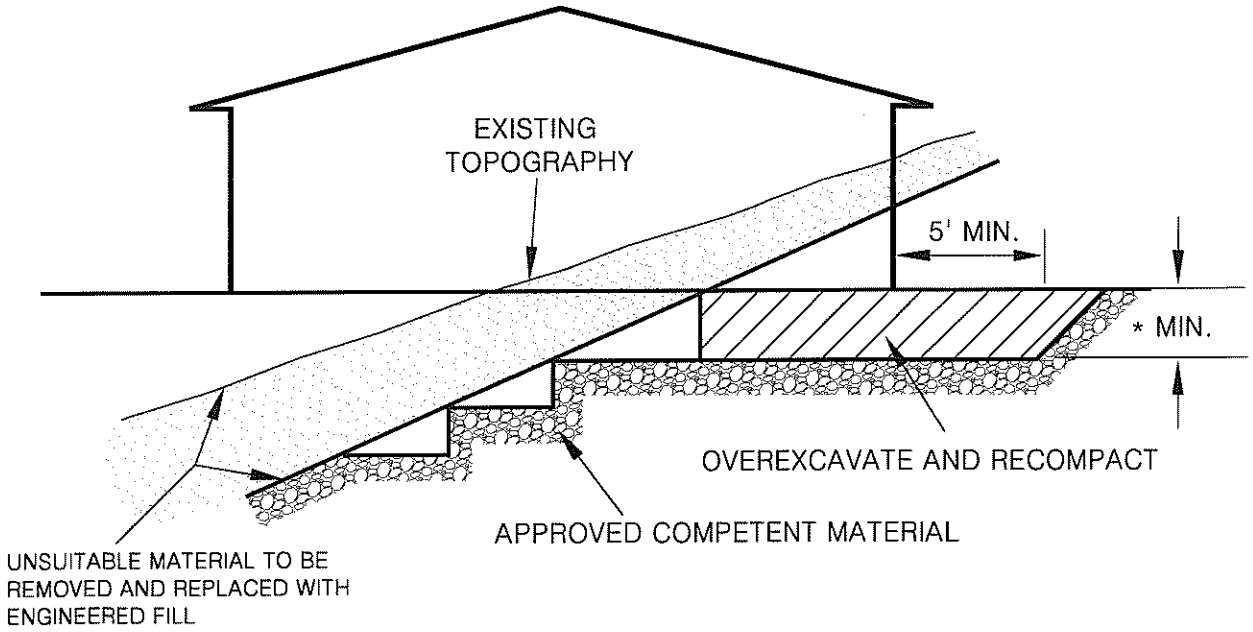
NOTES:

1. FOR CONTINUOUS RUN IN EXCESS OF 500. FT USE 8 IN. DIA. PIPE
2. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

OVEREXCAVATION CUT LOT



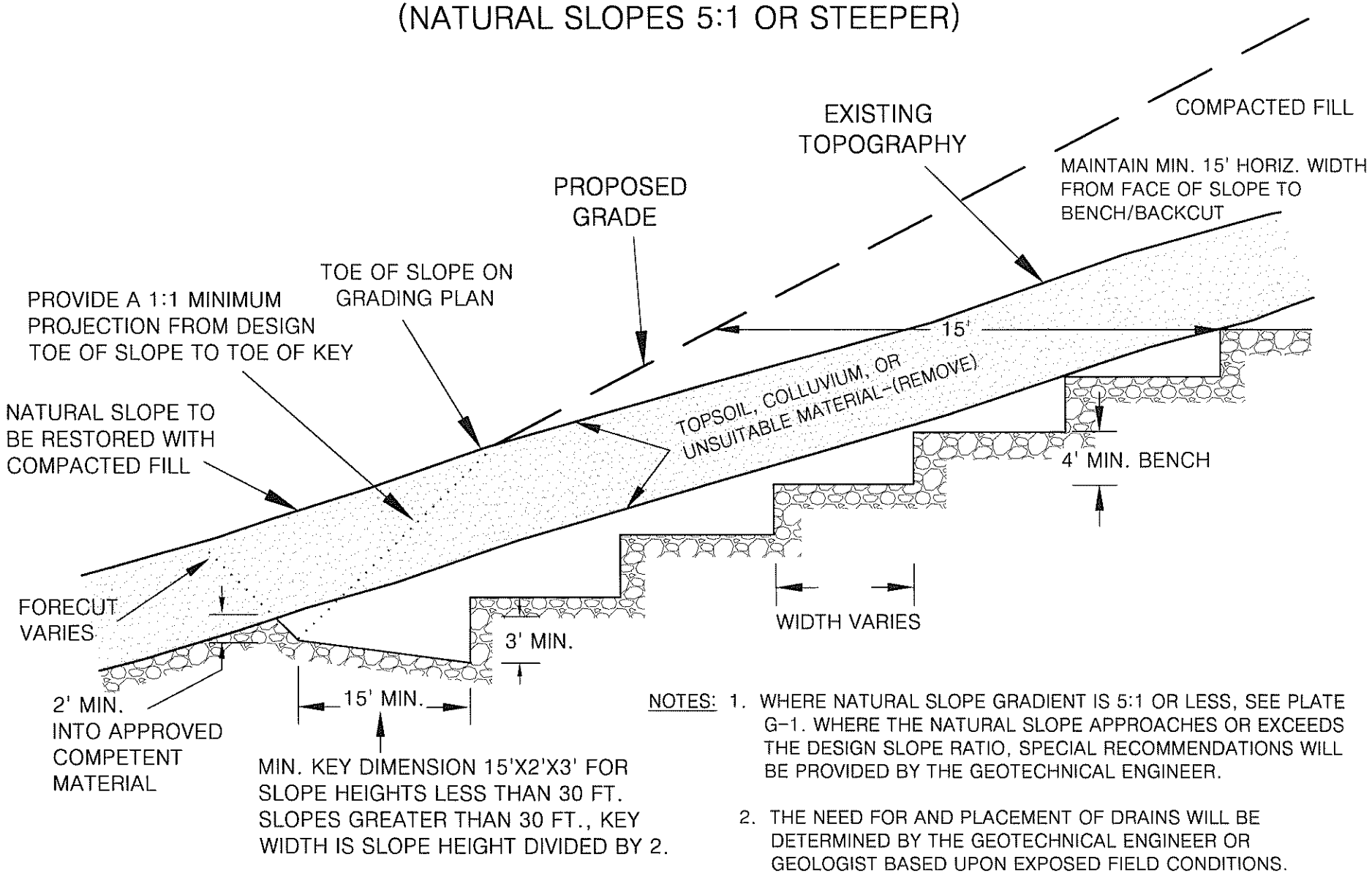
CUT-FILL LOT (TRANSITION)



*NOTE ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF ⅓ OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET (SEE PLATE G-16)

SIDE HILL SLOPE FILL DETAIL

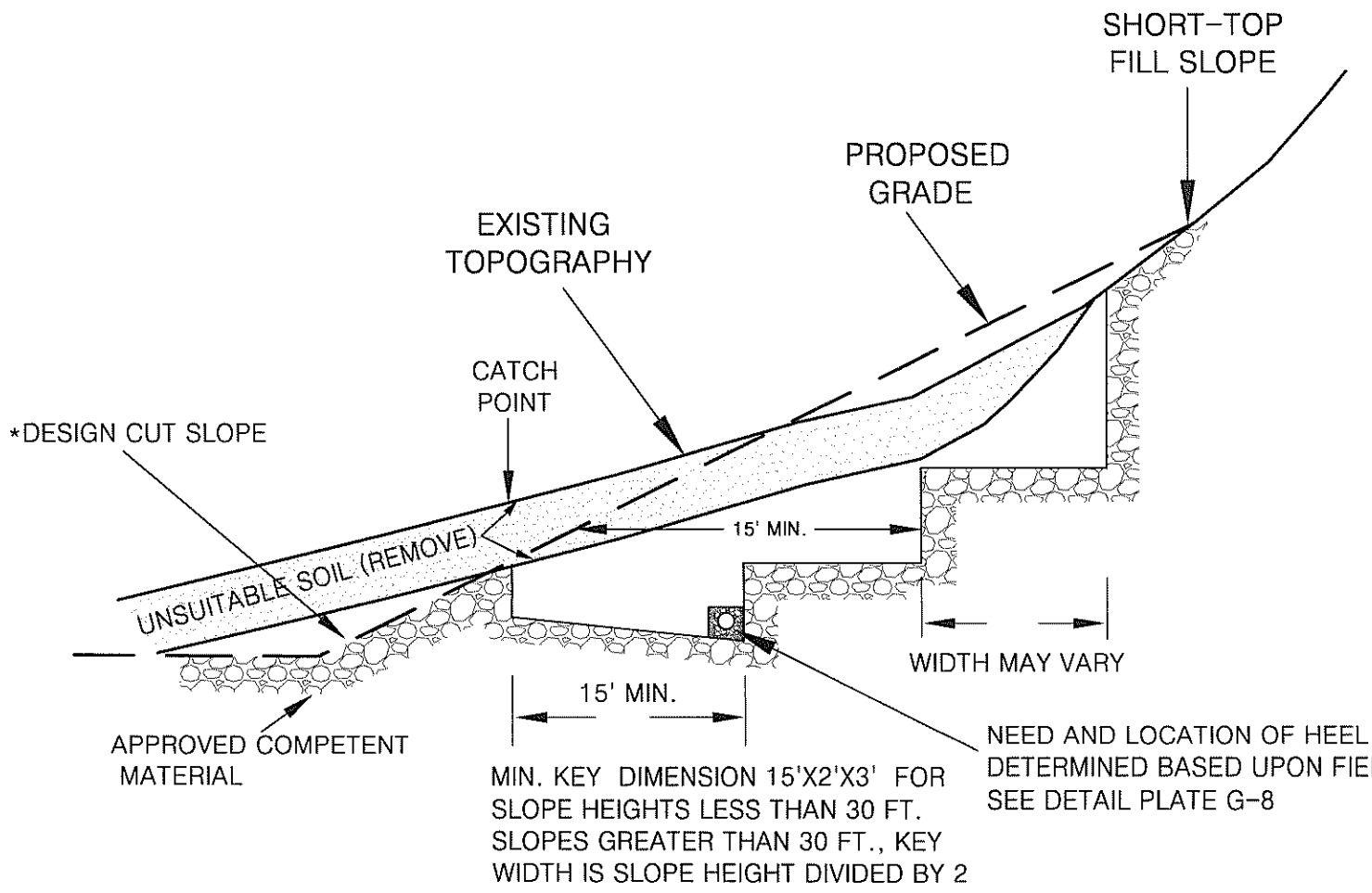
(NATURAL SLOPES 5:1 OR STEEPER)



NOTES:

1. WHERE NATURAL SLOPE GRADIENT IS 5:1 OR LESS, SEE PLATE G-1. WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
2. THE NEED FOR AND PLACEMENT OF DRAINS WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST BASED UPON EXPOSED FIELD CONDITIONS.

FILL OVER CUT SLOPE DETAIL



*THE CUT PORTION OF THE SLOPE SHOULD BE EXCAVATED AND EVALUATED BY THE ENGINEERING GEOLOGIST/GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTING THE FILL SLOPE

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PLATE G-7

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STABILIZATION/BUTTRESS FILL BACKDRAIN

NOTE:

1. ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40
2. SOLID PIPE OUTLETS TO BE PROVIDED EVERY 100 FT. AND JOINED TO PERFORATED BACKDRAIN PIPE WITH "L" OR "T"s. MIN. 2% GRADIENT.
3. GRAVEL TRENCH TO BE FILLED WITH 3/4 IN. MAXIMUM ROCK
4. THE NECESSITY FOR UPPER TIER BACKDRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST. UPPER TIER OUTLETS SHOULD DRAIN INTO PAVED TERRACE DRAINS.
5. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

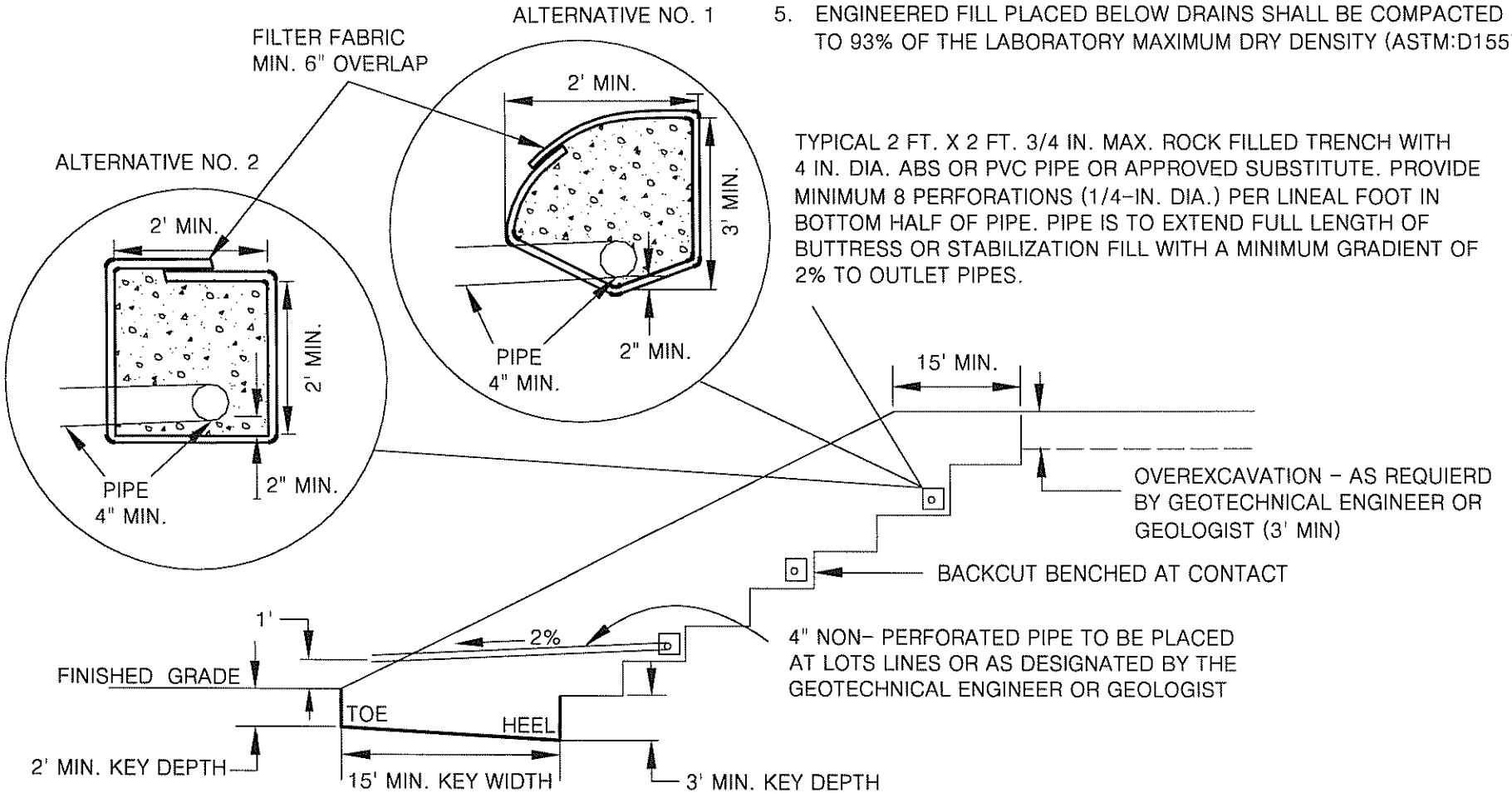

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PLATE G-8

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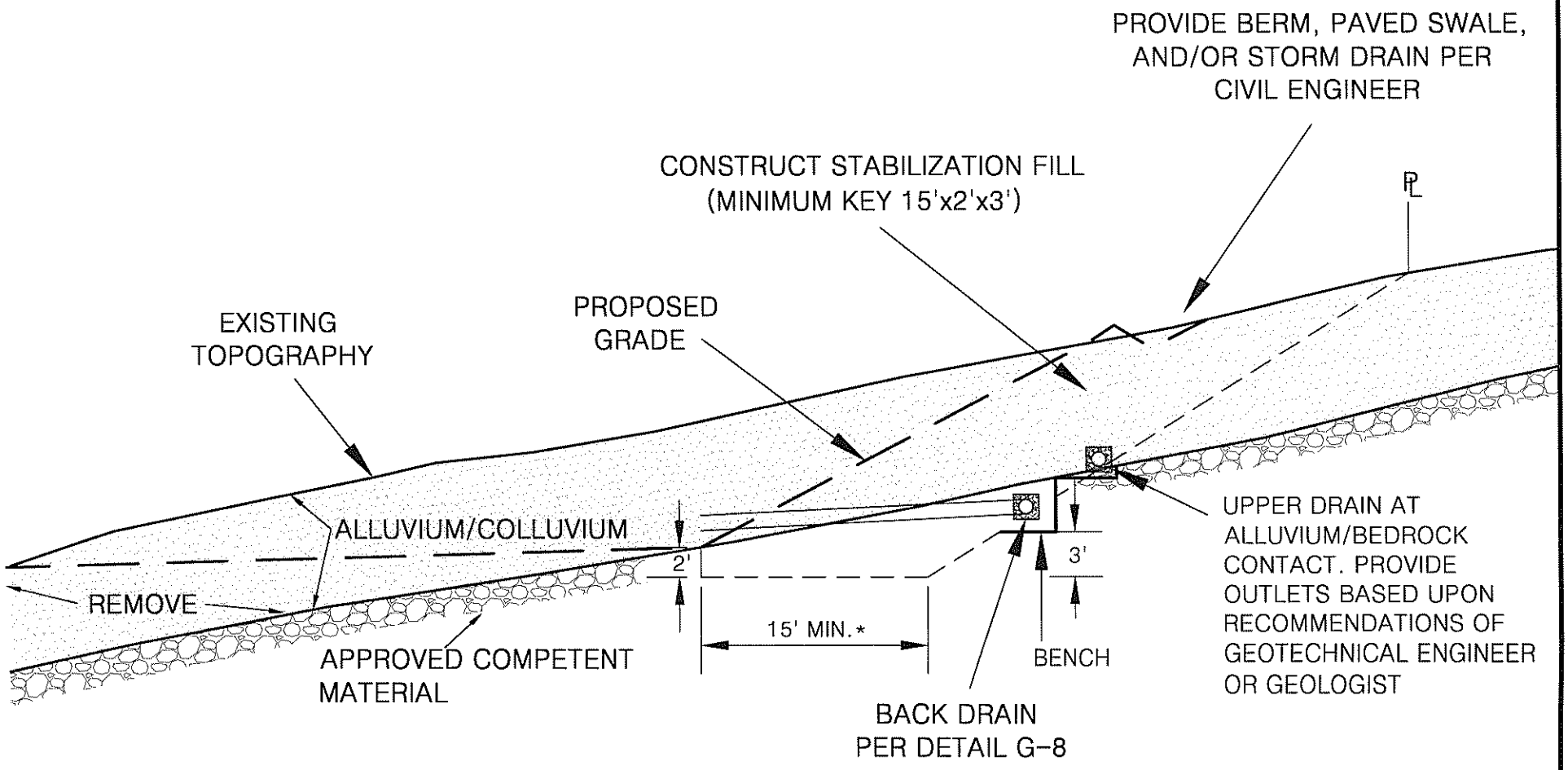
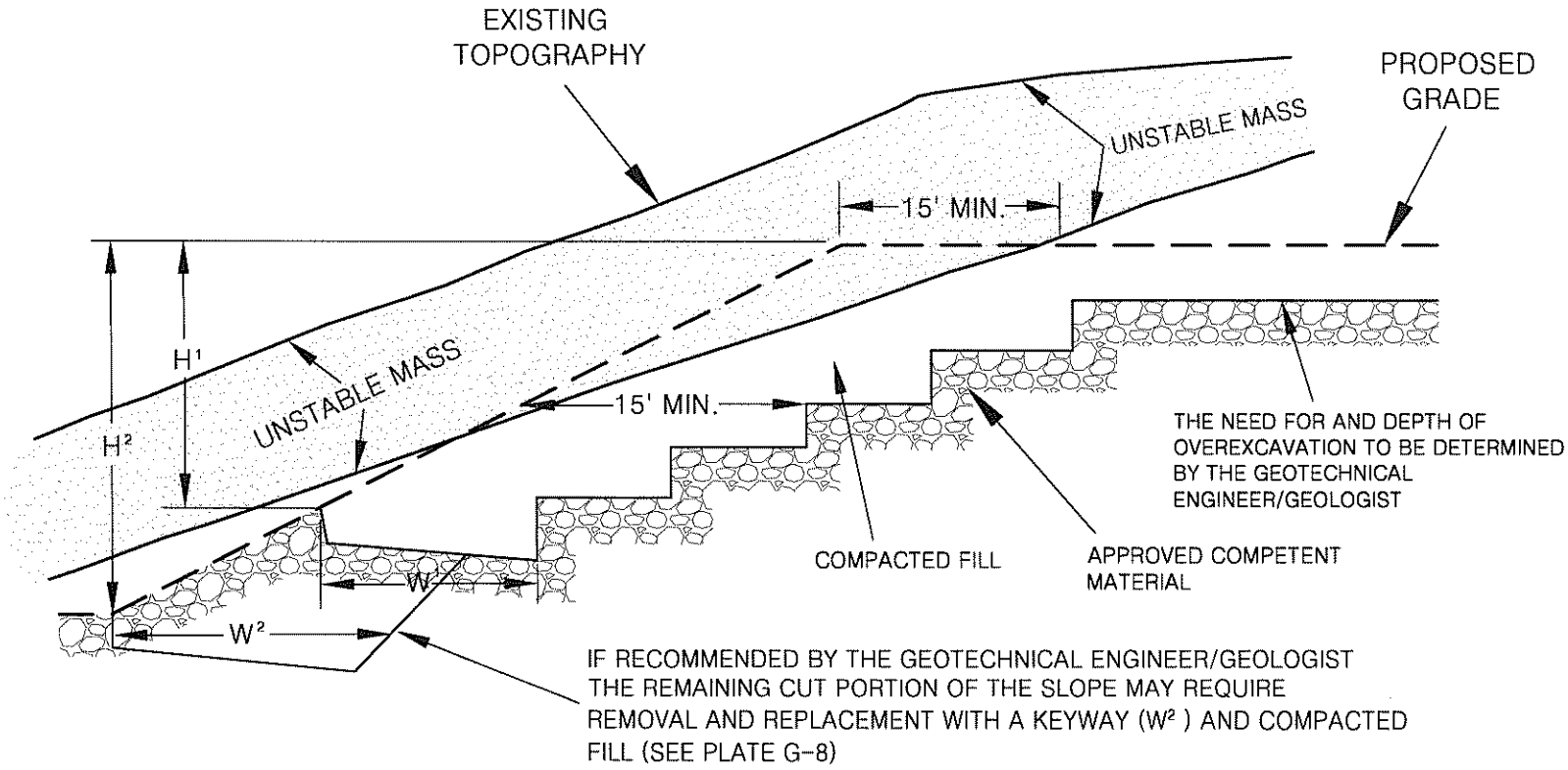
STABILIZATION FILL

(UPSLOPE ALLUVIATED AREA)



* FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

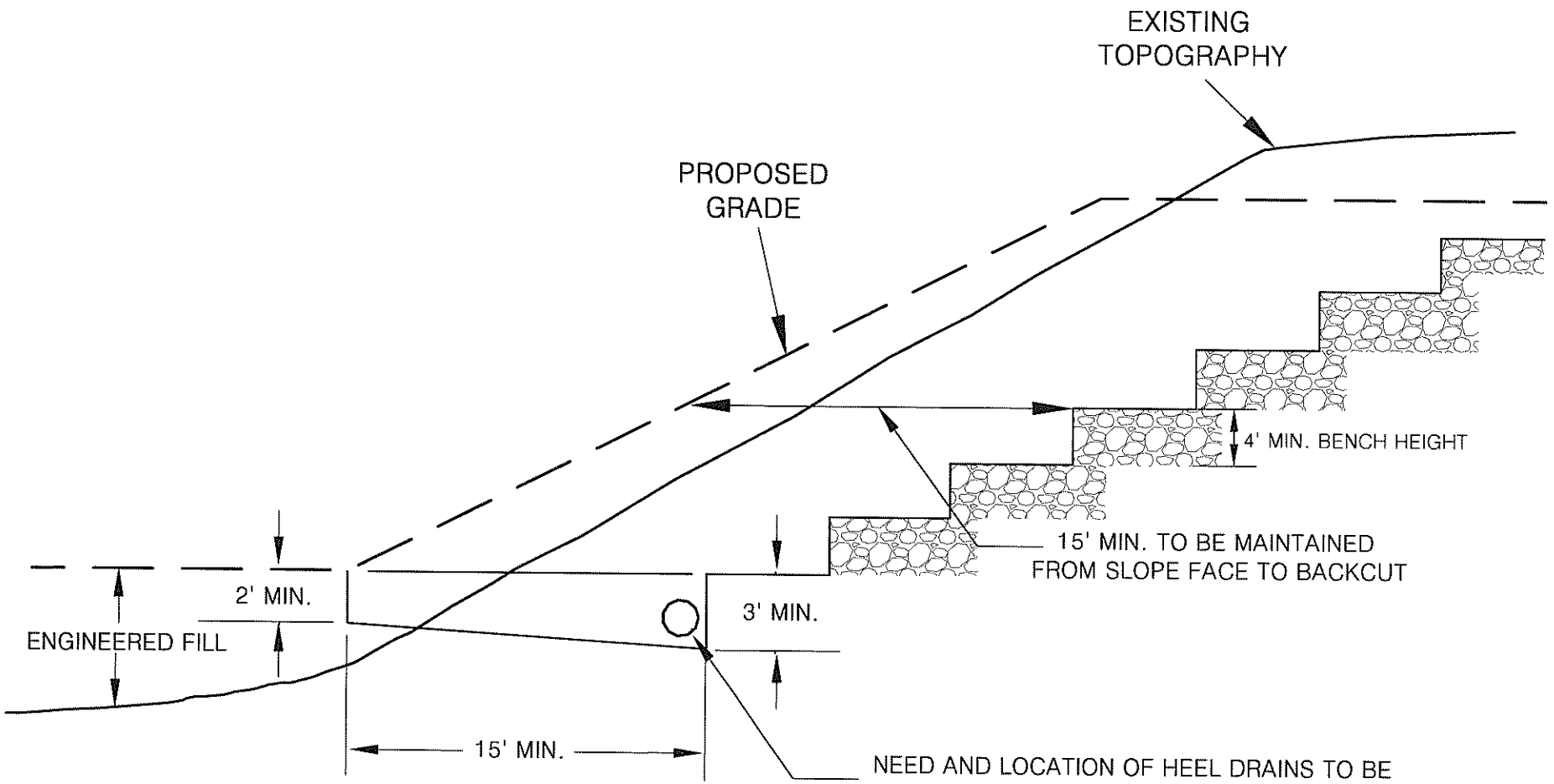
SELECTIVE GRADING DETAIL FOR STABILIZATION FILL
UNSTABLE MATERIAL EXPOSED IN PORTION OF CUT SLOPE



NOTES: 1. BACKDRAINS ARE NOT REQUIRED UNLESS SPECIFIED.

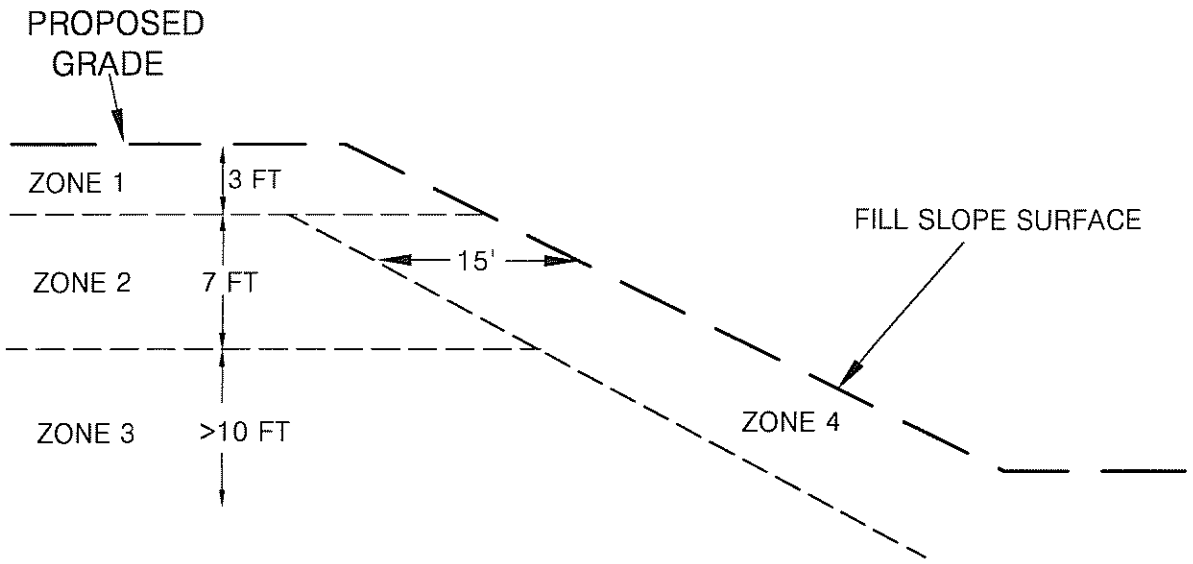
2. "W" SHALL BE EQUIPMENT WIDTH (15') FOR SLOPE HEIGHT LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET, "W" SHALL BE DETERMINED BY THE PROJECT GEOTECHNICAL ENGINEER/GEOLOGIST. AT NO TIME SHALL "W" BE LESS THAN H/2.

SKIN FILL SLOPE OVER NATURAL GROUND



MIN. KEY DIMENSIONS 15'X2'X3' FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

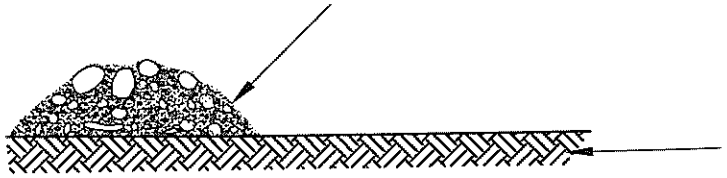
DETAIL FOR MAXIMUM PARTICLE DIMENSION



ZONE	DEPTH	PARTICLE MAX. DIMENSION	PLACEMENT METHOD
1	0-3 ft.	≤0.5 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)
2	3-10 ft.	≤2.0 ft.	ROCK BLANKETS (SEE PLATE G-13)
3	>10 ft.	≤8.0 ft.	ROCK BLANKETS (PLATE G-13) ROCK WINDROW (PLATE G-14) INDIVIDUAL ROCK BURIED (PLATE G-15)
4	15 HORIZONTAL FEET FROM FILL SLOPE FACE	≤1.0 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)

ROCK BLANKET DETAILS

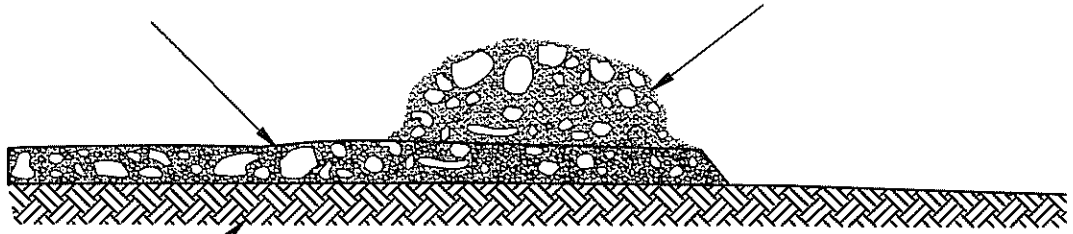
LOOSE PILE 1
LOOSE, DUMPED ROCK, GRAVEL AND SAND MIXTURE REMOVE FRAGMENTS LARGER THAT 2 FEET FOR ISOLATED BURIAL (PLATE G-15) OR WINDROW (PLATE G-10)



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

COMPACT PILE 1
SPREAD LOOSE PILE FORWARD WITH HEAVY TRACKED DOZER (D-8 OR LARGER). HEAVILY WATER, TRACK, AND APPLY ADDITIONAL SAND AND GRAVEL AS NECESSARY TO FILL VOIDS AND CREATE A DENSE MATRIX OF ROCK, COBBLES, GRAVEL AND SAND (2 FOOT MAXIMUM THICKNESS)

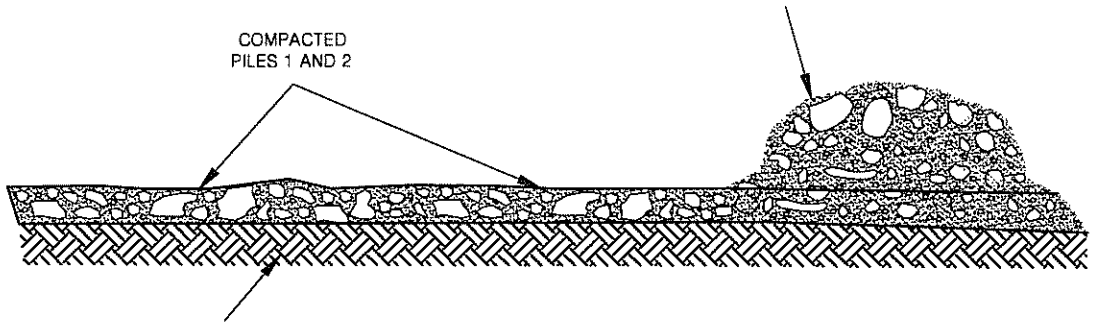
LOOSE PILE 2
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT PILE 1.



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

LOOSE PILE 3
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT EXISTING BLANKET.

COMPACTED PILES 1 AND 2

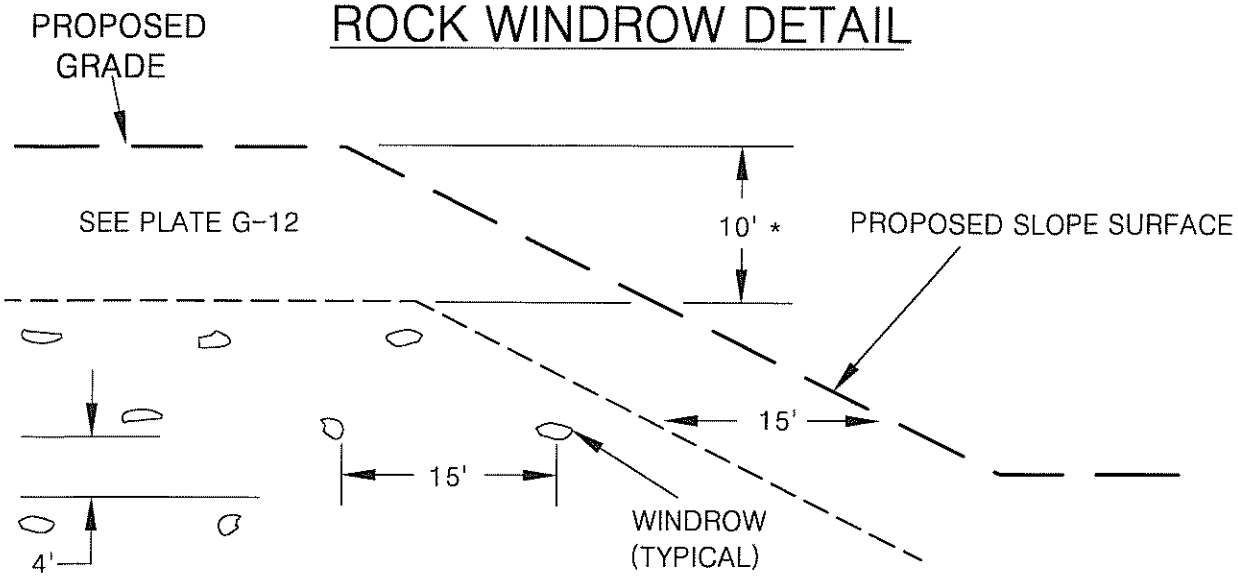


APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

OBSERVATION TESTING AND APPROVAL PROCEDURES

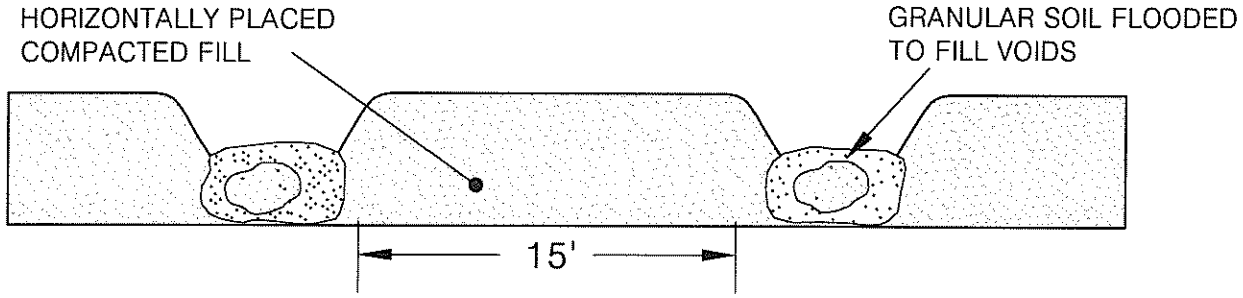
OBSERVE EQUIPMENT. SCRAPERS AND TRUCKS SHOULD BE FULLY SUPPORTED ON BLANKET WITHOUT SIGNIFICANT YIELDING. EXCAVATE TEST/OBSERVATION PITS TO CONFIRM EXISTENCE OF MIXTURE OF VARIOUS PARTICLE SIZES, WITHOUT SIGNIFICANT VOIDS, AND FORMING A DENSE, COMPACTED FILL MATRIX. TEST BY ASTM D1556, D2922 AND/OR D3017 WHEN APPROPRIATE. RECORD LIMITS AND ELEVATION OF BLANKET. ALL FILL AND COMPACTION OPERATIONS TO BE CONDUCTED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. SUBSEQUENT LIFTS TO BE APPLIED ONLY AFTER OBSERVATION AND CONFIRMATION OF SUITABILITY OF FILL AND RELEASE BY THE GEOTECHNICAL ENGINEER. BLANKETS TO BE CONSTRUCTED IN ACCORDANCE WITH PLATE G-12.

ROCK WINDROW DETAIL



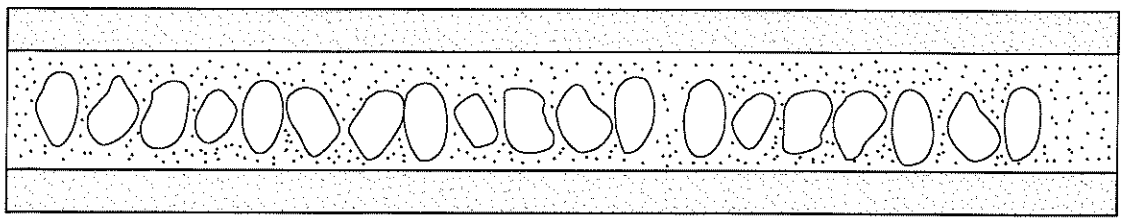
NOTE: OVERSIZED MATERIAL SHOULD BE REMOVED FROM THE 15' CLEAR ZONES WITH SPECIAL EQUIPMENT, SUCH AS A ROCK RAKE, PRIOR TO PLACING THE NEXT FILL LIFT.
*VARIANCES TO THE ABOVE ROCK HOLD DOWN MAY BE GRANTED SUBJECT TO APPROVAL BY THE OWNER, GEOTECHNICAL ENGINEER, AND GOVERNING AGENCY

TYPICAL WINDROW DETAIL (END VIEW)

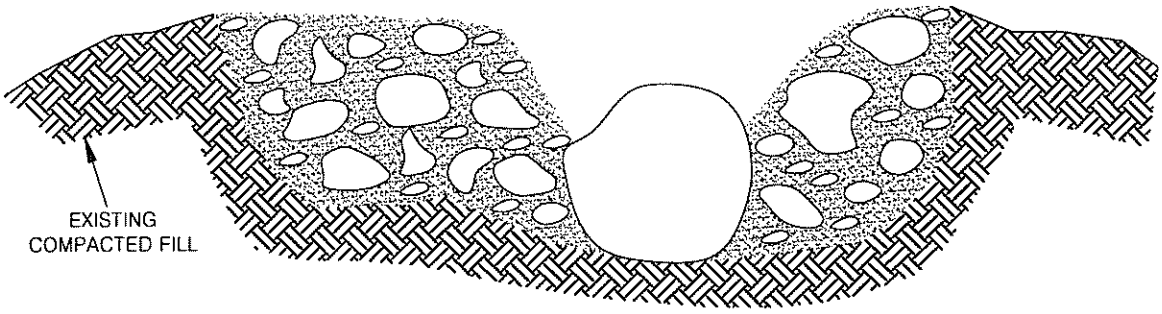


NOTE: COMPACTED FILL SHALL BE BROUGHT UP TO A HIGHER ELEVATION ALONG EACH WINDROW SO GRANULAR SOIL CAN BE FLOODED IN A "TRENCH CONDITION".

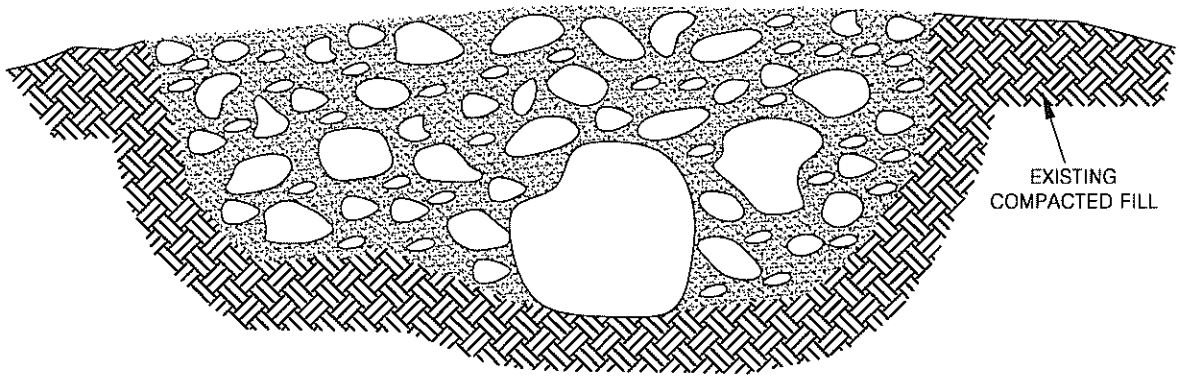
PROFILE VIEW



ISOLATED ROCK BURIAL DETAILS

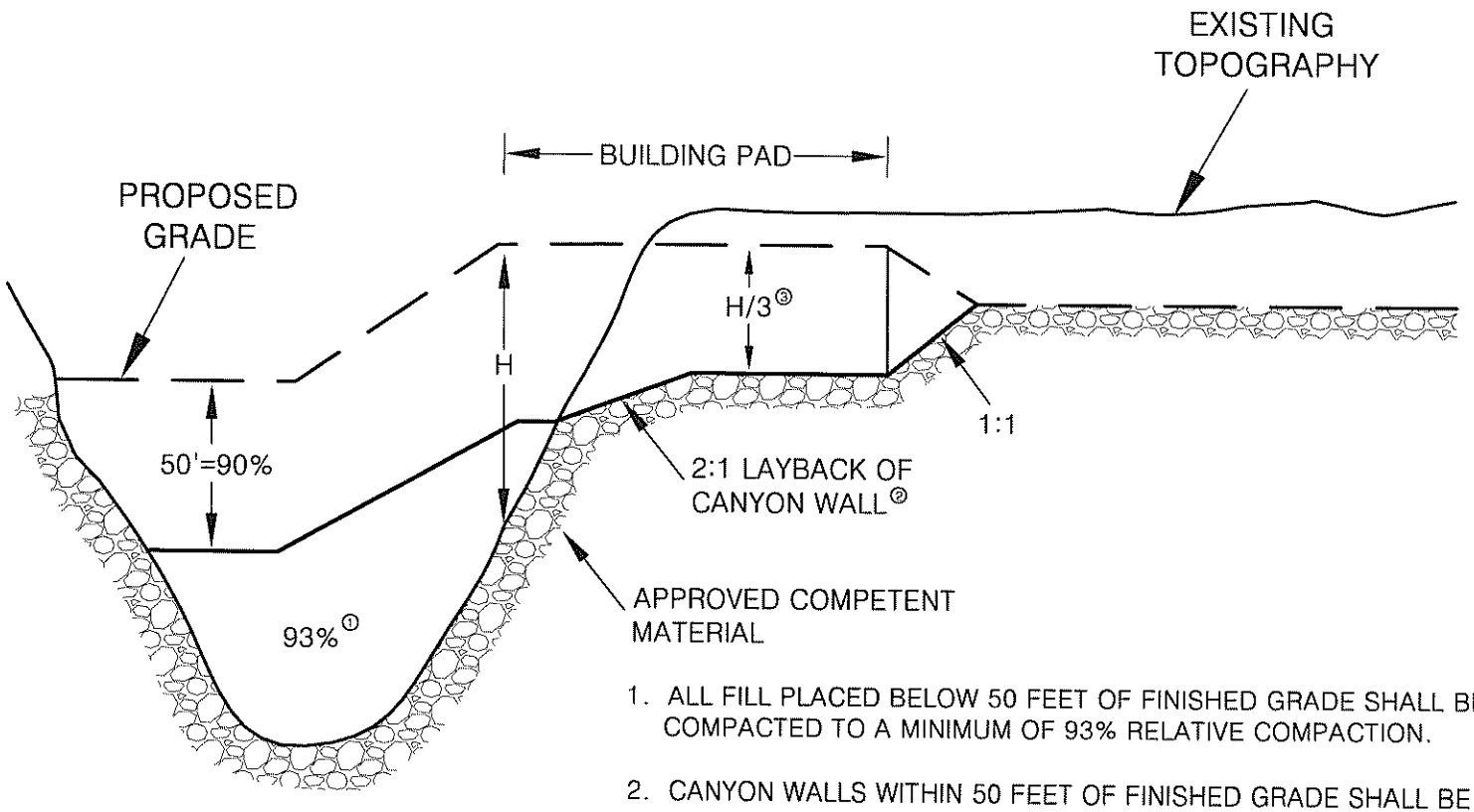


EXCAVATE HOLE INTO EXISTING FILL PRISM, PLACE BOULDER (< 8 feet in maximum dimension) INTO EXISTING COMPACTED FILL. SURROUND WITH SAND, GRAVEL, COBBLES AND WATER HEAVILY. TRACK WITH D8 OR LARGER EQUIPMENT UNTIL RESULTING FILL FULLY SUPPORTS EQUIPMENT. OBSERVE AND/OR TEST IN ACCORDANCE WITH ASTM D1556, D2922 OR D3017. ROCKS LARGER THAN 8 FEET SHALL BE FURTHER REDUCED IN SIZE BY SECONDARY BREAKING.



RELATIVE COMPACTION VS. DEPTH

CANYON WALL LAY BACK
DIFFERENTIAL FILL OVEREXCAVATION DETAILS



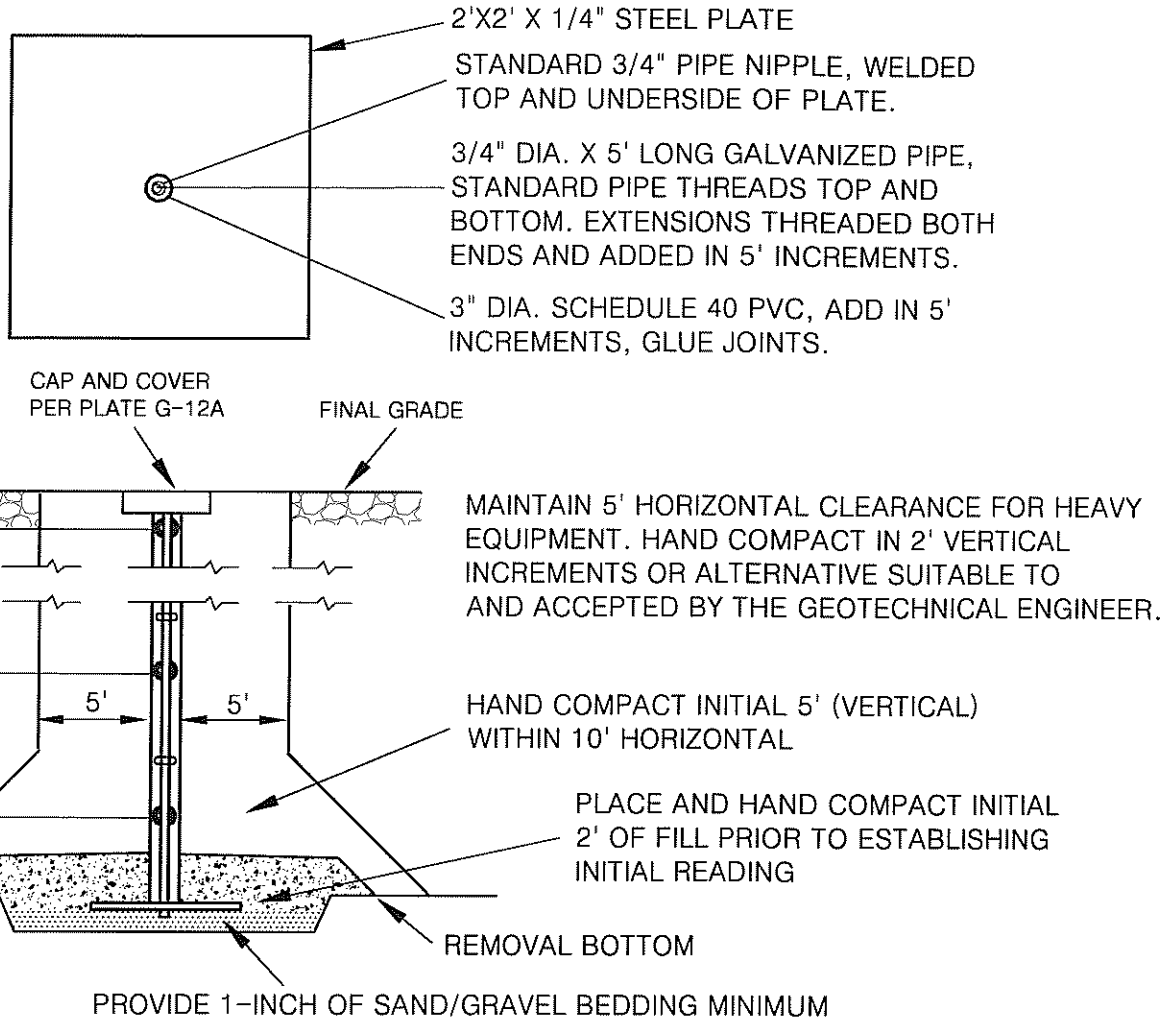
1. ALL FILL PLACED BELOW 50 FEET OF FINISHED GRADE SHALL BE COMPACTED TO A MINIMUM OF 93% RELATIVE COMPACTION.

2. CANYON WALLS WITHIN 50 FEET OF FINISHED GRADE SHALL BE LAID BACK TO A SLOPE RATIO OF 2:1 OR FLATTER.

3. ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF 1/3 OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET.

4. IF THE 2:1 LAY BACK OF THE CANYON WALL IS IMPRACTICAL, THEN AS AN ALTERNATIVE THE INCREASED COMPACTION STANDARDS IN NOTE 1 SHOULD BE EXTENDED UP TO H/3 AND THE LAY BACK WILL NOT BE REQUIRED.

SETTLEMENT PLATE DETAIL



NOTES:

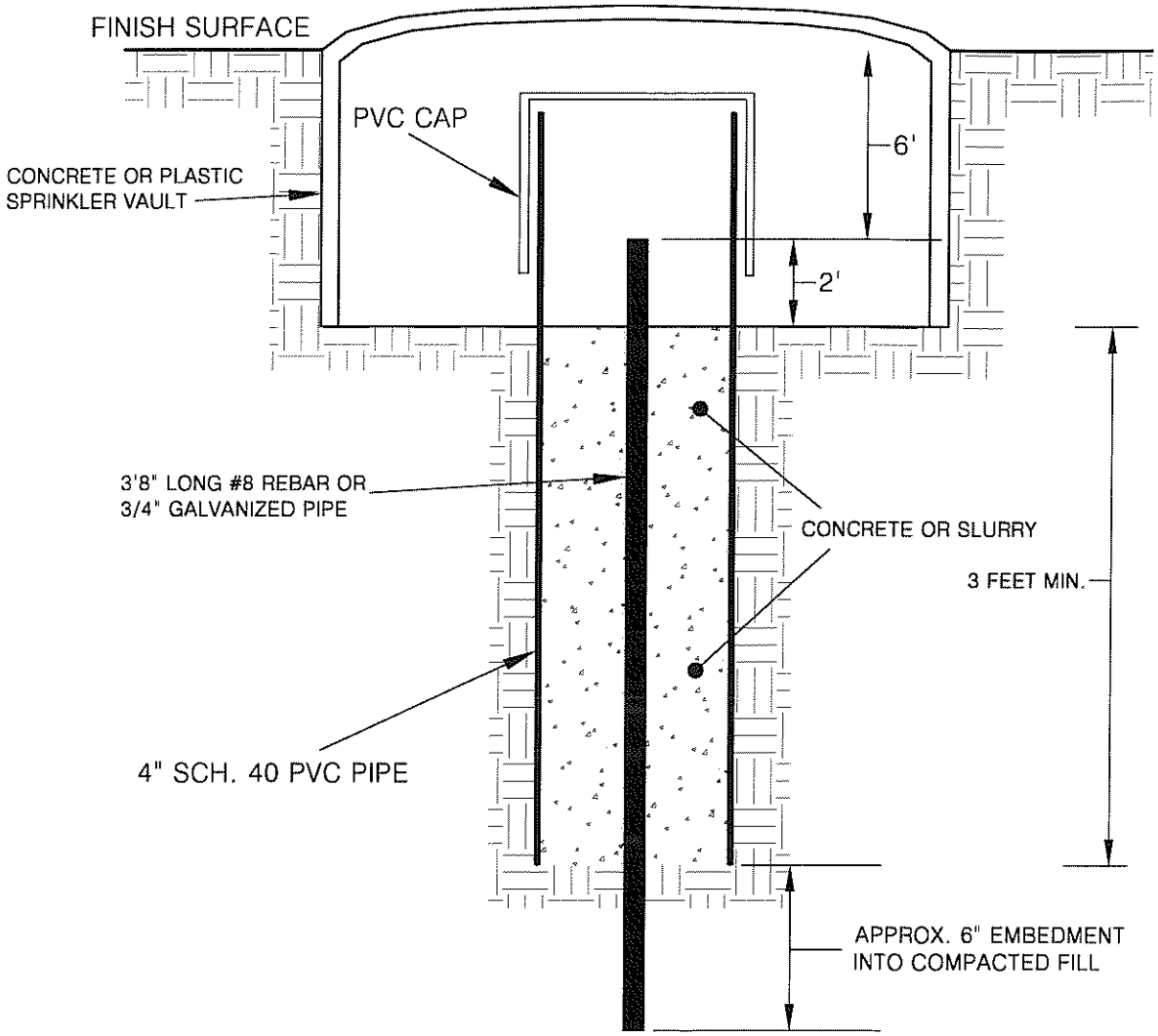
1) LOCATIONS OF SETTLEMENT PLATES SHALL BE CLEARLY MARKED AND READILY VISIBLE (RED FLAGGED) TO EQUIPMENT OPERATORS.

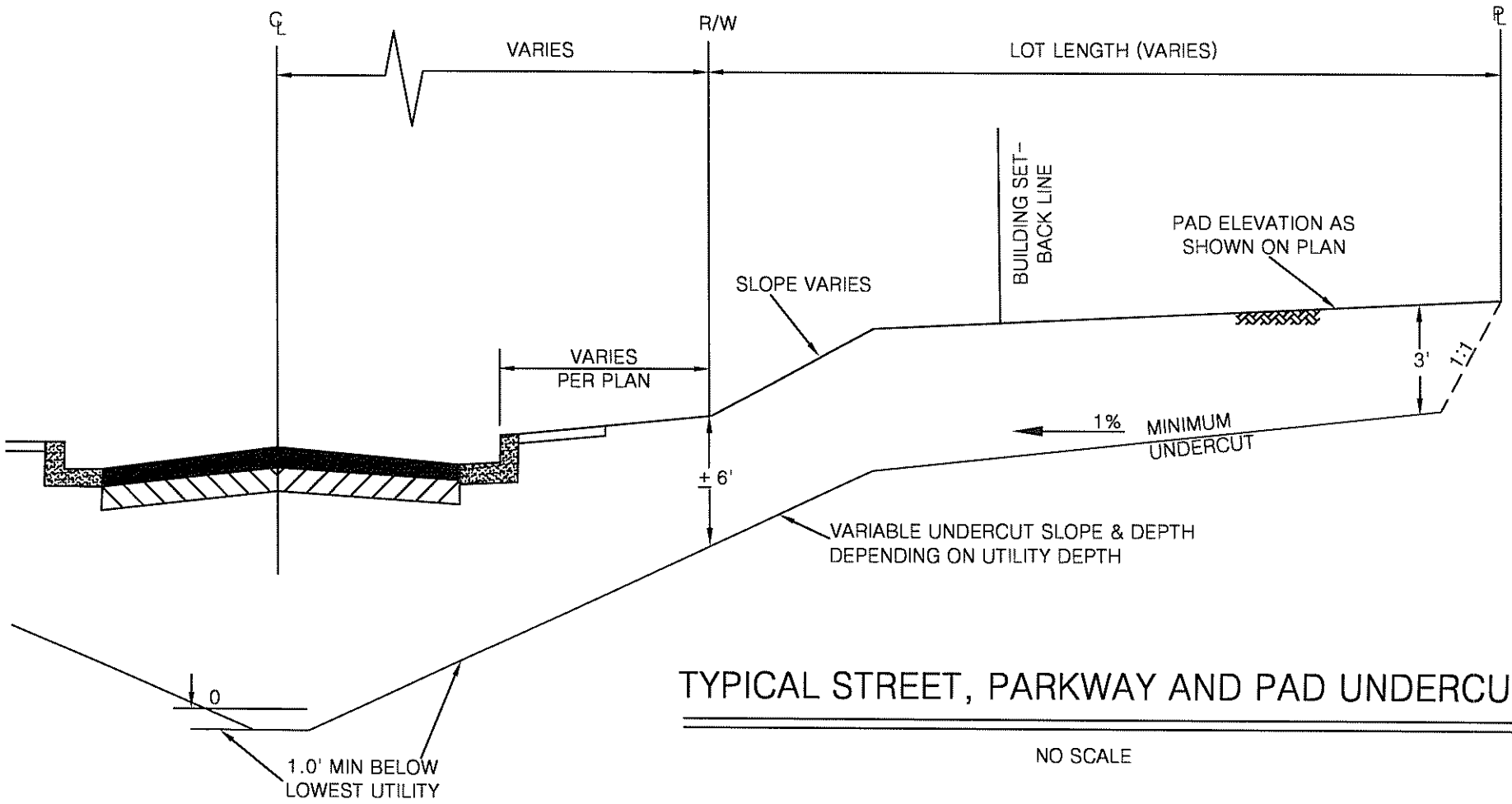
2) CONTRACTOR SHALL MAINTAIN 10' HORIZONTAL CLEARANCE FOR HEAVY EQUIPMENT WITHIN 5' (VERTICAL) OF PLATE BASE. FILL WITHIN CLEARANCE AREA SHALL BE HAND COMPACTED TO PROJECT SPECIFICATIONS OR COMPACTED BY ALTERNATIVE APPROVED BY THE GEOTECHNICAL ENGINEER.

3) AFTER 5' (VERTICAL) OF FILL IS IN PLACE, CONTRACTOR SHALL MAINTAIN 5' HORIZONTAL EQUIPMENT CLEARANCE. FILL IN CLEARANCE AREA SHALL BE HAND COMPACTED (OR APPROVED ALTERNATIVE) IN VERTICAL INCREMENTS NOT TO EXCEED 2 FEET.

4) IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE OR EXTENSION RESULTING FROM EQUIPMENT OPERATING WITHIN PRESCRIBED CLEARANCE AREA, CONTRACTOR SHALL IMMEDIATELY NOTIFY GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATE AND EXTENSION RODS TO WORKING ORDER.

SURFACE SETTLEMENT MONUMENT DETAIL





TYPICAL STREET, PARKWAY AND PAD UNDERCUT

NO SCALE

ALTA CALIFORNIA GEOTECHNICAL, INC .
VER. 3/13

PLATE G-19

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Los Angeles County, California, Southeastern Part; and San Bernardino County Southwestern Part, California

Claremont Commons



June 28, 2018

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Los Angeles County, California, Southeastern Part
Survey Area Data: Version 4, Sep 12, 2017

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 9, Sep 11, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil

MAP LEGEND

MAP INFORMATION

properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 5, 2015—Jan 18, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SpCsb	Soboba stony loamy sand, 2 to 9 percent slopes	5.1	66.2%
Subtotals for Soil Survey Area		**5.1**	**66.2%**
Totals for Area of Interest		**7.8**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SpC	Soboba stony loamy sand, 2 to 9 percent slopes	2.6	33.8%
Subtotals for Soil Survey Area		**2.6**	**33.8%**
Totals for Area of Interest		**7.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Los Angeles County, California, Southeastern Part

SpCsb—Soboba stony loamy sand, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hckv
Elevation: 960 to 3,690 feet
Mean annual precipitation: 12 to 39 inches
Mean annual air temperature: 60 to 65 degrees F
Frost-free period: 260 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Soboba and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Soboba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 10 inches: stony loamy sand
C1 - 10 to 24 inches: very stony loamy sand
C2 - 24 to 60 inches: very stony sand

Properties and qualities

Slope: 2 to 9 percent
Percent of area covered with surface fragments: 0.1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 19.99 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Hanford

Percent of map unit: 5 percent

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Tujunga, gravelly loamy sand

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ramona

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

San Bernardino County Southwestern Part, California

SpC—Soboba stony loamy sand, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hckv
Elevation: 960 to 3,690 feet
Mean annual precipitation: 12 to 39 inches
Mean annual air temperature: 60 to 65 degrees F
Frost-free period: 260 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Soboba and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Soboba

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 10 inches: stony loamy sand
C1 - 10 to 24 inches: very stony loamy sand
C2 - 24 to 60 inches: very stony sand

Properties and qualities

Slope: 2 to 9 percent
Percent of area covered with surface fragments: 0.1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 19.99 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Hanford

Percent of map unit: 5 percent

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Tujunga, gravelly loamy sand

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ramona

Percent of map unit: 5 percent
Landform: Fan remnants
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

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APPENDIX F-3:

Hydrology Work Maps. On-site Map prepared by Andreasen Engineering, Inc. on October 16, 2018. Off-site Map prepared by Arrow Engineering on October 16, 2018

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SCALE: 1"=60

MONTE VISTA AVENUE

WL'Y. BDRY. LINE CITY OF UPLAND & COUNTY OF SAN BERNARDINO

BOULEVARD

CLAREMONT

SHENANDOAH DRIVE

ANDREW DRIVE

PLANTER AREA

DRIVEWAY

STREET LIGHTING HIGH VOLTAGE

HIGH VOLTAGE GTE BOX

WATER MOTOR

HIGH VOLTAGE BOX LIGHT 4403561

GTE BOX

SIGNAL BOX

SIGNAL POLE

STREET LIGHT BOX PED XING POLE

GUY POLE

CONCRETE VAULT

6.0X3.0 GTE BOX

STREET LIGHTING HIGH VOLTAGE CONCRETE BOX

TRAFFIC SIG BOX

EDISON BOX

TEL POLE

TRAFFIC POST

31.63' CURB CUT

CITY OF CLAREMONT & COUNTY OF LOS ANGELES ELY'Y. BDRY. LINE

NOT A PART

(A) 1064.07

(B) 24.30'

(C) 35.46'

(D) 27.14'

(1) FP 97-0

(2) FF 85.85 FP 85.35 SEE FINAL GRADING PLAN SITE PLAN REVIEW #97-118

(3) FP 75.50

(4) FP 63.00

(5) FP 53.30

$\Sigma Q_{25} = 6.99 + 1.57 = 8.56$ cfs

$Q_{25} = 1.57$ cfs
$Q_{10} = 1.15$ cfs
El. 1345
L = 430'
A = 0.62 ac
Tc = 0.0279

$Q_{25} = 6.99$ cfs
$Q_{10} = 4.26$ cfs
El. 1345
L = 1025'
A = 6.24 ac

$R_{25} = 2.93$ cfs
$Q_{10} = 1.35$ cfs
El. 1347
L = 940'
A = 3.70 ac
Tc = 0.0312

N 12,200 N 12,000 N 11,800 N 11,600 N 11,400 N 11,200 N 11,000 N 10,800

E 11,400 E 10,600

HYDROLOGY WORK MAP
OFF-SITE

10/16/18 S.V.

DATE	REVISION

REGISTERED PROFESSIONAL ENGINEER ROGER D. GLIDDEN No. 23845 Exp 12/31/2001 CIVIL STATE OF CALIFORNIA

ARROW ENGINEERING AEC

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SIGNATURE Roger N. Shadden DATE 11-26-2001

DRAWING NAME 0119GP2 PLOT DATE: 11/21/01

city of claremont

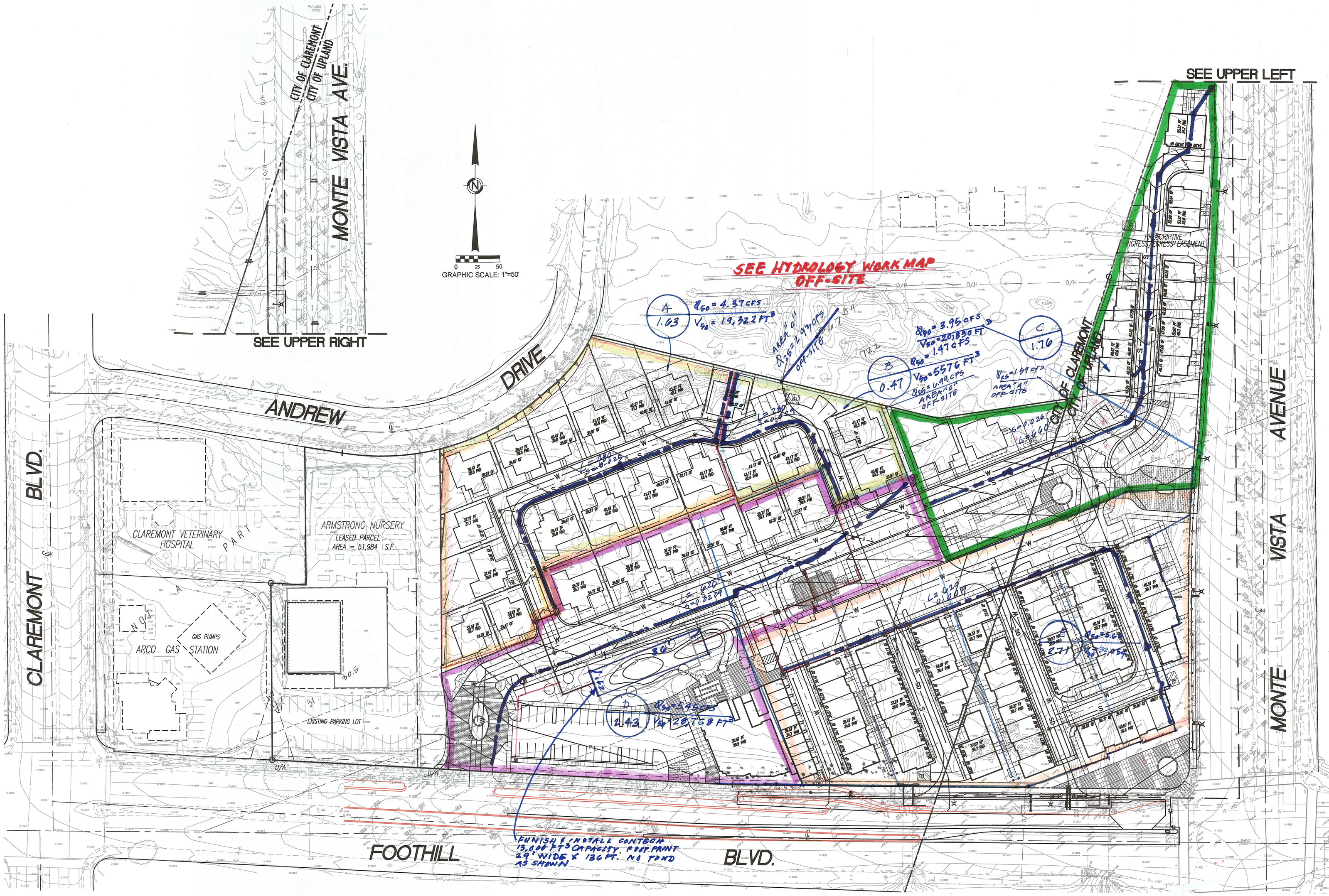
SCHEMATIC GRADING PLAN
PARCEL MAP NO. 25016

SCALE	DRAWN
DATE	CHECKER ALH
F.B. NO.	RECOMMENDED
APPROVED	

Lawrence L. Bradshaw 20415 11-15-02
CITY ENGINEER R.C.E. DATE

DRAWING NO. G-2-0123

SHEET 1 of 1



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Plot Date:

HYDROLOGY WORK MAP 10/16/18 S.V

CONCEPTUAL GRADING PLAN

Sheet No.:

C1.0

C:\Land Projects\Jn3036a – Clare Properties LLC\Work\Conceptual Drawings\3036a Conceptual Grading.dwg BY: Derrick Jul 30, 2018 – 10:26:57am

APPENDIX F-4:

Geotechnical Investigation; Foothill East Project on Foothill Boulevard at Monte Vista Avenue Cities of Claremont and Upland, California, Alta California. Geotechnical, Inc. June 20, 2018

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WALBERN DEVELOPMENTS
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June 20, 2018
Project No. 2-0128

Attention: Mr. Matt Waken

Subject: ***GEOTECHNICAL INVESTIGATION***
Foothill East project on Foothill Boulevard at Monte Vista Avenue
Cities of Claremont and Upland, California

References: Appendix

Dear Mr. Waken:

Presented herein is Alta California Geotechnical, Inc.'s (Alta's) geotechnical investigation of the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard in the Cities of Claremont and Upland, California. This report is based on Alta's recent subsurface investigation, laboratory testing, engineering analyses, and review of the referenced reports.

Alta's review of the geotechnical data and conceptual plan indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions;
- Recommendations for remedial and site grading, including unsuitable soil removals;
- Geotechnical site construction recommendations;
- Preliminary foundation design parameters.

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

DAVID A. MURPHY/CEG 1813
Reg. Exp.: 10-31-19
Certified Engineering Geologist
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Reviewed By:

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Registered Geotechnical Engineer
Vice President

JAMES COYNE
Engineering Geology Associate

Distribution: (1) Addressee

DAM: SAG: JBC: skt-2-0128, June 20, 2018 (Prelim Geo Investigation Claremont-Upland)

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APPENDIX C: LABORATORY TESTING
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APPENDIX E: EARTHWORK SPECIFICATIONS
APPENDIX F: GRADING DETAILS

1.0 INTRODUCTION

The following report presents Alta's findings, conclusions and geotechnical recommendations for the Foothill East proposed mixed residential and commercial development, located at the intersection of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California.

1.1 Purpose

The purpose of this report is to examine the existing onsite geotechnical conditions and assess their impacts on the proposed development. The property is depicted on the enclosed Site Plan (Plate 1). This report is suitable for use in developing grading plans and preliminary construction cost estimates.

1.2 Scope of Work

Alta's *Scope of Work* for this geotechnical investigation included the following:

- Reviewing the referenced reports and air photos (Appendix A);
- Site geologic mapping;
- Excavating, logging, and sampling ten (10) excavator test pits to a maximum depth of 20-feet below the existing surface (Appendix B);
- Conducting preliminary infiltration testing;
- Conducting laboratory testing on samples obtained during our investigation (Appendix C);
- Evaluating engineering geologic and geotechnical engineering data, including laboratory data, to develop recommendations for site remedial grading, import soil, foundations and utilities;
- Preparing this report and accompanying exhibits.

1.3 Report Limitations

The conclusions and recommendations presented in this report are based on the field and laboratory information generated during this investigation, and a review of the referenced reports. The information contained in this report is

intended to be used for development of grading plans and preliminary construction cost estimates.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Existing Conditions

The irregular-shaped, approximately 6.4± -acre Foothill East project is located in the northwest corner of Monte Vista Avenue and Foothill Boulevard, in the Cities of Claremont and Upland, California. The property slopes gently to southwest from approximate elevations 1360 to 1330. It is bounded on the south by Foothill Blvd, on the east by Monte Vista Avenue, on the west by an Armstrong Garden Center, and north by Andrew Drive and open space. Some concrete flatwork exists in the western portion of the site and a concrete debris pile exists along the north western boundary. Moderate growth of shrubs and weeds cover most of the site.

Historic aerial photos are available as far back as 1938. The photos indicate that a structure previously stood on the western portion of the site but was demolished by 1994. Running water once flowed over the site before the San Antonio Creek Channel had been constructed. (Historic Aerials, 2018).

2.2 Proposed Development

It is our understanding that the site is to be redeveloped into a mixed residential and commercial development. Alta anticipates that conventional cut-and-fill grading techniques will be used to develop the site for the support of wood-frame and stucco construction with shallow foundations and reinforced concrete slabs-on-grade, and associated improvements.

3.0 SITE INVESTIGATION

3.1 Investigation and Laboratory Testing

Alta conducted a subsurface investigation on May 30, 2018 consisting of the excavation, logging and select sampling of ten (10) excavator test pits. The

locations of the test pits are shown on enclosed Plate 1 and the test pit logs are presented in Appendix B.

Laboratory testing was performed on bulk samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

Alta conducted infiltration testing on June 1, 2018 in general conformance with the San Bernardino County Technical Guidance Document for WQMP. Infiltration testing utilizing the shall percolation test procedure was undertaken in two, five (5) foot-deep test pits (P-1 and P-2), and in two, ten (10) foot-deep test pits (P-3 and P-4). The test pits were presoaked, and the water level reading were recorded every 10 minutes until the readings stabilized. The data was then adjusted to provide an infiltration rate utilizing the Porchet Method. A summary of the results is presented in Table 3-1, which do not include a factor of safety. Recommendations for infiltration BMP design are presented in Section 6.2.

Table A-Summary of Infiltration Testing (No Factor of Safety)

Test Designation	P-1	P-2	P-3	P-4
Approximate Depth of Test	5.0 ft	5.0 ft	10.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches	4 inches	4 inches
Tested Infiltration Rate	10 inches/hr	10 inches/hr	10 inches/hr	10 inches/hr

4.0 GEOLOGIC CONDITIONS

4.1 Geologic and Geomorphic Setting

Regionally, the subject site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of southern California where right lateral major active fault zones predominately trend northwest-southeast. The Peninsular Ranges province is composed of plutonic and metamorphic rock, with lesser amounts of Tertiary volcanic and sedimentary rock, Quaternary drainage in-fills and sedimentary veneers.

4.2 Stratigraphy

Based on our literature review and subsurface investigation, the site is underlain by minor amounts of undocumented artificial fill and young alluvial cobbles and sands. These geologic units are briefly described below. Their distribution is shown on enclosed Plate 1.

4.2.1 Undocumented Artificial Fill (No map symbol)

The undocumented artificial fill encountered at the site consists primarily of gray and grey brown gravelly sand in a dry, moderately dense condition. The unit was logged to a depth of two and a half (2.5) feet below the ground surface and is directly underlain by young alluvial fan deposits.

4.2.2 Young Alluvial Fan Deposits (Map symbol Qal)

The site is underlain by Holocene-age fan deposits sourced from alluvial fan outwash from nearby canyons and drainages. The alluvial deposits encountered at the site consist primarily of gray, gray brown, and tan brown cobble and gravels with sand in a dry, very loose to moderately dense condition. The unit was logged to a depth of 20 feet below the ground surface. Caving was observed in the test pits as noted in the Test Pit logs in Appendix B.

4.3 Geologic Structure

4.3.1 Tectonic Framework

Jennings and Bryant (2010) defined eight structural provinces within California that have been classified by predominant regional fault trends and similar fold structure. These provinces are in turn divided into blocks and sub-blocks that are defined by "major Quaternary faults." These blocks and sub-blocks exhibit similar structural features. Within this framework, the subject site is located within Structural Province I, which is controlled by the dominant northwest trend of the San Andreas Fault and is divided into two blocks, the Coast Range Block and the Peninsular Range Block. The Peninsular Range Block, on which this site is located, is characterized by a series of parallel, northwest trending faults that exhibit right lateral dip-slip movement. These faults are terminated by the Transverse Range block to the north and extend southward to the Baja Peninsula. These northwest trending faults divide the Peninsular Range block into eight sub-blocks. The Santa Ana Sub-block, one of the eight sub-blocks, is bound on the east by the Elsinore fault zone and on the west by the Newport-Inglewood fault zone.

4.3.2 Regionally Mapped Active Faults

Several large, active fault systems including the Elsinore-Whittier, Newport-Inglewood, and the San Andreas occur in the region surrounding the site. These fault systems have been studied extensively and in a large part control the geologic structure of southern California.

4.3.3 Geologic Structure

Based upon our site investigation and literature review, the onsite sediments are of Holocene age, and are not fractured, folded, or faulted.

4.4 Groundwater

Groundwater was not encountered during this investigation. Nearby wells indicate that groundwater in the area is greater than 115± feet below the ground surface. The seismic hazard zone report for the area (CDMG, 1998) indicates that historic high groundwater elevation is approximately 40 to 50 feet below the existing ground surface.

4.5 Earthquake Hazards

The subject site is located in southern California, which is a tectonically active area. The type and magnitude of seismic hazards affecting a site are dependent on the distance to the causative fault and the intensity and magnitude of the seismic event. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction and/or ground lurching.

4.5.1 Local and Regional Faulting

The nearest known active faults (movement occurring ≤ 11,000 years ago) are the Sierra Madre fault, the Clamshell-Sawpit fault, and the San Jacinto fault, located approximately 2.8, 12.6, and 14.5 miles from the site (USGS, 2008).

4.5.2 Seismicity

Ground shaking hazards caused by earthquakes along other active regional faults exist. The 2016 California Building Code requires use-modified spectral accelerations and velocities for most structural designs. Seismic design parameters using soil profile types identified in the 2016 California Building Code are presented in Section 7.3.

4.5.3 Surface Rupture

Active faults are not known to exist within the project and a review of Special Publication 42 indicates the site is not within the California State

designated Alquist-Priolo earthquake fault zones (Bryant and Hart, 2007). Accordingly, the potential for fault surface rupture on the subject site is very low.

4.5.4 Liquefaction

Seismic agitation of relatively loose saturated sands, silty sands, and some silts can result in a buildup of pore pressure. If the pore pressure exceeds the overburden stresses, a temporary quick condition known as liquefaction can occur. Liquefaction effects can manifest in several ways including: 1) loss of bearing; 2) lateral spread; 3) dynamic settlement; and 4) flow failure. Lateral spreading has typically been the most damaging mode of failure.

In general, the more recent that a sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that must be considered are: groundwater, confining stresses, relative density, and the intensity and duration of seismically-induced ground shaking.

Groundwater was not encountered during the subsurface investigation which extended to a depth of 20 feet. The regional groundwater map indicates that the historic high groundwater level is 40 to 50 feet (CDMG, 1998). Based on the depth of groundwater and the underlying soil type (primarily gravel), it is our opinion that the potential for liquefaction is minimal at the site.

4.5.5 Dry Sand Settlement

Dry sand settlement is the process of non-uniform settlement of the ground surface during a seismic event. Based on our subsurface investigation and our removal/recompaction recommendations, the

potential for dry sand settlement is anticipated to be low and within foundation design tolerances.

4.5.6 Seismically Induced Landsliding

Due to a lack of slopes within or nearby the property, seismically induced landsliding is not anticipated to pose a danger to the site.

5.0 ENGINEERING PROPERTIES AND ANALYSIS

5.1 Materials Properties

Presented herein is a general discussion of the engineering properties of the onsite materials that will be encountered during construction of the proposed project. Descriptions of the soil (Unified Soil Classification System) are presented on the boring logs in Appendix B.

5.1.1 Excavation Characteristics

Based on the data provided from the subsurface investigation, it is our opinion that the majority of the onsite materials possess favorable excavation characteristics such that conventional equipment can be utilized. Gravels, cobbles, and boulders will be encountered in excavations onsite. The largest dimension boulder encountered during our subsurface investigation was three (3) feet in diameter.

5.1.2 Over-Sized Rock

Over-sized rock (>12-inches) will be generated from excavations onsite. This rock may be incorporated into the compacted fill section based on the recommendations presented in Section 6.2.2.

5.1.3 Compressibility

The undocumented artificial fill and upper portions of the young alluvial fan deposits onsite are considered compressible and unsuitable to support the proposed improvements. Recommended removal depths are presented in Section 6.1.2.

5.1.4 Hydro-Consolidation

Hydro-consolidation is the effect of introducing water into soil that is prone to collapse. Upon loading and initial wetting, the soil structure and apparent strength are altered resulting in almost immediate settlement. That settlement can have adverse impacts on engineered structures, particularly in areas where it is manifested differentially. Differential settlements are typically associated with differential wetting, irregularities in the subsurface soil conditions, or irregular loading patterns.

Based on the composition of the onsite soils (primarily gravel) and the anticipated minimal fill loads, the potential for hydro-collapse onsite is minimal and should be within foundation tolerances upon the completion of the recommended unsuitable soil removals.

5.1.5 Expansion Potential

Expansion index testing was performed on samples taken during our subsurface investigation. Based on the results, it is anticipated that the majority of materials onsite are "very low" to "low" in expansion potential ($0 \leq EI \leq 50$, Appendix C) when tested per ASTM D: 4829.

5.1.6 Earthwork Adjustments

The values presented in Table 5-2 are deemed appropriate for estimating purposes and may be used in an effort to balance earthwork quantities. As is the case with every project, contingencies should be made to adjust the earthwork balance when grading is in-progress and actual conditions are better defined.

TABLE 5-2 Earthwork Adjustment Factors		
Geologic Unit	**Adjustment Factor Range**	**Average**
Young Alluvial Fan Deposits/afu	Shrink 10% to 20%	15%

5.1.7 Chemical Analyses

Chemical testing was performed on samples of material underlying the proposed site. Soluble sulfate test results indicate that the soluble sulfate concentrations of the soils tested are classified as negligible (Class S0) per ACI 318-14. Negligible chloride levels were detected in the onsite soils. Additional discussions on corrosion are presented in Section 7.9. Corrosion tests results are presented in Appendix C.

5.2 Engineering Analysis

Presented below is a general discussion of the engineering analysis methods that were utilized to develop the conclusions and recommendations presented in this report.

5.2.1 Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases. If it is desired to use Coulomb forces, a separate analysis specific to the application can be conducted.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Alta's findings during our subsurface investigation, the laboratory test results, our staff's previous experience in the area, it is Alta's opinion that the development of the site is feasible from a geotechnical perspective. Presented below are Alta's

recommendations that should be incorporated into site development and construction plans. All grading shall be accomplished under the observation and testing of the project geotechnical consultant in accordance with the recommendations contained herein and the City of Upland/Claremont criteria.

6.1 Remedial Grading Recommendations

6.1.1 Site Preparation

Vegetation, construction debris, and other deleterious materials are unsuitable as structural fill material and should be disposed of off-site prior to commencing grading/construction. Any septic tanks, seepage pits or wells should be abandoned as per the County of Los Angeles/San Bernardino Department of Health Services.

6.1.2 Disposal of Existing Concrete

Existing concrete flatwork and debris associated with the previously demolished structure should be removed prior to the placement of engineered fill. The demolished concrete may be incorporated into compacted, engineered fills after it is crushed to a maximum size of six (6) inches. Prior to placement as engineered fill any protruding steel rebar should be cut from the concrete pieces and disposed of offsite. These recommendations should be approved by the Cities of Claremont and Upland.

6.1.3 Unsuitable Soil Removals

The undocumented artificial fill and the uppermost portions of the young alluvial fan deposits onsite are compressible and as such, are not suitable to support the proposed structures. Accordingly, it is recommended to completely remove the undocumented artificial fills and the highly weathered portions of the underlying alluvial across the site and as close to the property boundaries as possible.

Accordingly, in design fill and shallow cut areas, it is recommended to remove and re-compact the upper five (5) feet of existing soils on the building pads. In design cut areas, the building pad should be overexcavated to provide a minimum of two (2) feet below the bottom of the footings (Provided the 5-foot minimum removal is provided). This recommended removal combined with the foundation recommendations presented in Section 7.1 should provide suitable support for the proposed structures.

For fill areas in streets, in general, a minimum removal and recompaction of the upper two (2) feet of native soils is recommended. For cuts greater than two feet (2) in street areas, removals are not required. For cuts less than two (2) feet, the two (2) foot removal and recompaction applies.

The Project Geotechnical Consultant should observe the removal bottom prior to placing fill. If unsuitable soils such as undocumented artificial fill are exposed upon the completion of the removals recommended above, additional removals may be required. This recommended removal is based on the assumptions that limited fill above the existing ground surface will be placed onsite.

6.2 General Earthwork Recommendations

6.2.1 Compaction Standards

All fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D-1557. Fill material should be moisture conditioned to optimum moisture or above, and as generally discussed in Alta's Earthwork Specification Section presented in Appendix E. Compaction shall be

achieved with the use of sheepsfoot rollers or similar kneading type equipment. Mixing and moisture conditioning will be required in order to achieve the recommended moisture conditions. Over-sized material should be handled based on the recommendations presented below in Section 6.2.2.

6.2.2 Over-Sized Rock Disposal Requirements

Oversized rock (>12 inches) is present in the underlying young alluvial fan deposits onsite. It is recommended that either the oversized rock be placed in fills in non-structural areas, or deep enough so as not to impact footing and utility construction. Placement of individual rocks in fill shall be conducted as per the details provided on Plate G- 15 (Appendix F).

6.2.3 Groundwater/Seepage

It is anticipated that groundwater will not be encountered during construction. It is possible that perched water conditions could be encountered depending on the time of year construction occurs.

6.2.4 Documentation of Removals

All removal/over-excavation bottoms should be observed and approved by the project Geotechnical Consultant prior to fill placement. Consideration should be given to surveying the removal bottoms and undercuts after approval by the geotechnical consultant and prior to the placement of fill. Staking should be provided in order to verify undercut locations and depths.

6.2.5 Treatment of Removal Bottoms

At the completion of removals/over-excavation, the exposed removal bottom should be ripped to a minimum depth of eight (8) inches, moisture-conditioned to above optimum moisture content and compacted in-place to the project standards.

6.2.6 Fill Placement

After removals, scarification, and compaction of in-place materials are completed, additional fill may be placed. Fill should be placed in eight-inch bulk maximum lifts, moisture conditioned to optimum moisture content or above, compacted and tested as grading/construction progresses until final grades are attained.

6.2.7 Mixing

Mixing of materials may be necessary to prevent layering of different soil types and/or different moisture contents. The mixing should be accomplished prior to and as part of compaction of each fill lift.

6.2.8 Import Soils

Import soils, if necessary, should consist of clean, structural quality, very low expansive, compactable materials similar to the on-site soils and should be free of trash, debris or other objectionable materials. The project Geotechnical Consultant should be notified not less than 72 hours in advance of the locations of any soils proposed for import. Import sources should be sampled, tested, and approved by the project Geotechnical Consultant at the source prior to the importation of the soils to the site. The project Civil Engineer should include these requirements on plans and specifications for the project.

6.2.9 Utility Trenches

6.2.9.1 Excavation

Utility trenches should be supported, either by laying back excavations or shoring, in accordance with applicable OSHA standards. Slight to moderate caving was observed in Alta's trenches, as such, the existing site soils are classified as Soil Types "B" and "C" per OSHA standards. Upon completion of

the recommended removals and recompaction, the artificial fill will be classified as Soil Type "B", while the underlying alluvium will still be classified as either "B or "C". The Project Geotechnical Consulting should be consulted if geologic conditions vary from what is presented in this report.

6.2.9.2 Backfill

Trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D-1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks, or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils. Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

Under-slab trenches should also be compacted to project specifications. If select granular backfill (SE > 30) is used, compaction by flooding will be acceptable.

6.2.10 Backcut Stability

Temporary backcuts, if required during unsuitable soil removals, should be made no steeper than 1:1 without review and approval of the geotechnical consultant. Flatter backcuts may be necessary where geologic conditions dictate and where minimum width dimensions are to

be maintained. Caving was observed in the test pits onsite, indicating that backcuts in the upper soils may need to be shallower than 1:1.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending work days, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

Preliminary infiltration testing was conducted at the site as part of this investigation, and the results are presented in Section 3.2. Based on our testing, the infiltration rates at the site are high. As such, infiltration-type WQMP systems are feasible.

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping

subgrade. Care should be taken in designing systems that control the storm water as much as possible. A methodology for dealing with overflow should the infiltration system become clogged or full should be developed and maintained.

It is recommended that the Project Geotechnical Consultant observe the BMP excavations during construction to verify that the infiltration rates presented herein are appropriate. If it is determined that rates may be variable, additional infiltration testing should be undertaken.

If infiltration-type storm water systems are proposed, additional infiltration testing may be required at site-specific locations when the location and elevations for infiltration structures are determined.

6.4 Boundary Conditions

The site is bounded in areas by existing improvements such as Foothill Drive, Monte Vista Avenue, Andrew Drive and the Armstrong Nursery. Construction of retaining/screen walls or other improvements along these boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story, wood-frame residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to the individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design

recommendations should be made based upon specific structure sitings, loading conditions, and as-graded soil conditions.

It is anticipated that the majority of onsite soils will possess "very low" to "low" expansion potential when tested in general accordance with ASTM Test Method D: 4829. For budgeting purposes, the following foundation design requirements for a range of potential expansion characteristics are presented.

7.1.1 Foundations

Foundations may be preliminary designed based on the values presented in Table 7-1 below.

Table 7-1
Foundation Design Parameters*

Allowable Bearing	2000 lbs/ft^2 assuming a minimum footing width and embedment of 12 inches.
Lateral Bearing	250 lbs/ft^2 at a depth of 12 inches plus 250 lbs/ft^2 for each additional 12 inches of embedment to a maximum of 2000 lbs/ft^2
Sliding Coefficient	0.35
Differential Settlement	Dynamic: Differential = 1-inch in 40 feet Static: Differential = 0.5 inch in 40 feet

*These values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building code and structural design considerations may govern depth and reinforcement requirements and should be evaluated.

7.1.2 Conventional Slab/Foundation Systems

Based on the onsite soils conditions and information supplied by the 2016 CBC, conventional slab/foundation systems may be designed in accordance with Tables 7-1 and 7-2.

TABLE 7-2 CONVENTIONAL FOUNDATION DESIGN PARAMETERS	
Expansion Potential	***Very Low to Low***
Soil Category	I
Design Plasticity Index	10
Minimum Footing Embedment	12 inches*
*The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.	
Minimum Footing Width	12-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.
Minimum Footing Reinforcement	No. 4 rebar, two (2) on top, two (2) on bottom
Minimum Slab Thickness	4 inches (actual)
Minimum Slab Reinforcement	No. 3 rebar spaced 18 inches on center, each way
Under-Slab Requirement	See Section 7.2
Slab Subgrade Moisture	Minimum of 110 percent of optimum moisture to a depth of 12 inches prior to placing concrete.
Footing Embedment Adjacent to Swales and Slopes	If exterior footings adjacent to drainage swales are to exist within five (5) feet horizontally of the swale, the footing should be embedded sufficiently to assure embedment below the swale bottom is maintained. Footings adjacent to slopes should be embedded such that at least five- (5) feet is provided horizontally from edge of the footing to the face of the slope.
Garages	A grade beam reinforced continuously with the garage footings shall be constructed across the garage entrance, tying together the ends of the perimeter footings and between individual spread footings. This grade beam should be embedded at the same depth as the adjacent perimeter footings. A thickened slab, separated by a cold joint from the garage beam, should be provided at the garage entrance. Minimum dimensions of the thickened edge shall be six (6) inches deep. Footing depth, width and reinforcement should be the same as the structure. Slab thickness, reinforcement and under-slab treatment should be the same as the structure.

7.1.3 Post-Tensioned Slabs/Foundation Design Recommendations

Post-tensioned slabs for the project may be preliminarily designed utilizing the parameters presented in Tables 7-1 and 7-3. The parameters presented herein are based on methodology provided in the Design of Post-Tensioned Slabs-On-Ground, Third Edition, by the Post-Tensioning Institute, in accordance with the 2016 CBC.

TABLE 7-3
POST-TENSION SLAB DESIGN PARAMETERS

Category	Expansion Potential	Minimum Embedment	Edge Lift		Center Lift	
			Em (ft)	Ym (inch)	Em (ft)	Ym (inch)
I	Very Low to Low	12 inches	5.1	0.61	9.0	0.26
Slab Subgrade Moisture						
Category I	Minimum 110% of optimum moisture to a depth of 12 inches prior to pouring concrete					
Embedment*						
The minimum outer footing embedment presented herein are based on expansion indexes. The structural engineer should verify the minimum embedment based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code. If mat slabs are utilized, alternate embedment depths can be provided.						
Moisture Barrier						
A moisture barrier should be provided in accordance with the recommendations presented in Section 7.2						
The parameters presented herein are based on procedures presented in the Design of Post-Tensioned Slabs-On-Ground, Third Edition. No corrections for vertical barriers at the edge of the slab, or for adjacent vegetation have been assumed. The design parameters are based on a Constant Suction Value of 3.9 pF.						

7.2 Moisture Barrier

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive and should be capable of effectively preventing the migration of water and reducing the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as Visqueen, placed between two to four inches of clean sand, has been used for this purpose. The use of this system or other systems can be considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

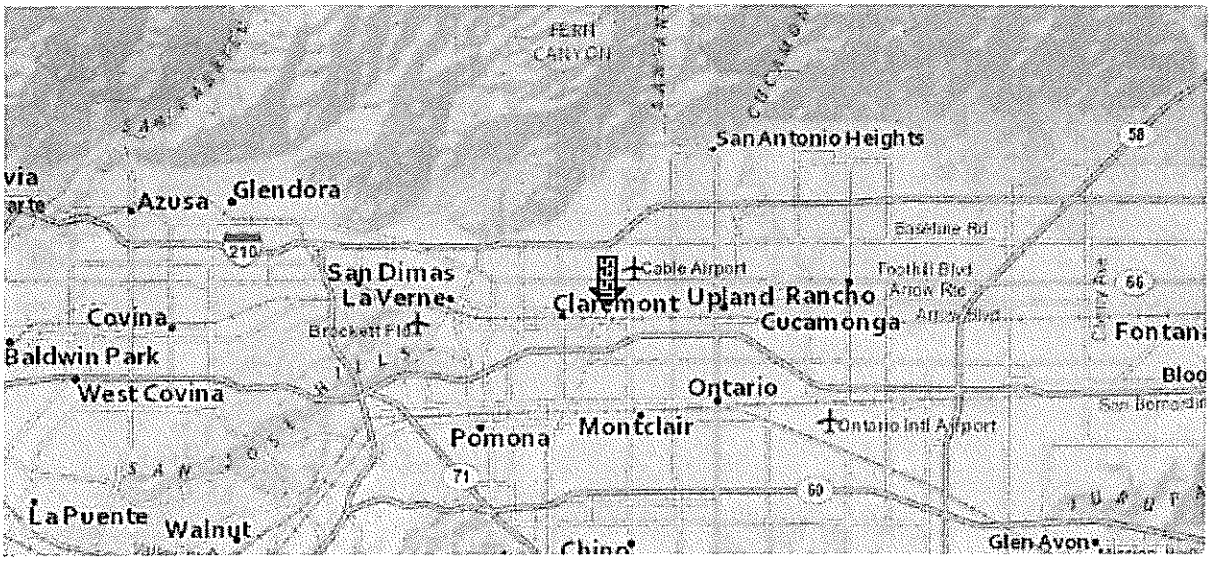
7.3 Seismic Design

The site has been identified as "D" site class in accordance with Table 20.3-1 of ASCE 7-10. Utilizing this information, the computer program USGS Seismic Design Maps Version 3.1.0 and ASCE 7-10 criterion, the spectral response accelerations that can be utilized for the project are presented on Figure 1. These parameters should be verified by the structural engineer. Additional parameters should be

USGS Design Maps Summary Report

User–Specified Input

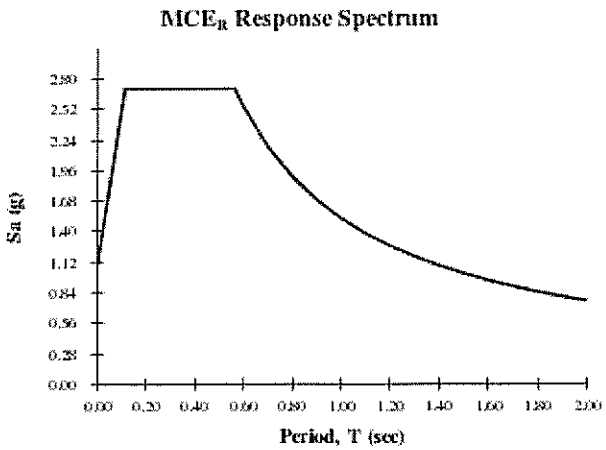
Report Title	2-0128 Tue June 19, 2018 17:07:43 UTC
Building Code Reference Document	ASCE 7-10 Standard (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.1076°N, 117.7001°W
Site Soil Classification	Site Class D – "Stiff Soil"
Risk Category	I/II/III

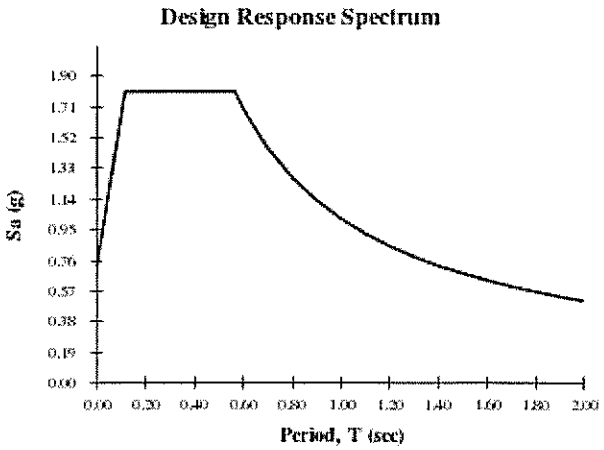


USGS–Provided Output

S_S =	2.706 g	S_{MS} =	2.706 g	S_{DS} =	1.804 g
S_1 =	1.016 g	S_{M1} =	1.525 g	S_{D1} =	1.016 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

FIGURE 1

determined by the structural engineer based on the Occupancy Category of the proposed structures.

7.4 Fence and Garden Walls

Block walls, if used, should be embedded a minimum of 2 feet below the lowest adjacent grade. Construction joints (not more than 20 feet apart) should be included in the block wall construction. Side yard walls should be structurally separated from the rear yard wall.

7.5 Footing Excavations

Soils from the footing excavations should not be placed in slab-on-grade areas unless properly compacted and tested. The excavations should be cleaned of all loose/sloughed materials and be neatly trimmed at the time of concrete placement. The Project Geotechnical Consultant should observe the footing excavations prior to the placement of concrete to determine that the excavations are founded in suitably compacted material.

7.6 Retaining Walls

Retaining walls should be founded on engineered fill and should be backfilled with granular soils that allow for drainage behind the wall. Suitable free-draining backfill material may need to be imported to the site. Foundations may be designed in accordance with the recommendations presented in Table 7-1, above. Unrestrained walls, free to horizontally move 0.0005H (for dense cohesionless backfill), may be designed to resist lateral pressures imposed by a fluid with a unit weight determined in accordance with the Table 7-4 below. The table also presents design parameters for restrained (at-rest) retaining walls. These parameters may be used to design retaining walls that may be considered as restrained due to the method of construction or location (corner sections of unrestrained retaining walls).

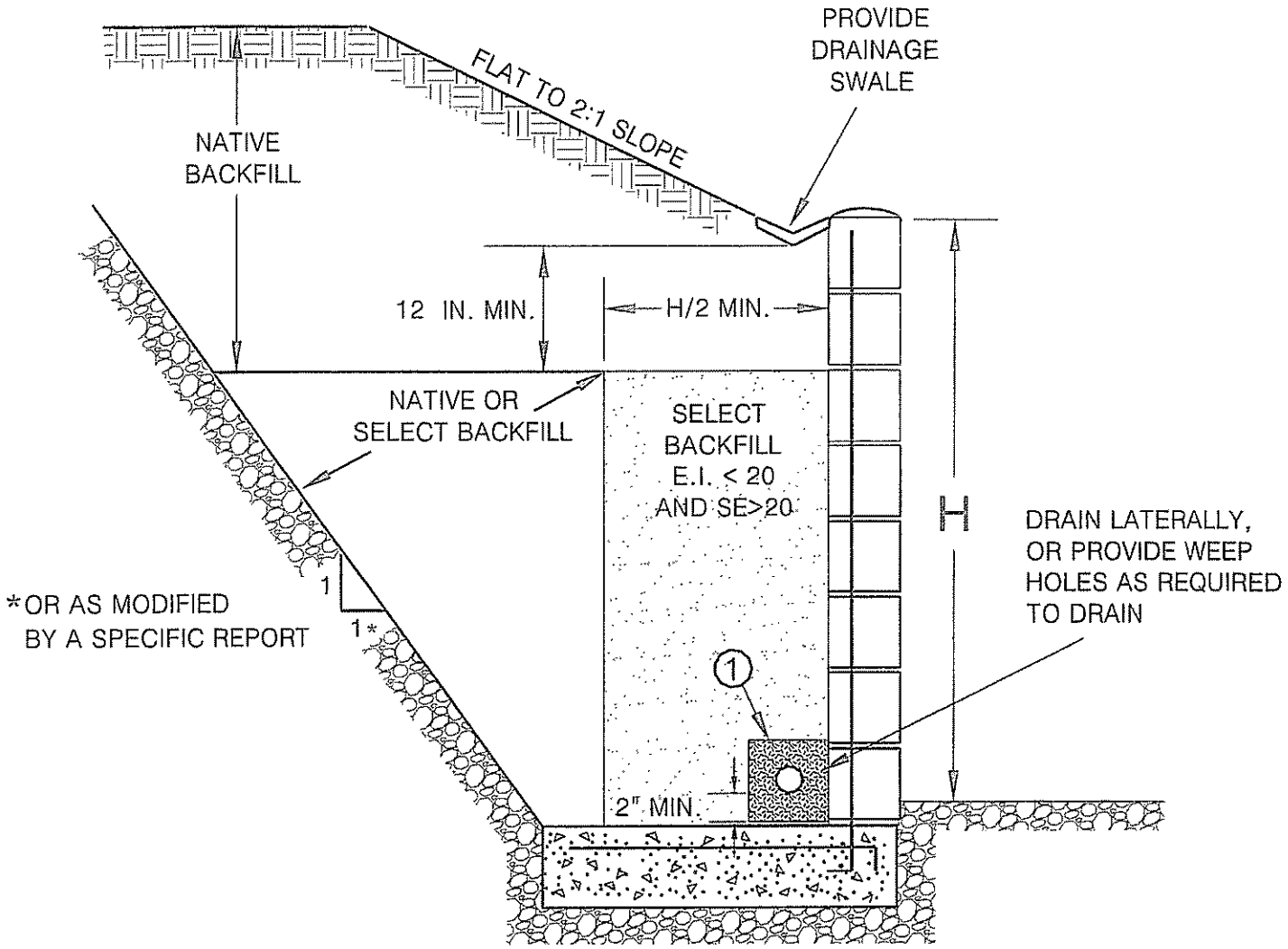
TABLE 7-4 Equivalent Fluid Pressures for 90% Compacted Fill (Select Material)		
Backfill	**Active Pressure (psf/ft)**	**At-Rest Pressure (psf/ft)**
Level	35	55

Per the requirements of the 2016 CBC, the seismic force acting on the retaining walls with backfill exceeding 6-feet in height may be resolved utilizing the formula $24H^2$ lb/lineal ft (H=height of the wall). This force acts at approximately 0.6H above the base of the wall (inverted triangle). The seismic value can be converted as required by the retaining wall engineer. Retaining walls should be designed in general accordance with Section 1807A.2 of the 2016 CBC.

- Restrained retaining walls should be designed for "at-rest" conditions.
- The design loads presented in the above table are to be applied on the retaining wall in a horizontal fashion and as such friction between wall and retained soils should not be allowed in the retaining wall analyses.
- Additional allowances should be made in the retaining wall design to account for the influence of construction loads, temporary loads, and possible nearby structural footing loads.
- Select backfill should be granular, structural quality backfill with a Sand Equivalent of 20 or better and an ASCE Expansion Index of 20 or less. The backfill must encompass the full active wedge area. The upper one foot of backfill should be comprised of native on-site soils (see Plate A).
- The wall design should include waterproofing (where appropriate) and backdrains or weep holes for relieving possible hydrostatic pressures. The backdrain should be comprised of a 4-inch perforated PVC pipe in a 1 ft. by 1 ft., ¾-inch gravel matrix, wrapped with a geofabric. The backdrain should be installed with a minimum gradient of 2 percent and should be outletted to an appropriate location. For subterranean walls this may include drainage by sump pumps.
- No backfill should be placed against concrete until minimum design strengths are achieved in compression tests of cylinders.

It should be noted that the allowable bearing and lateral bearing values presented in Table 7-1 are based on level conditions at the toe. Modified design

RETAINING WALL BACKFILL DETAIL



(1)

PIPE: 4-INCH PERFORATED PVC, SCHEDULE 40, SDR35 OR APPROVED ALTERNATE MINIMUM 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE

ROCK: MINIMUM VOLUME OF 1 CU. FT. OF 3/4-IN. MAX. ROCK PER. LINEAL FOOT OF PIPE, OR APPROVED ALTERNATE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

parameters can be presented for retaining walls with sloping condition at the toe. Other conditions should be evaluated on a case by case basis.

7.7 Exterior Slabs and Walkways

Exterior concrete slabs and walkways should be designed and constructed in consideration of the following recommendations.

7.7.1 Subgrade Compaction

The subgrade below exterior concrete slabs should be compacted to a minimum of 90 percent relative compaction as determined by ASTM Test Method: D 1557.

7.7.2 Subgrade Moisture

The subgrade below concrete slabs should be moisture conditioned to a minimum of 110 percent of optimum moisture prior to concrete placement.

7.7.3 Concrete Slab Thickness

Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

7.7.4 Concrete Slab Reinforcement

Utilization of reinforcement for flatwork and driveways is subject to a cost/benefit analysis. Reinforcement will decrease the amount of cracking that may occur in flatwork, however, planning for occasional repairs may be more cost effective. Utilizing closely spaced control joints is likely more cost-effective than utilizing reinforcement. The majority of the soils onsite are classified as very low to low in expansion potential. Consideration should be given to reinforcing flatwork with irregular (non-square/rectangular) shapes.

7.7.5 Control Joints

Weakened plane joints should be installed on walkways at intervals of approximately eight feet (maximum) or less. Exterior slabs should be designed to withstand shrinkage of the concrete.

7.8 Concrete Design

As stated in Section 5.1.7, negligible concentrations of sulfates were detected in the onsite soils. Therefore, the use of sulfate resistant concrete is not required per ACI 318-14 at this time. Post-grading conditions should be evaluated, and final recommendations made at that time.

7.9 Corrosion

The onsite soils are corrosive to buried metal objects. Consideration should be given to protecting buried metals from corrosion. Typical measures may include using non-corrosive backfill, protective coatings, wrapping, plastic pipes, or a combination of these methods. A corrosion engineer should be consulted if specific design recommendations are required by the improvement designer.

Per ACI 318-14, an exposure class of C1 would be applicable to metals encased in concrete (rebar in footings) due to being exposed to moisture from surrounding soils.

7.10 Site Drainage

Positive drainage away from the proposed structures should be provided and maintained. Roof, pad and lot drainage should be collected and directed away from the structures toward approved disposal areas through drainage terraces, gutters, down drains, and other devices. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures. Residents or Homeowner Associations should be made aware that they are responsible for maintenance and cleaning of

all drainage terraces, down drains, and other devices that have been installed to promote site and structure drainage.

7.11 Pavement Design

Pavement sections for the proposed streets shall be designed based on laboratory testing conducted on samples taken from the soil subgrade. Preliminarily, based on an assumed R-Value of 30, the pavement may be designed utilizing the sections presented in Table 7-4. These sections should be verified upon the completion of grading, based on R-Value testing.

Table 7-4
Preliminary Pavement Sections

Traffic Index	Pavement Section Options OR	
5.0	3-inch AC on 6-inch AB	4-inch AC on 4-inch AB
5.5	3-inch AC on 7-inch AB	4-inch AC on 5-inch AB
6.0	3.5-inch AC on 7.5-inch AB	4-inch AC on 6.5-inch AB
AC-Asphalt Concrete AB-Caltrans Class II Base		

The underlying subgrade soil should be suitably moisture conditioned, processed and compacted to a minimum 90 percent of the laboratory maximum density (ASTM: D 1557) to at least twelve (12) inches below subgrade. After subgrade compaction, the exposed grade should then be "proof"-rolled with heavy equipment to ensure the grade does not "pump" and is verified as non-yielding. Aggregate base should consist of Class 2 (Caltrans) aggregate base and should be compacted to at least 95 percent of the maximum laboratory dry density as determined in accordance with ASTM Test Method: D 1557.

Preparation for compaction operations and pavement construction operations should be accomplished in accordance with the current requirements of the City of Claremont/Upland and under the observation and testing of the project geotechnical consultant.

8.0 LOT MAINTENANCE

Ongoing maintenance of the improvements is essential to the long-term performance of structures. As such, the owners must implement certain maintenance procedures. The attached " Maintenance and Improvement Considerations" presented in the Appendix D may be included as part of the sales packet to educate the owners in issues related to drainage, maintenance, backyard improvements, etc. The following recommendations should also be implemented.

8.1 Lot Drainage

Roof, pad and lot drainage should be collected and directed away from structures and slopes and toward approved disposal areas. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures and slopes. Residents should be made aware that they are responsible for maintenance and cleaning of all drainage terraces, down drains, and other devices that have been installed to promote structure and slope stability.

8.2 Burrowing Animals

Residents or owners should undertake a program for the elimination of burrowing animals.

9.0 FUTURE PLAN REVIEWS

This report represents a geotechnical review of the site. As the project design for the project progresses, site specific geologic and geotechnical issues should be considered in the design and construction of the project. Consequently, future plan reviews may be necessary. These reviews may include reviews of:

- Grading Plans
- Foundation Plans
- Utility Plans

These plans should be forwarded to the project Geotechnical Consultant for review.

10.0 CLOSURE

10.1 Geotechnical Review

For the purposes of this report, multiple working hypotheses were established for the project, utilizing the available data and the most probable model is used for the analysis. Future information collected during the proposed grading operations is intended to evaluate the hypothesis and as such, some of the assumptions summarized in this report may need to be changed. Some modifications of the grading recommendations may become necessary, should the conditions encountered in the field differ from the conditions hypothesized in this report.

Plans and sections of the project specifications should be reviewed by Alta to evaluate conformance with the intent of the recommendations contained in this report. If the project description or final design varies from that described in herein, Alta must be consulted regarding the applicability of the recommendations contained herein and whether any changes are required. Alta accepts no liability for any use of its recommendations if the project description or final design varies and Alta is not consulted regarding the alterations.

10.2 Limitations

This report is based on the following: 1) the information obtained from Alta's laboratory testing included herein; and 2) from the information presented in the referenced reports. The findings and recommendations are based on the results of the subsurface investigation, laboratory testing, and office analysis combined with an interpolation and extrapolation of conditions between and beyond the subsurface excavation locations. However, the materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not

observed. The results reflect an interpretation of the direct evidence obtained. Work performed by Alta has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by a geotechnical consultant who is familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report.

The conclusions and recommendations included in this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of Alta.

Alta has no responsibility for construction means, methods, techniques, sequences, procedures, safety precautions, programs in connection with the construction, acts or omissions of the CONTRACTOR or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications.

APPENDIX A

REFERENCES

APPENDIX A

Selected References

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APPENDIX B

Subsurface Investigation

APPENDIX B

Subsurface Investigation

Alta's subsurface investigation consisted of excavating, logging, and sampling ten (10) excavator test pits. Details of the subsurface investigation are presented in Table B-1. The approximate locations of the exploratory excavations are shown on the accompanying site plan (Plate 1) and the Geotechnical Logs are attached.

TABLE B-1
SURFACE INVESTIGATION DETAILS

Equipment	Range of Depths	Sampling Methods	Sample Locations
Excavator	Up to 20 feet	1. Bulk	1. Bulk-Select Depth

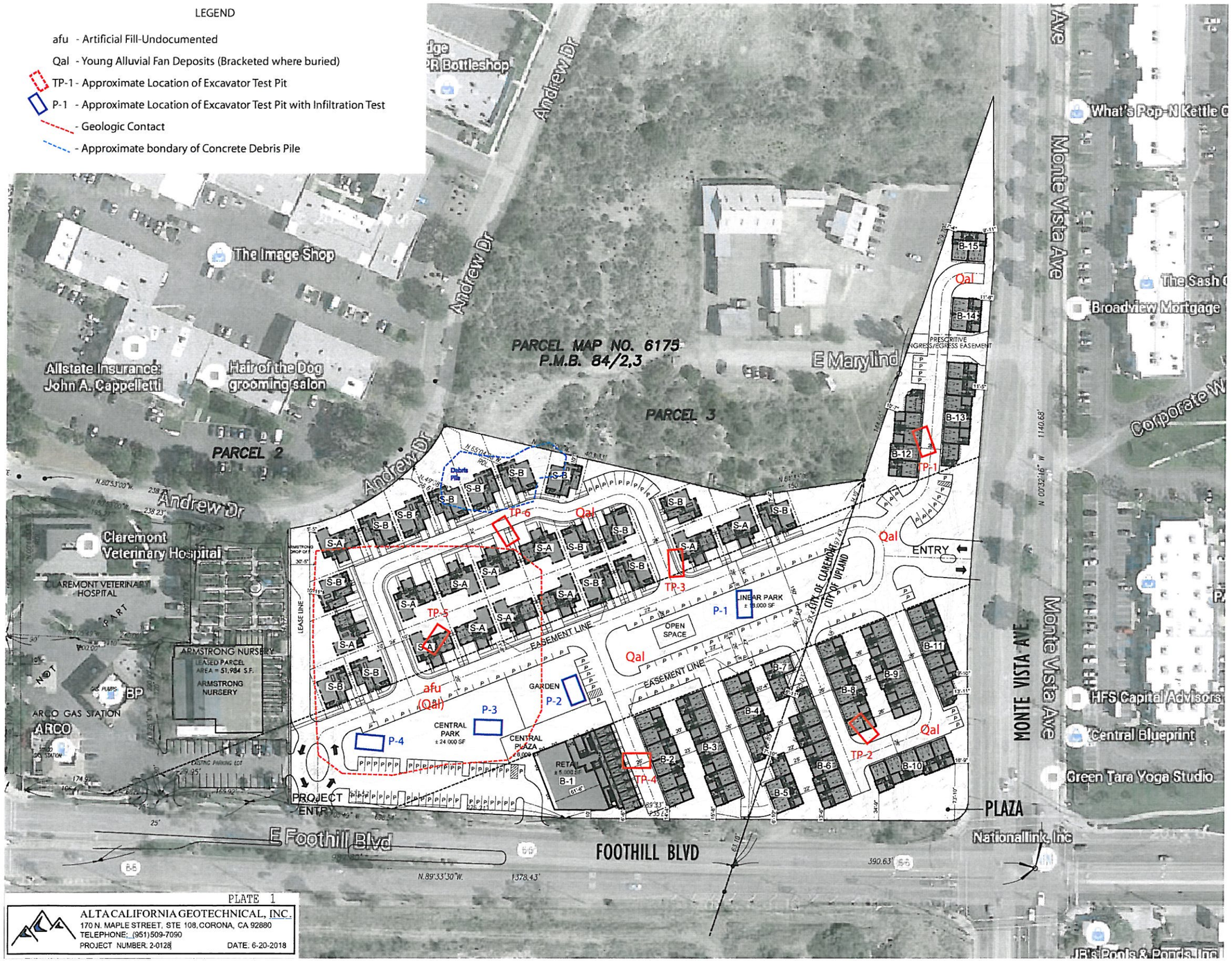


PLATE 1

ALTA CALIFORNIA GEOTECHNICAL, INC.
170 N. MAPLE STREET, STE 108, CORONA, CA 92880
TELEPHONE: (951) 509-7090
PROJECT NUMBER: 2-0128 DATE: 6-20-2018

SITE SUMMARY

Developable Acres: ±6.4 ac.

Unit Mix:

Single Family Detached

S-A Plan (2,500 sf):	±12 units (44%)
S-B Plan (2,200 sf):	±15 units (56%)
	±27 units

Townhomes

±21'x38' Towns:	±61 units
Carriage Towns:	±7 units
	±68 units

Mixed Use

Flats:	±10 units
TOTAL UNITS:	±105 units

Density: ±16.4 du/ac

Parking:

Garages:	±200 spaces	(2/unit)
Driveways:	±27 spaces	(10'x18')
On street:	±84 spaces	(8'x22' Parallel)
		(9'x18' Perpendicular)
Total:	±311 spaces	(3.0 sp/unit)

Retail Parking: ±43 spaces

Setbacks:

Front	
Residential:	7'
Retails:	5'
Sides	5'
Rear	5'

Building Separation:

SFD	10'
Townhomes	
Front to Front	20'
Side to Side	6' Min.
Rear	28'

Street Width:

Main:	26'
Main w/ Parallel parking one side (8x22):	34'
Main w/ Parallel parking both sides:	42'
Private Drive:	26' (SFD: 24')

ktgy

WALBERN DEVELOPMENTS

Walbern Development
29222 Rancho Viejo Road
Suite 207
San Juan Capistrano, CA 92675
949.276.7570
walberndevelopment.com

Foothill East
Claremont, CA
#2018-0231

SITE PLAN

0 30 60 120

A1.0

Project No.	2-0128
Date Excavated	May 31, 2018
Excavated by	James Coyne
Equipment	Caterpillar 375L Excavator

TABLE I

LOG OF TEST PITS

Test Pit No.	Depth (ft.)	USCS	Description
TP-1	0.0-20.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to fine grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 3', roots and debris, caving. @4ft. tan brown, loose to moderately dense, fine gravel <1", slight caving @5ft. coarse gravel <3" @10ft. medium to coarse grained @15ft. fine to coarse gravel <3" TOTAL DEPTH 20.0 FT NO GROUNDWATER OBSERVED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-2	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @2.5ft, trace boulders <2', roots @4.5ft, fine to medium grained tan brown, loose to moderately dense, fine gravel @9.0ft. fine to coarse gravel, trace boulder <1.5' TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 4.5 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -3	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 1.5', roots and debris, caving. @5ft. tan brown, loose to moderately dense, some sand @8ft. coarse gravel, some cobble TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT

Test Pit No.	Depth (ft.)	USCS	Description
TP -4	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', trace boulders up to 2.5', roots and debris, caving. @7.5 roots, slight caving @9ft. tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED above 9.0 ft.

Test Pit No.	Depth (ft.)	USCS	Description
TP -5	0.0-1.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	1.5-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @3ft. slight caving @9ft. tan brown, moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
TP-6	0.0-15.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. @5.0ft. fine to coarse grained, tan brown, loose to moderately dense TOTAL DEPTH 15.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 5.0 FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-1	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal)**: SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-2	0.0-5.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, caving. TOTAL DEPTH 5.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED THROUGHOUT

Test Pit No.	Depth (ft.)	USCS	Description
P-3	0.0-2.5	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.5-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @8ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED CAVING OBSERVED ABOVE 8FT.

Test Pit No.	Depth (ft.)	USCS	Description
P-4	0.0-2.0	SP	**ARTIFICIAL FILL-UNDOCUMENTED**: GRAVELLY SAND, fine to medium grained, grey brown, dry, loose to moderately dense, fine to coarse gravel <3", trace cobble <5"
	2.0-10.0	GP	**YOUNG ALLUVIAL FAN DEPOSITS (Qal):** SANDY GRAVEL and COBBLE, very fine to medium grained sand, grey brown, dry, very loose to loose, fine to coarse gravel <3", cobble <1', some boulders up to 2.5', roots and debris, some caving. @7ft. fine to medium grained, tan brown, loose to moderately dense TOTAL DEPTH 10.0 FT NO GROUNDWATER ENCOUNTERED NO CAVING OBSERVED

APPENDIX C

Laboratory Testing

LABORATORY TESTING

The following laboratory tests were performed on a representative sample in accordance with the applicable latest standards or methods from the ASTM, California Building Code (CBC) and California Department of Transportation.

Classification

Soils were classified with respect to the Unified Soil Classification System (USCS) in accordance with ASTM D-2487 and D-2488.

Particle Size Analysis

Modified hydrometer testing was conducted to aid in classification of the soil. The results of the particle size analysis are presented in Table C.

Expansion Index Tests

Two (2) expansion index tests were performed to evaluate the expansion potential of typical on-site soil. Testing was carried out in general conformance with ASTM Test Method D-4829. The results are presented in Table C.

Chemical Analyses

Chemical testing of a selected sample was performed by Alta. The results of these tests are presented on Table C.

TABLE C
SUMMARY OF LABORATORY TEST DATA
P.N. 2-0218

Boring/Pit No.	Depth (ft)	Soil Type	Soil Description	Group Symbol - Unified Soil Classification System	Maximum Dry Density		Direct Shear	Grain Size Analysis				Expansion Index	Sulfate Content (%)	Other Tests Remarks
					Maximum Density (pcf)	Optimum Moisture (%)		Gravel (% + No. 4 Screen)	% Sand	%Silt (0.074 to 0.005mm)	% Clay (-0.005 mm)			
TP-1	4	A	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	48	41	8	3	0	Not Detected	Chloride: 5ppm pH:6.3
TP-2	5	B	Sandy Gravel/Gravelly Sand	GP/SP	-	-	-	37	54	6	3	0	Not Detected	Chloride: 5ppm pH:6.4

APPENDIX D

Maintenance Considerations

MAINTENANCE AND IMPROVEMENT CONSIDERATIONS

General

Owners purchasing property must assume a certain degree of responsibility for improvements and for maintaining conditions around their home. Of primary importance from a geotechnical standpoint are maintaining drainage patterns and minimizing the soil moisture variation below all improvements. Such design, construction and owner maintenance provisions may include:

- Employing contractors for improvements who design and build in recognition of local building codes and specific site soils conditions.
- Establishing and maintaining positive drainage away from all foundations, walkways, driveways, patios, and other improvements.
- Avoiding the construction of planters adjacent to structural improvements. Alternatively, planter sides/bottoms can be sealed with an impermeable membrane and drained away from the improvements via subdrains into approved disposal areas.
- Sealing and maintaining construction/control joints within concrete slabs and walkways to reduce the potential for moisture infiltration into the subgrade soils.
- Utilizing landscaping schemes with vegetation that requires minimal watering. Watering should be done in a uniform manner, as equally as possible on all sides of the foundation, keeping the soil "moist" but not allowing the soil to become saturated.
- Maintaining positive drainage away from structures and providing roof gutters on all structures with downspouts that are designed to carry roof runoff directly into area drains or discharged well away from the foundation areas.
- Avoiding the placement of trees closer to the proposed structures than a distance of one-half the mature height of the tree.
- Observation of the soil conditions around the perimeter of the structure during extremely hot/dry or unusually wet weather conditions so that modifications can be made in irrigation programs to maintain relatively uniform moisture conditions.

Sulfates

Owners should be cautioned against the import and use of certain inorganic fertilizers, soil amendments, and/or other soils from offsite sources in the absence of specific information relating to their chemical composition. Some fertilizers have been known to leach sulfate compounds into soils and increase the sulfate concentrations to potentially detrimental levels.

Site Drainage

- The owners should be made aware of the potential problems that may develop when drainage is altered through construction of hardscape improvements. Ponded water, drainage over the slope face, leaking irrigation systems, overwatering, or other conditions which could lead to ground saturation must be avoided.
- No water should be allowed to flow over the slopes. No alteration of pad gradients should be allowed that would prevent pad and roof runoff from being directed to approved disposal areas.
- Drainage patterns have been established at the time of the fine grading should be maintained throughout the life of the structure. No alterations to these drainage patterns should be made unless designed by qualified professionals in compliance with local code requirements and site-specific soils conditions.

Slope Drainage

- Residents should be made aware of the importance of maintaining and cleaning all interceptor ditches, drainage terraces, down drains, and any other drainage devices, which have been installed to promote slope stability.
- Subsurface drainage pipe outlets may protrude through slope surfaces and/or wall faces. These pipes, in conjunction with the graded features, are essential to slope and wall stability and must be protected in-place. They should not be altered or damaged in any way.

Planting and Irrigation of Slopes

- Seeding and planting of the slopes should be planned to achieve, as rapidly as possible, a well-established and deep-rooted vegetal cover requiring minimal watering.
- It is the responsibility of the landscape architect to provide such plants initially and of the residents to maintain such planting. Alteration of such a planting scheme is at the resident's risk.
- The resident is responsible for proper irrigation and for maintenance and repair of properly installed irrigation systems. Leaks should be fixed immediately.
- Sprinklers should be adjusted to provide maximum uniform coverage with a minimum of water usage and overlap. Overwatering with consequent wasteful runoff and serious ground saturation must be avoided.
- If automatic sprinkler systems are installed, their use must be adjusted to account for seasonal and natural rainfall conditions.

Burrowing Animals

- Residents must undertake a program to eliminate burrowing animals. This must be an ongoing program in order to promote slope stability.

Owner Improvement

Owner improvements (pools, spas, patio slabs, retaining walls, planters, etc.) should be designed to account for the terrain of the project, as well as expansive soil conditions and chemical characteristics. Design considerations on any given lot may need to include provisions for differential bearing materials, ascending/descending slope conditions, bedrock structure, perched (irrigation) water, special geologic surcharge loading conditions, expansive soil stresses, and long-term creep/settlement.

All owner improvements should be designed and constructed by qualified professionals utilizing appropriate design methodologies, which account for the on-site soils and geologic conditions. Each lot and proposed improvement should be evaluated on an individual basis.

Setback Zones

Manufactured slopes maybe subject to long-term settlement and creep that can manifest itself in the form of both horizontal and vertical movement. These movements typically are produced as a result of weathering, erosion, gravity forces, and other natural phenomenon. A setback adjacent to slopes is required by most building codes, including the California Building Code. This zone is intended to locate and support the residential structures away from these slopes and onto soils that are not subject to the potential adverse effects of these natural phenomena.

The owner may wish to construct patios, walls, walkways, planters, swimming pools, spas, etc. within this zone. Such facilities may be sensitive to settlement and creep and should not be constructed within the setback zone unless properly engineered. It is suggested that plans for such improvements be designed by a professional engineer who is familiar with grading ordinances and design and construction requirements. In addition, we recommend that the

designer and contractor familiarize themselves with the site specific geologic and geotechnical conditions on the specific lot.

APPENDIX E

Earthwork Specifications

ALTA CALIFORNIA GEOTECHNICAL, INC.
EARTHWORK SPECIFICATIONS

These specifications present the generally accepted standards and minimum earthwork requirements for the development of the project. These specifications shall be the project guidelines for earthwork except where specifically superseded in preliminary geology and soils reports, grading plan review reports or by the prevailing grading codes or ordinances of the controlling agency.

A. GENERAL

1. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

2. The project Geotechnical Engineer and Engineering Geologist, or their representatives, shall provide observation and testing services, and Geotechnical consultation for the duration of the project.

3. All clearing, grubbing, stripping and site preparation for the project shall be accomplished by the Contractor to the satisfaction of the Geotechnical Engineer/Engineering Geologist.

4. It is the Contractor's responsibility to prepare the ground surface to receive fill to the satisfaction of the Geotechnical Engineer and to place, spread, mix, moisture condition, and compact the fill in accordance with the job specifications and as required by the Geotechnical Engineer. The Contractor shall also remove all material considered by the Geotechnical Engineer to be unsuitable for use in the construction of engineered fills.

5. The Contractor shall have suitable and sufficient equipment in operation to handle the amount of fill being placed. When necessary, equipment will be shut down temporarily in order to permit the proper preparation of fills.

B. PREPARATION OF FILL AREAS

1. Excessive vegetation and all deleterious material should be disposed of offsite as required by the Geotechnical Engineer.

   Existing fill, soil, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills shall be removed and hauled from the site. Where applicable, the Contractor may obtain the

approval of the Soils Engineer and the controlling authorities for the project to dispose of the above described materials, or a portion thereof, in designated areas onsite.

After removal of the deleterious materials have been accomplished, earth materials deemed unsuitable in their natural, in-place condition, shall be removed as recommended by the Geotechnical Engineer/Engineering Geologist.

2. Upon achieving a suitable bottom for fill placement, the exposed removal bottom shall be disced or bladed by the Contractor to the satisfaction of the Geotechnical Engineer. The prepared ground surfaces shall then be brought to the specified moisture content mixed as required, and compacted and tested as specified. In localities where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to contact the proper authorities to visit the site.

3. Any underground structure such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other structures not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer and/or the controlling agency for the project.

C. ENGINEERED FILLS

1. Any material imported or excavated on the property may be utilized as fill, provided the material has been determined to be suitable by the Geotechnical Engineer. Deleterious materials shall be removed from the fill as directed by the Geotechnical Engineer.

2. Rock or rock fragments less than twelve inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets and the distribution of the rocks is approved by the Geotechnical Engineer.

3. Rocks greater than twelve inches in the largest dimension shall be taken offsite, or placed in accordance with the recommendations of the Geotechnical Engineer in areas designated as suitable for rock disposal.

4. All materials to be used as fill, shall be tested in the laboratory by the Geotechnical Engineer. Proposed import materials shall be approved by the Geotechnical Engineer 48 hours prior to importation.

5. The fill materials shall be placed by the Contractor in lifts, that when compacted, shall not exceed six inches. Each lift shall be spread evenly and shall be

thoroughly mixed to achieve a near uniform moisture condition and a uniform blend of materials.

All compaction shall be achieved at or above the optimum moisture content, as determined by the applicable laboratory standard. The Contractor will be notified if the fill materials are too wet or too dry to achieve the required compaction standard.

6. When the moisture content of the fill material is below the limit specified by the Geotechnical Engineer, water shall be added and the materials shall be blended until a uniform moisture content, within specified limits, is achieved. When the moisture content of the fill material is above the limits specified by the Geotechnical Engineer, the fill materials shall be aerated by discing, blading, mixed with dryer fill materials, or other satisfactory methods until the moisture content is within the specified limits.

7. Each fill lift shall be compacted to the minimum project standards, in compliance with the testing methods specified by the controlling governmental agency, and in accordance with recommendations of the Geotechnical Engineer.

   In the absence of specific recommendations by the Geotechnical Engineer to the contrary, the compaction standard shall be the most recent version of ASTM:D 1557.

8. Where a slope receiving fill exceeds a ratio of five-horizontal to one-vertical, the fill shall be keyed and benched through all unsuitable materials into sound bedrock or firm material, in accordance with the recommendations and approval of the Geotechnical Engineer.

9. Side hill fills shall have a minimum key width of 15 feet into bedrock or firm materials, unless otherwise specified in the soil report and approved by the Geotechnical Engineer in the field.

10. Drainage terraces and subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency and/or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

11. The Contractor shall be required to maintain the specified minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as directed by the Geotechnical Engineer and/or the governing agency for the project. This may be achieved by either overbuilding the slope and cutting

back to the compacted core; by direct compaction of the slope face with suitable equipment; or by any other procedure which produces the required result.

12. The fill portion of fill-over-cut slopes shall be properly keyed into rock or firm material; and the fill area shall be stripped of all soil or unsuitable materials prior to placing fill.

    The design cut portion of the slope should be made first and evaluated for suitability by the Engineering Geologist prior to placement of fill in the keyway above the cut slope.

13. Pad areas in cut or natural ground shall be approved by the Geotechnical Engineer. Finished surfaces of these pads may require scarification and recompaction, or over excavation as determined by the Geotechnical Engineer.

D. CUT SLOPES

1. The Engineering Geologist shall observe all cut slopes and shall be notified by the Contractor when cut slopes are to be started.

2. If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Soil Engineer shall investigate, analyze and make recommendations to remediate these problems.

3. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the superjacent, prevailing drainage.

4. Unless otherwise specified in specific geotechnical reports, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

5. Drainage terraces shall be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the Geotechnical Engineer or Engineering Geologist.

E. GRADING CONTROL

1. Fill placement shall be observed and tested by the Geotechnical Engineer and/or his representative during grading.

   Field density tests shall be made by the Geotechnical Engineer and/or his representative to evaluate the compaction and moisture compliance of each fill lift. Density tests shall be conducted at intervals not to exceed two feet of fill

height. Where sheepsfoot rollers are used, the fill may be disturbed to a depth of several inches. Density determinations shall be taken in the compacted material below the disturbed surface at a depth determined by the Geotechnical Engineer or his representative.

2. Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture content is in evidence, that particular layer or portion thereof shall be reworked until the required density and/or moisture content has been attained. Additional fills shall not be placed over an area until the previous lift of fill has been tested and found to meet the density and moisture requirements for the project and the previous lift is approved by the Geotechnical Engineer.

3. When grading activities are interrupted by heavy rains, fill operations shall not be resumed until field observations and tests by the Geotechnical Engineer indicate the moisture content and density of the fill are within the specified limits.

4. During construction, the Contractor shall properly grade all surfaces to maintain good drainage and prevent the ponding of water. The Contractor shall take remedial action to control surface water and to prevent erosion of graded areas until such time as a permanent drainage and erosion devices have been installed.

5. Observation and testing by the Geotechnical Engineer and/or his representative shall be conducted during filling and compacting operations in order that he will be able to state in his opinion that all cut and filled areas are graded in accordance with the approved specifications.

6. Upon the completion of grading activities and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work, final reports shall be submitted. No further excavation or fill placement shall be undertaken without prior notification of the Geotechnical Engineer and/or Engineering Geologist.

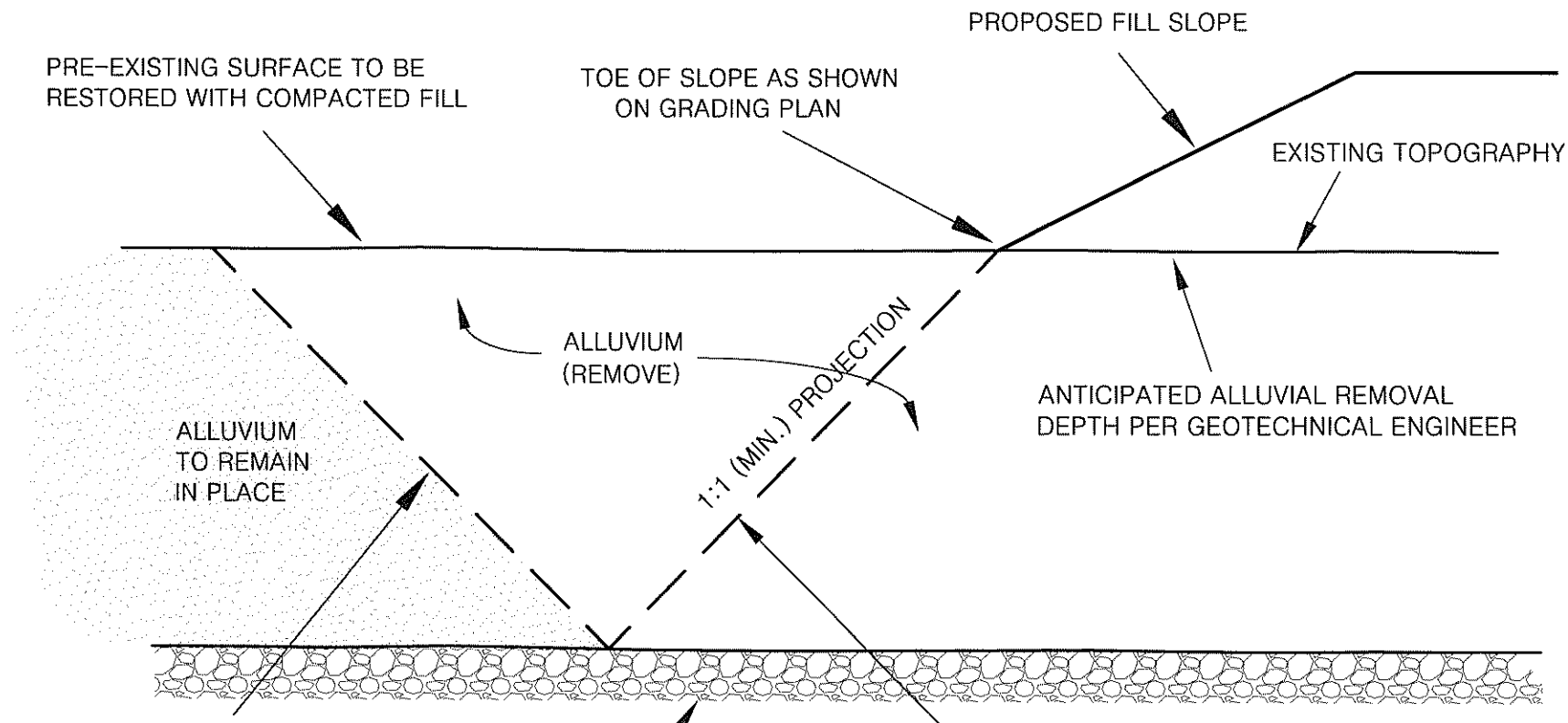
F. FINISHED SLOPES

All finished cut and fill slopes shall be planted and irrigated and/or protected from erosion in accordance with the project specifications, governing agencies, and/or as recommended by a landscape architect.

APPENDIX F

Grading Details

DETAIL FOR FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON



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VER. 3/12

PLATE G-1

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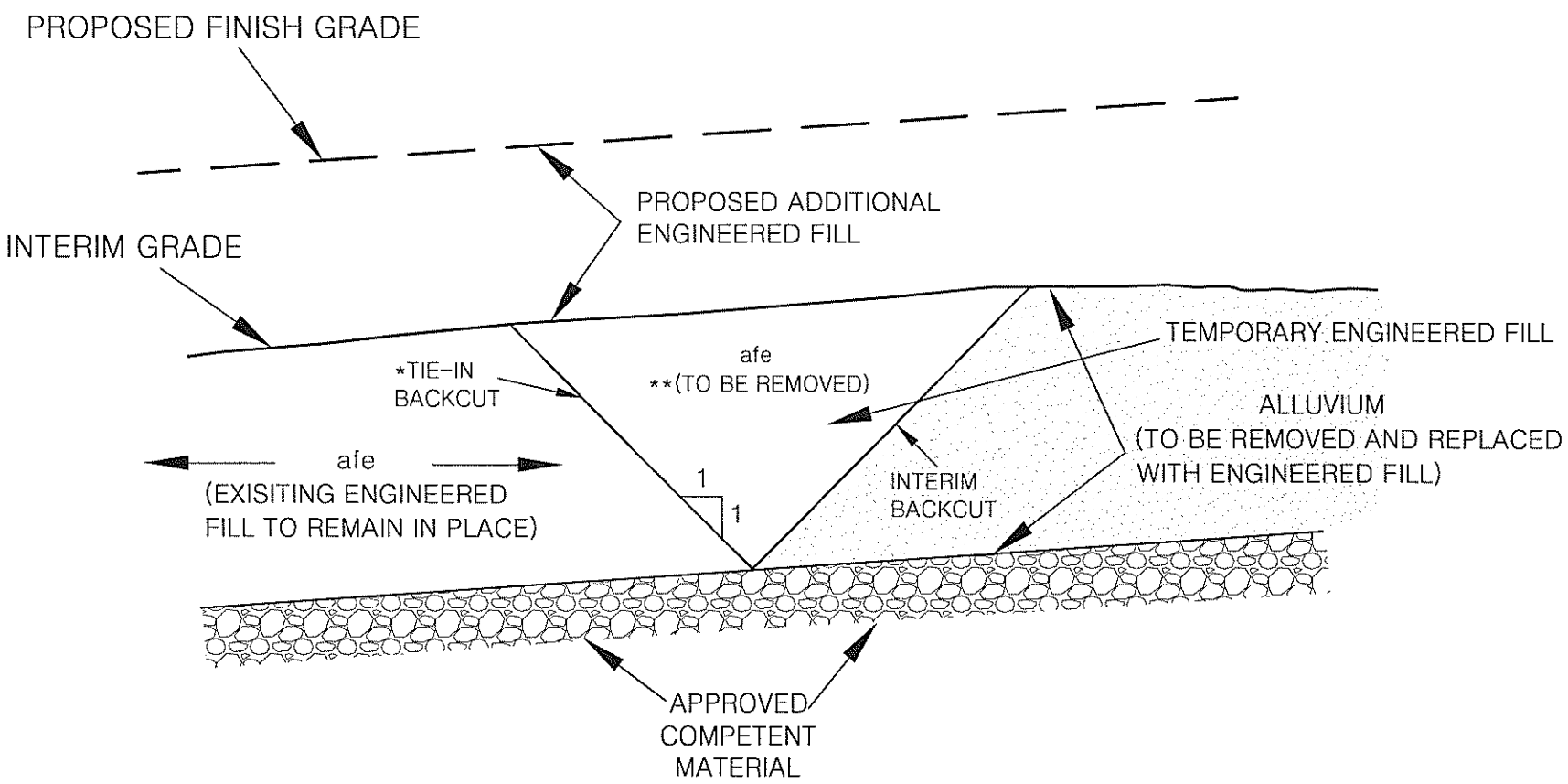
REMOVAL ADJACENT TO EXISTING FILL



*INITIATE 1:1 TIE-IN BACKCUT TO INTERCEPT TOE OF INTERIM BACKCUT

**AS PART OF TIE-IN FOR ADDITIONAL ENGINEERED FILL

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PLATE G-2

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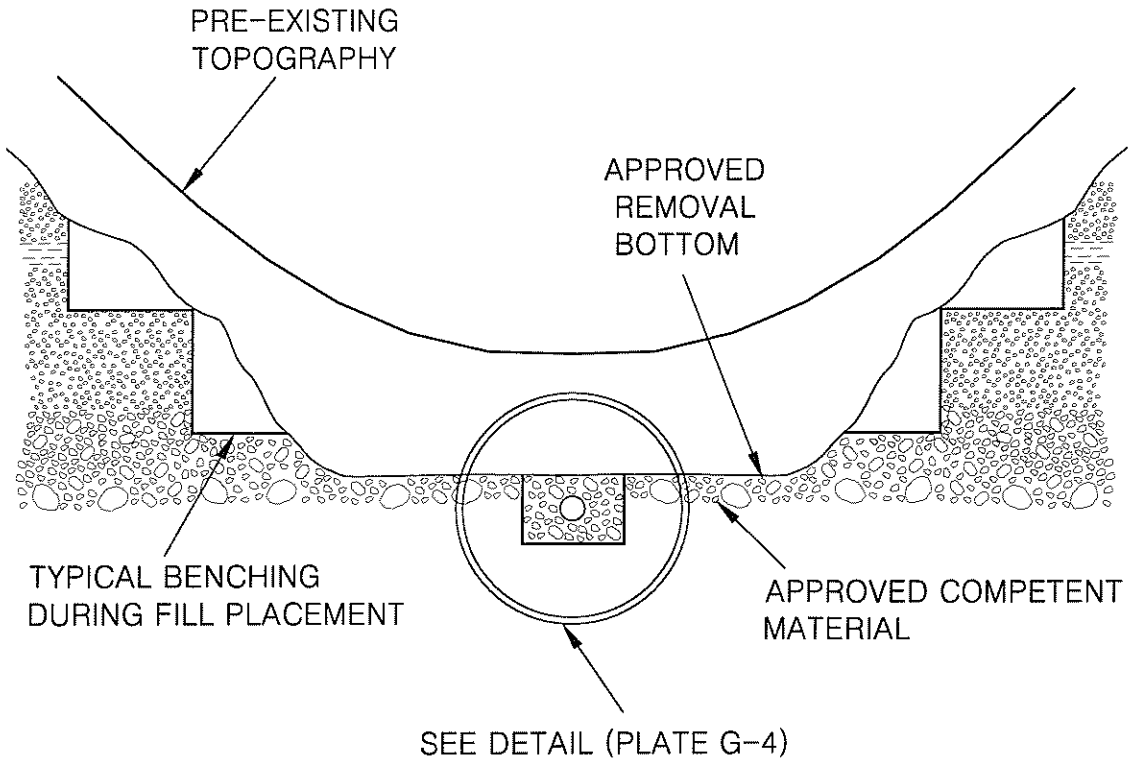
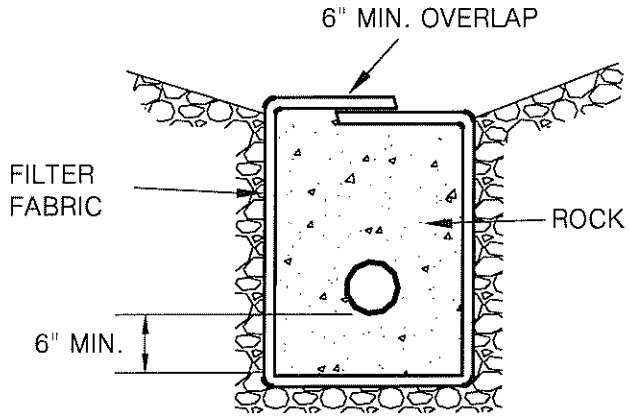
CANYON SUBDRAIN



CANYON SUBDRAIN DETAIL



PERFORATED PIPE SURROUNDED WITH ROCK AND FILTER FABRIC

ROCK: MIN. VOLUME OF 9 CU.FT. PER LINEAR FT. OF 3/4 IN. MAX. ROCK

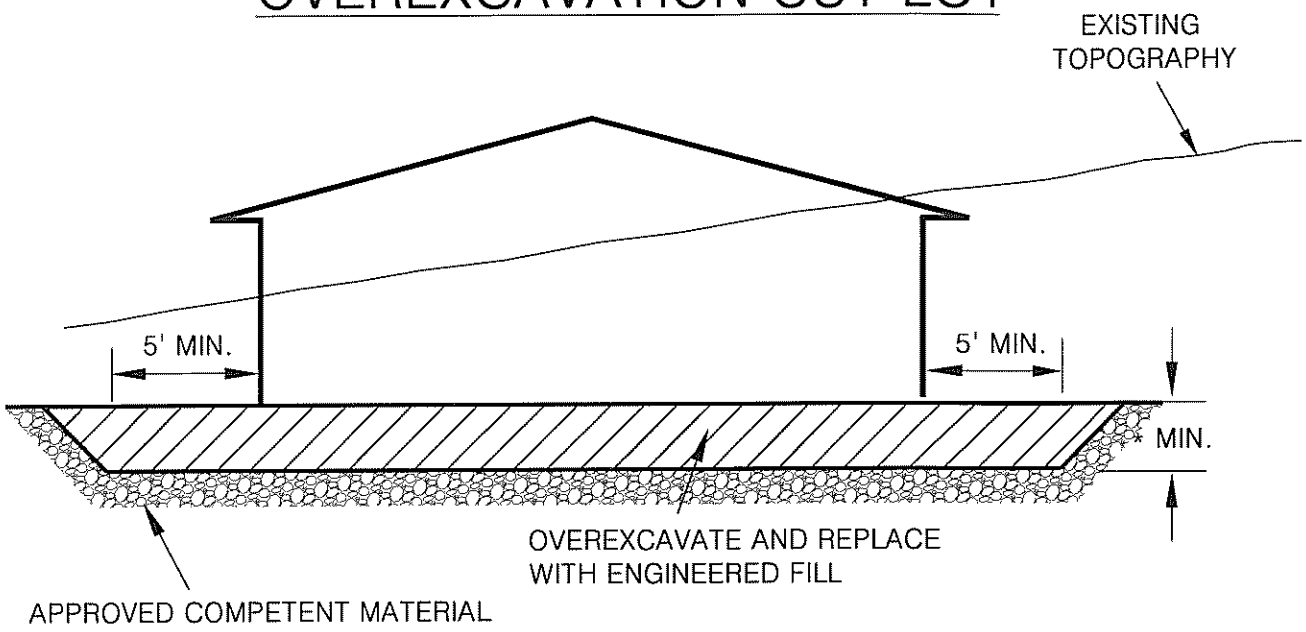
PIPE: 6 IN. ABS OR PVC PIPE WITH A MINIMUM OF 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

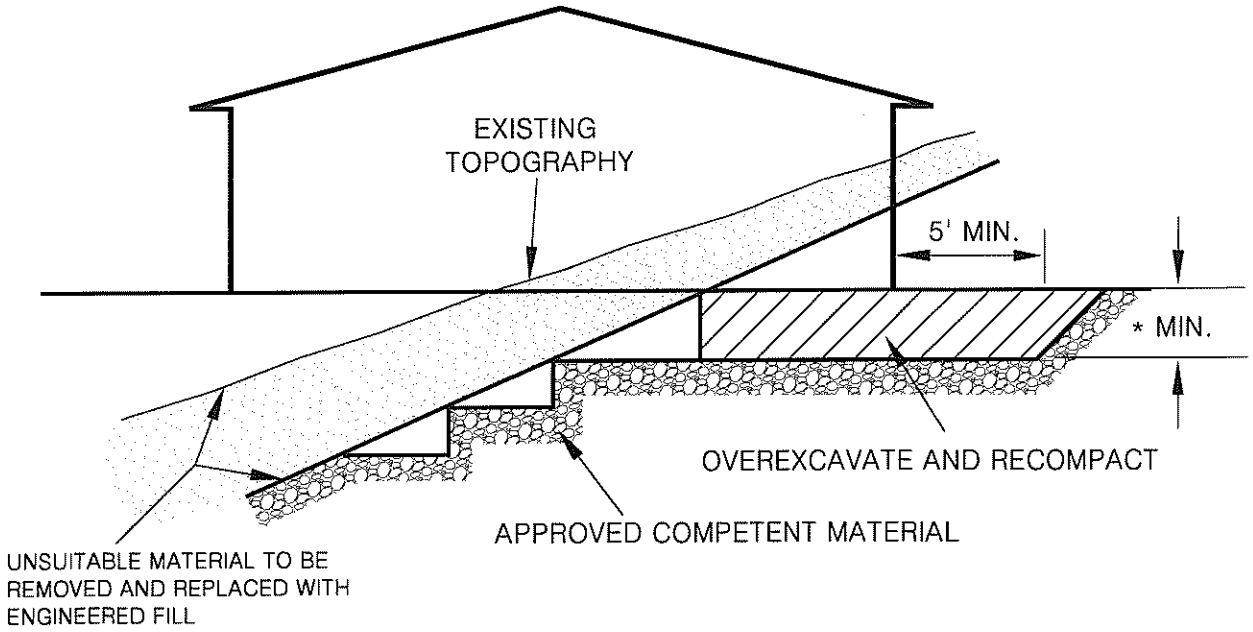
NOTES:

1. FOR CONTINUOUS RUN IN EXCESS OF 500. FT USE 8 IN. DIA. PIPE
2. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

OVEREXCAVATION CUT LOT



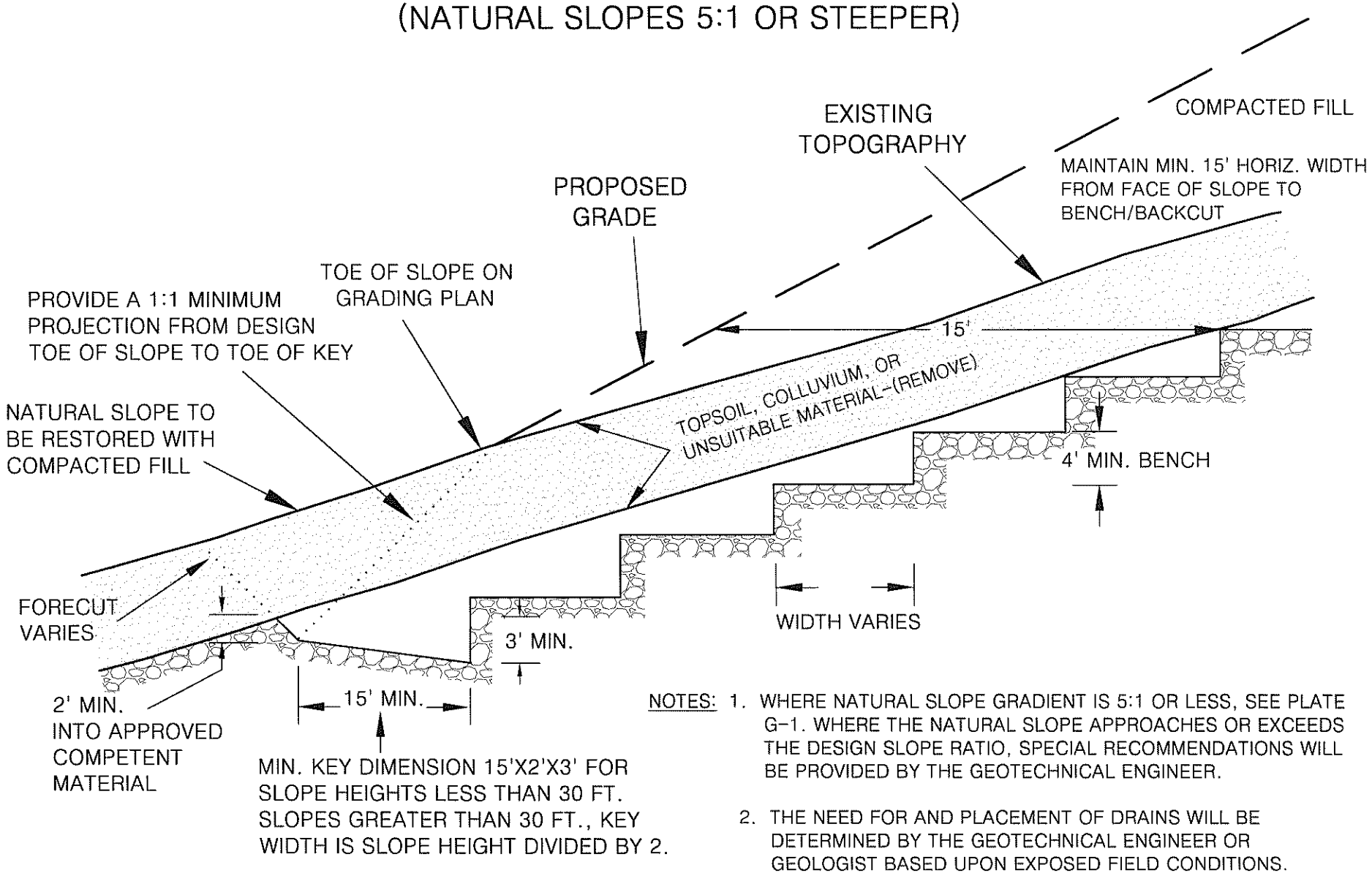
CUT-FILL LOT (TRANSITION)



*NOTE ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF ⅓ OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET (SEE PLATE G-16)

SIDE HILL SLOPE FILL DETAIL

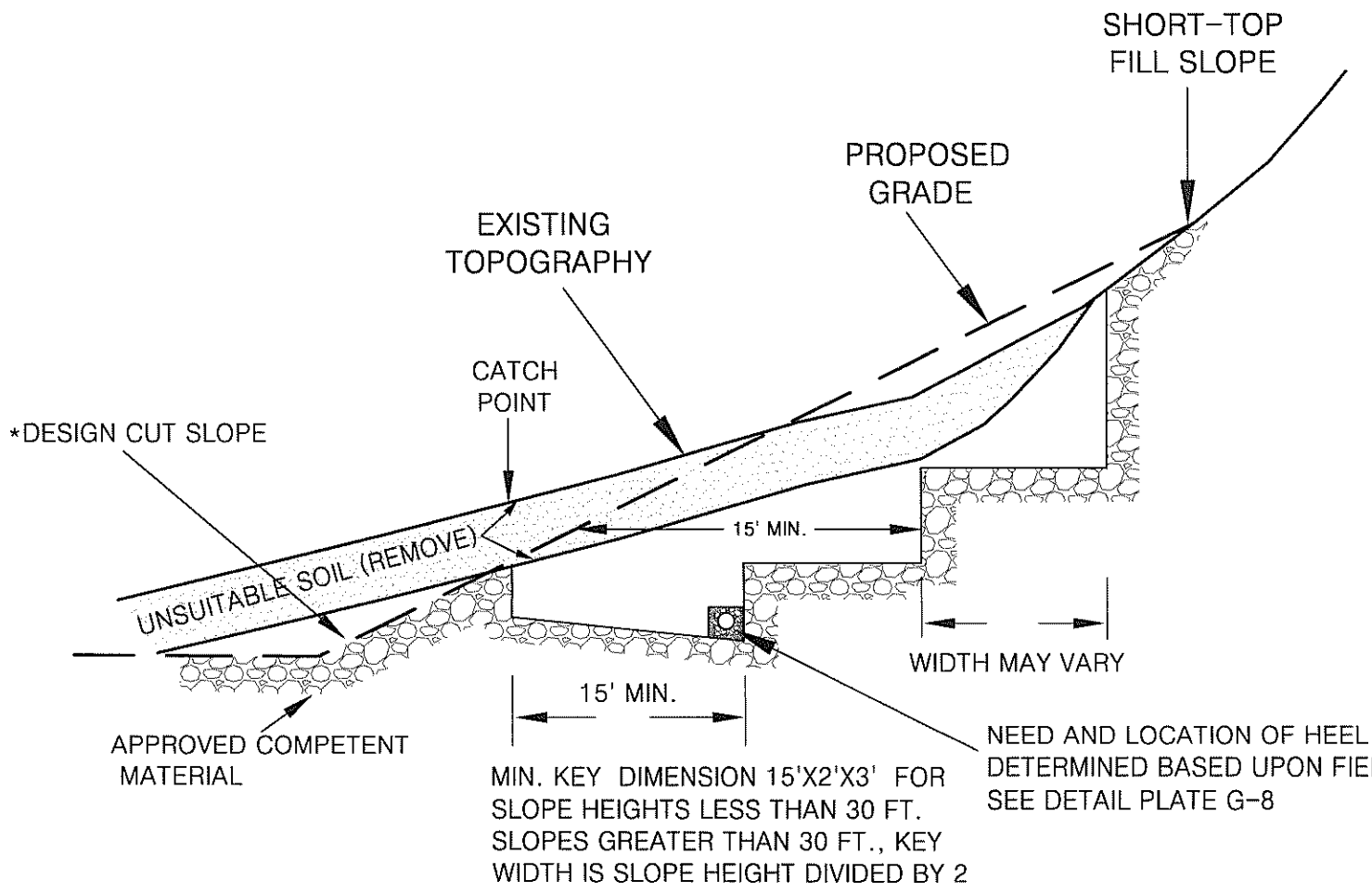
(NATURAL SLOPES 5:1 OR STEEPER)



NOTES:

1. WHERE NATURAL SLOPE GRADIENT IS 5:1 OR LESS, SEE PLATE G-1. WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
2. THE NEED FOR AND PLACEMENT OF DRAINS WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST BASED UPON EXPOSED FIELD CONDITIONS.

FILL OVER CUT SLOPE DETAIL



*THE CUT PORTION OF THE SLOPE SHOULD BE EXCAVATED AND EVALUATED BY THE ENGINEERING GEOLOGIST/GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTING THE FILL SLOPE

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PLATE G-7

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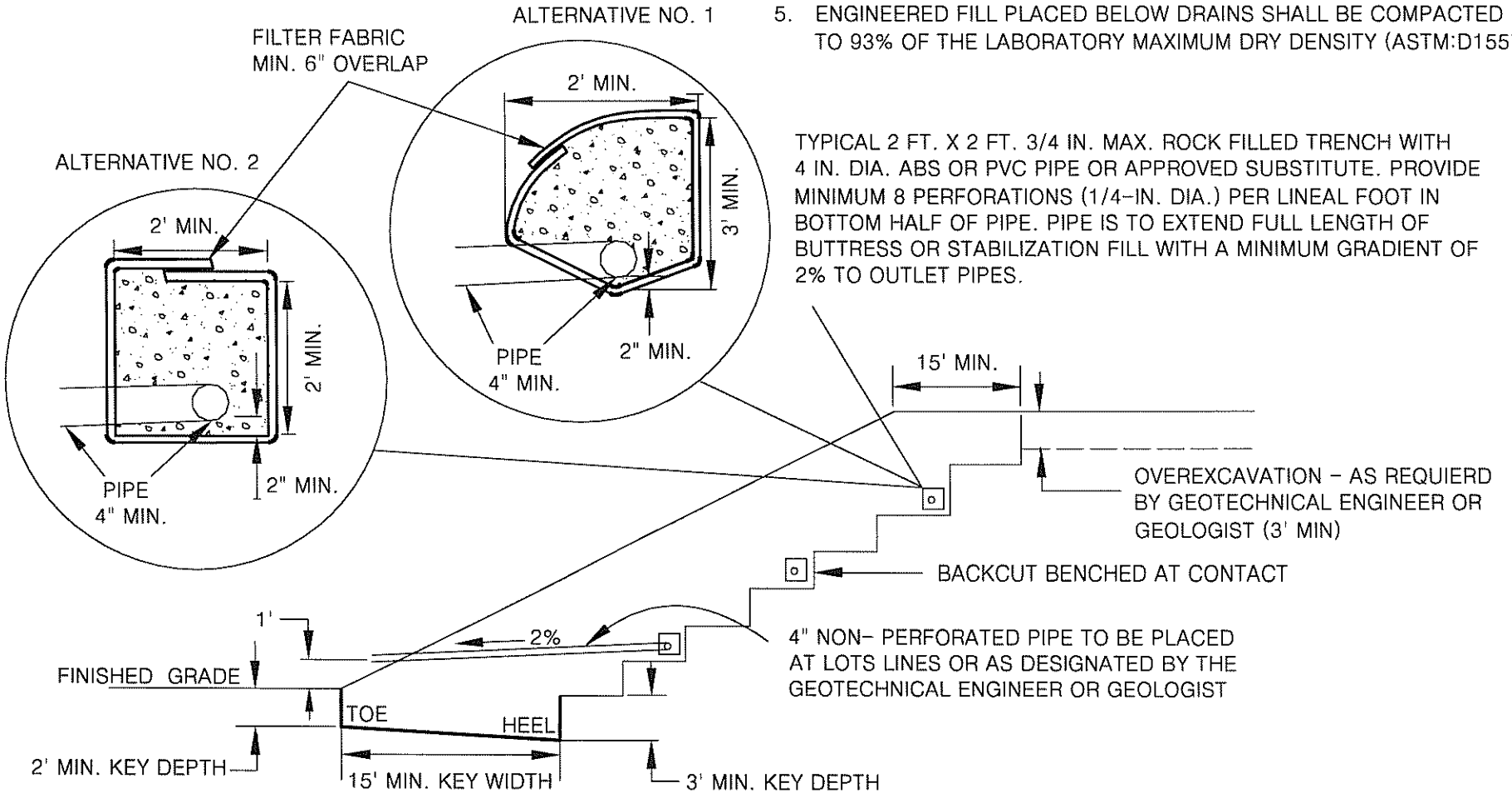
STABILIZATION/BUTTRESS FILL BACKDRAIN

NOTE:

1. ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40
2. SOLID PIPE OUTLETS TO BE PROVIDED EVERY 100 FT. AND JOINED TO PERFORATED BACKDRAIN PIPE WITH "L" OR "T"s. MIN. 2% GRADIENT.
3. GRAVEL TRENCH TO BE FILLED WITH 3/4 IN. MAXIMUM ROCK
4. THE NECESSITY FOR UPPER TIER BACKDRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST. UPPER TIER OUTLETS SHOULD DRAIN INTO PAVED TERRACE DRAINS.
5. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)



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VER. 3/12

PLATE G-8

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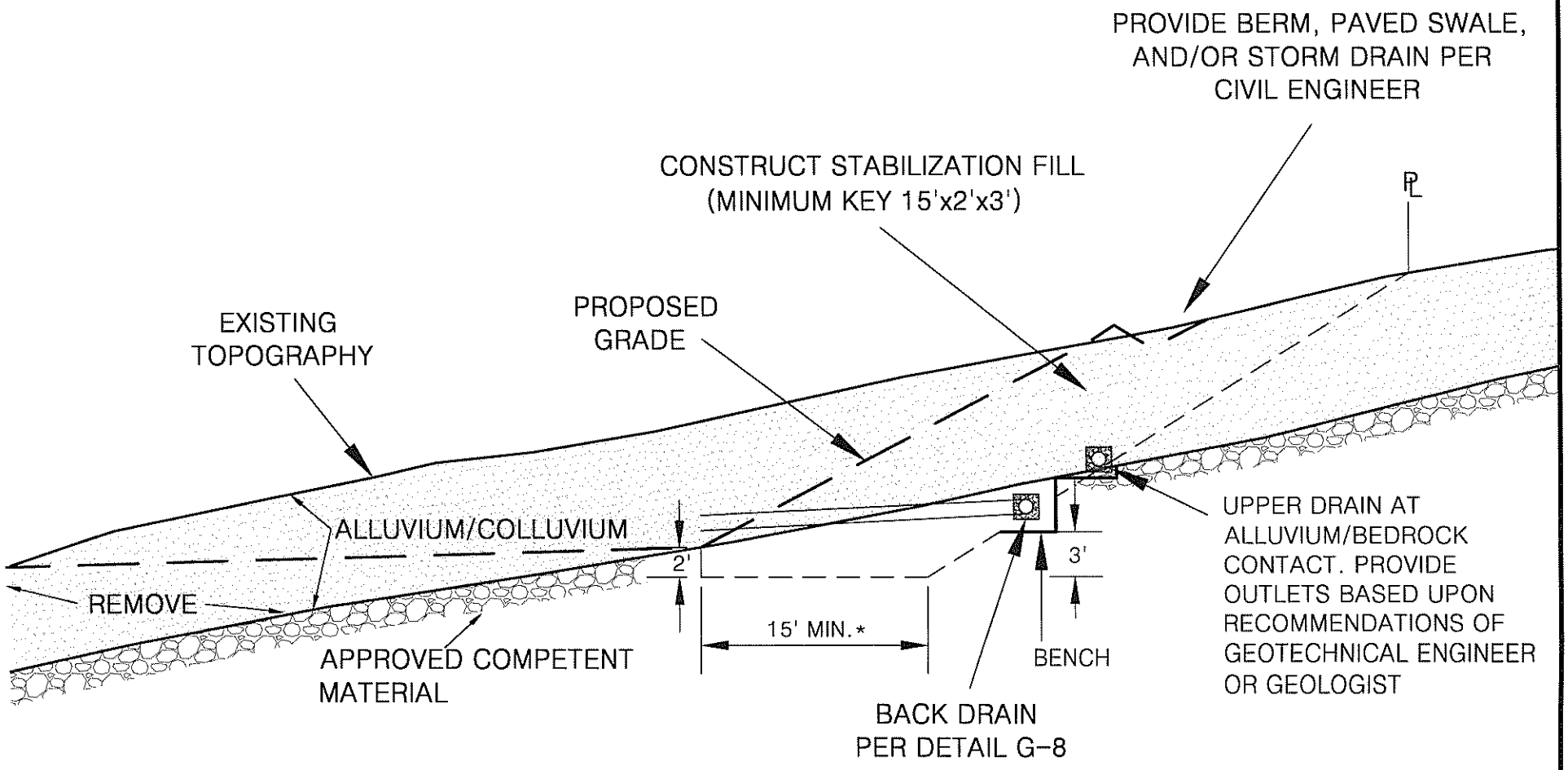
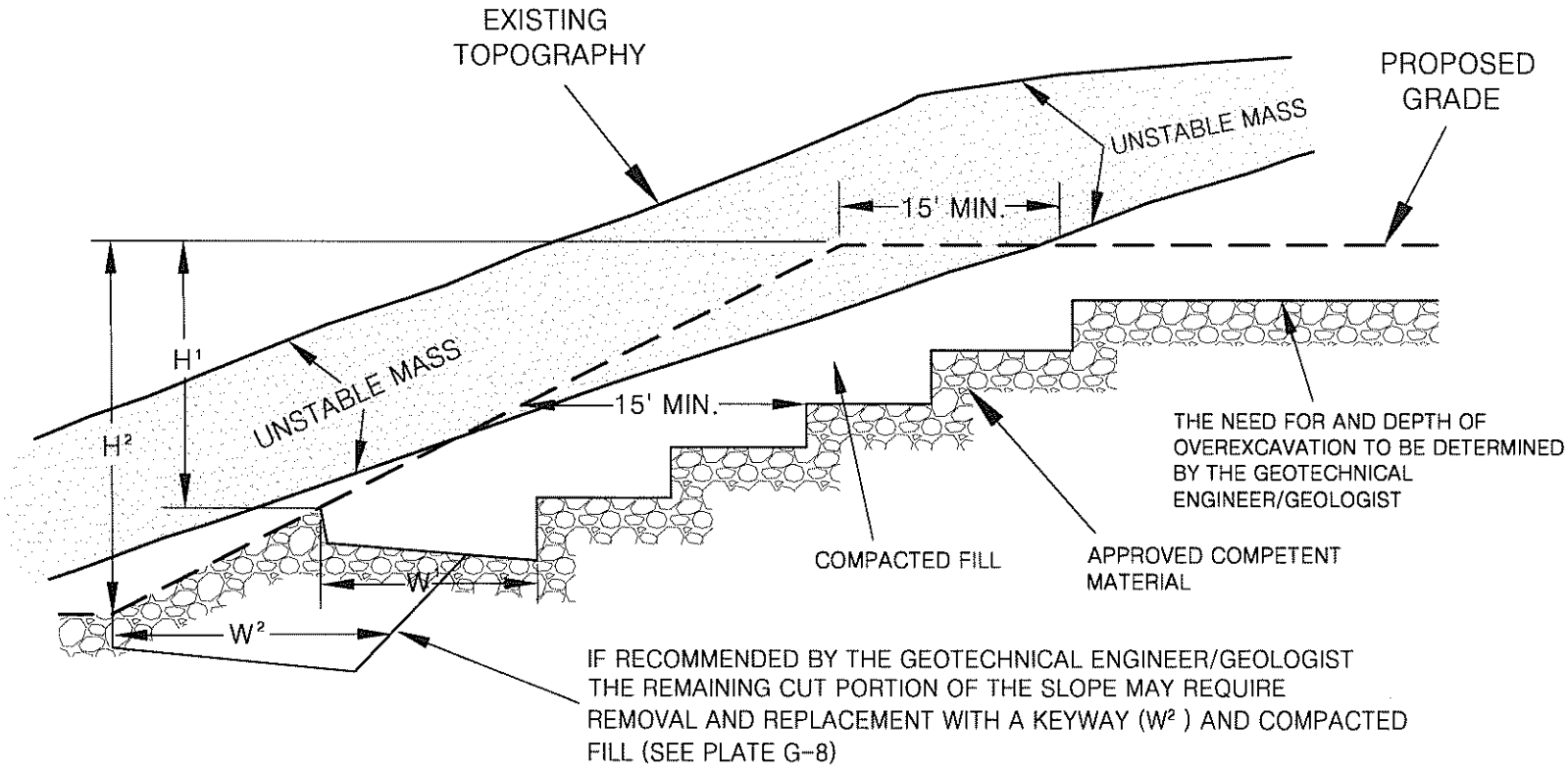
STABILIZATION FILL

(UPSLOPE ALLUVIATED AREA)



* FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

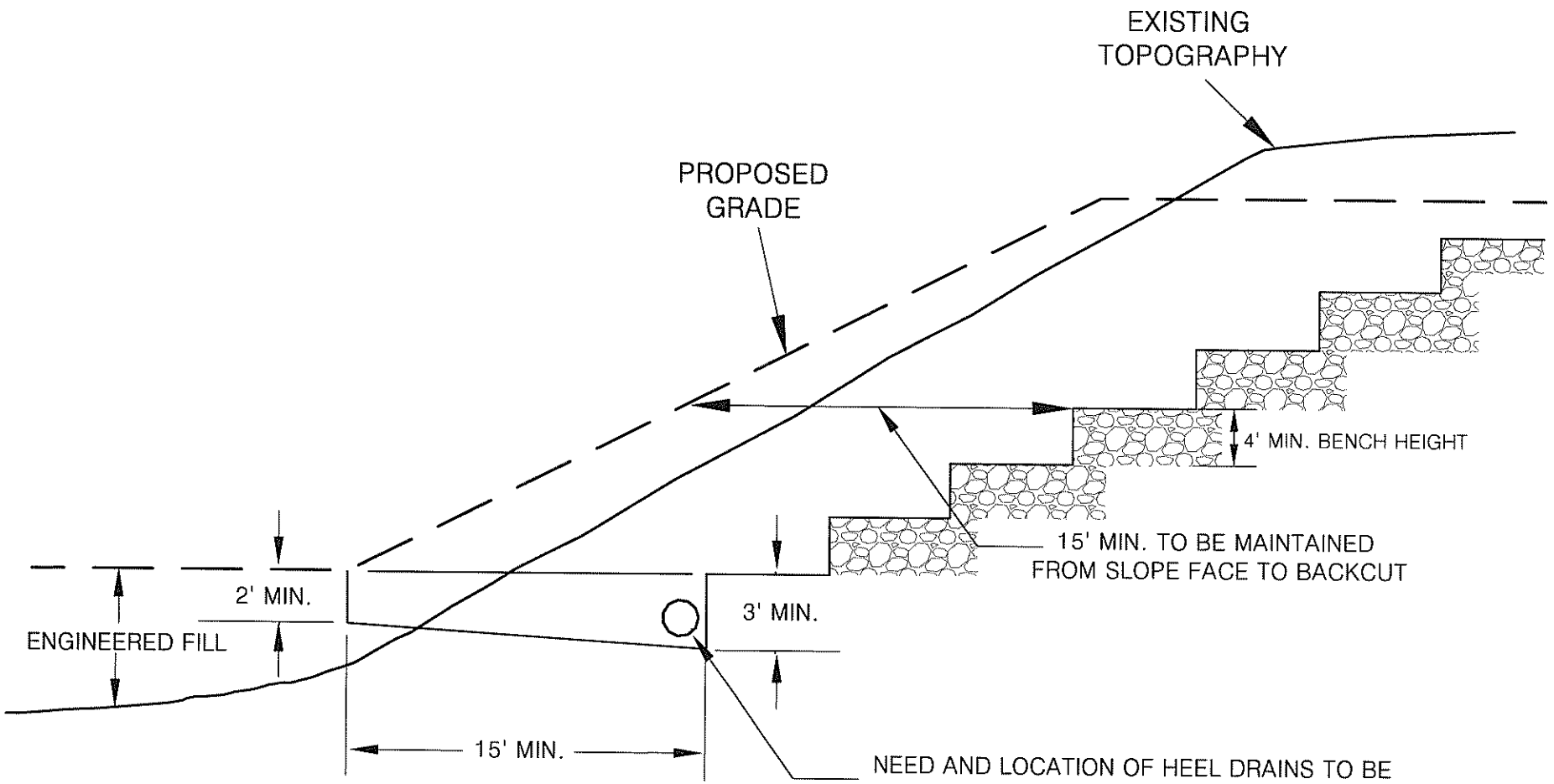
SELECTIVE GRADING DETAIL FOR STABILIZATION FILL
UNSTABLE MATERIAL EXPOSED IN PORTION OF CUT SLOPE



NOTES: 1. BACKDRAINS ARE NOT REQUIRED UNLESS SPECIFIED.

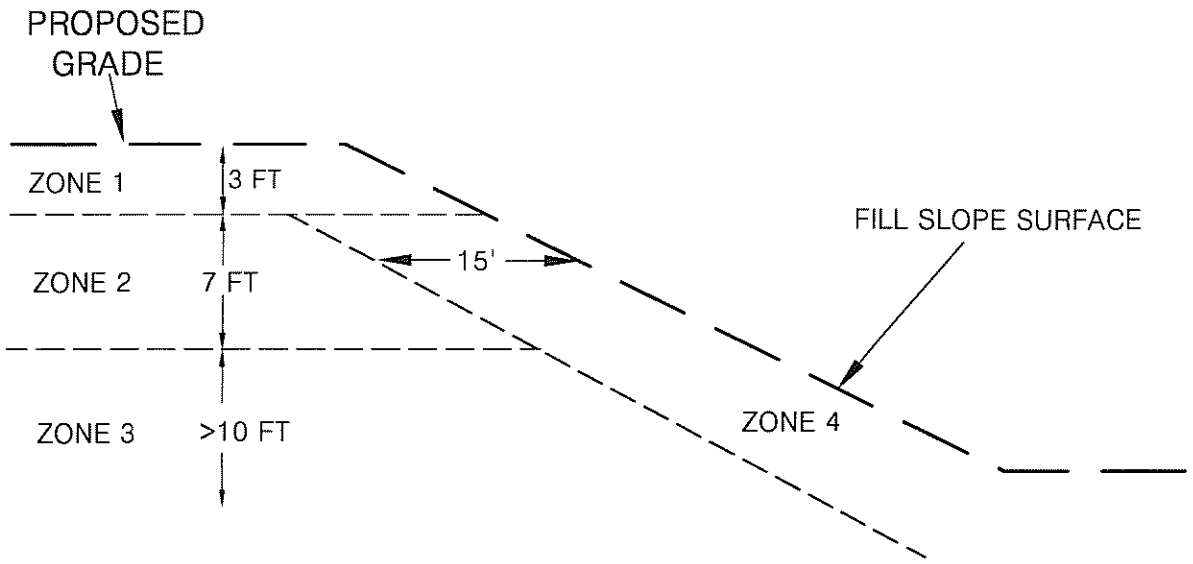
2. "W" SHALL BE EQUIPMENT WIDTH (15') FOR SLOPE HEIGHT LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET, "W" SHALL BE DETERMINED BY THE PROJECT GEOTECHNICAL ENGINEER/GEOLOGIST. AT NO TIME SHALL "W" BE LESS THAN H/2.

SKIN FILL SLOPE OVER NATURAL GROUND



MIN. KEY DIMENSIONS 15'X2'X3' FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

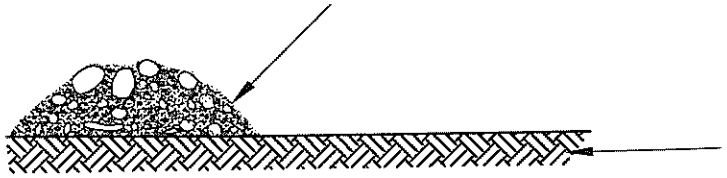
DETAIL FOR MAXIMUM PARTICLE DIMENSION



ZONE	DEPTH	PARTICLE MAX. DIMENSION	PLACEMENT METHOD
1	0-3 ft.	≤0.5 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)
2	3-10 ft.	≤2.0 ft.	ROCK BLANKETS (SEE PLATE G-13)
3	>10 ft.	≤8.0 ft.	ROCK BLANKETS (PLATE G-13) ROCK WINDROW (PLATE G-14) INDIVIDUAL ROCK BURIED (PLATE G-15)
4	15 HORIZONTAL FEET FROM FILL SLOPE FACE	≤1.0 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)

ROCK BLANKET DETAILS

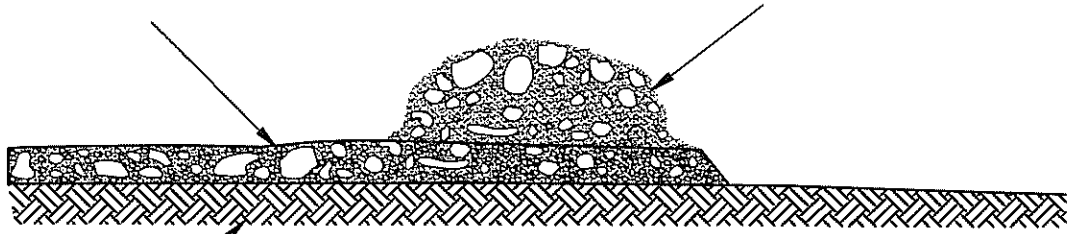
LOOSE PILE 1
LOOSE, DUMPED ROCK, GRAVEL AND SAND MIXTURE REMOVE FRAGMENTS LARGER THAT 2 FEET FOR ISOLATED BURIAL (PLATE G-15) OR WINDROW (PLATE G-10)



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

COMPACT PILE 1
SPREAD LOOSE PILE FORWARD WITH HEAVY TRACKED DOZER (D-8 OR LARGER). HEAVILY WATER, TRACK, AND APPLY ADDITIONAL SAND AND GRAVEL AS NECESSARY TO FILL VOIDS AND CREATE A DENSE MATRIX OF ROCK, COBBLES, GRAVEL AND SAND (2 FOOT MAXIMUM THICKNESS)

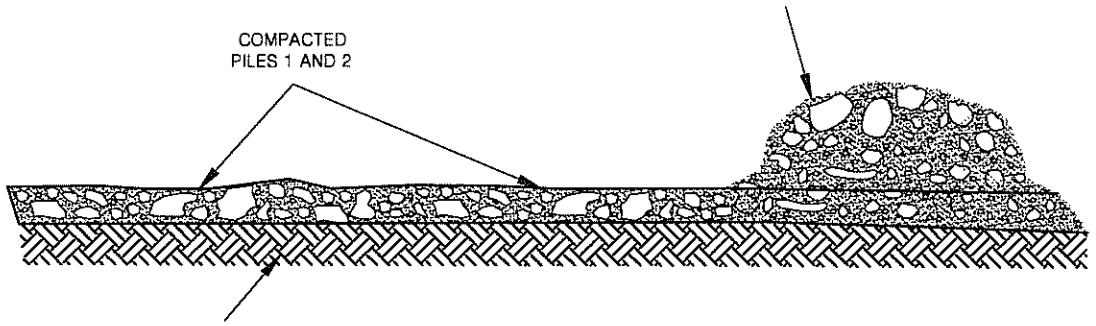
LOOSE PILE 2
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT PILE 1.



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

LOOSE PILE 3
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT EXISTING BLANKET.

COMPACTED PILES 1 AND 2

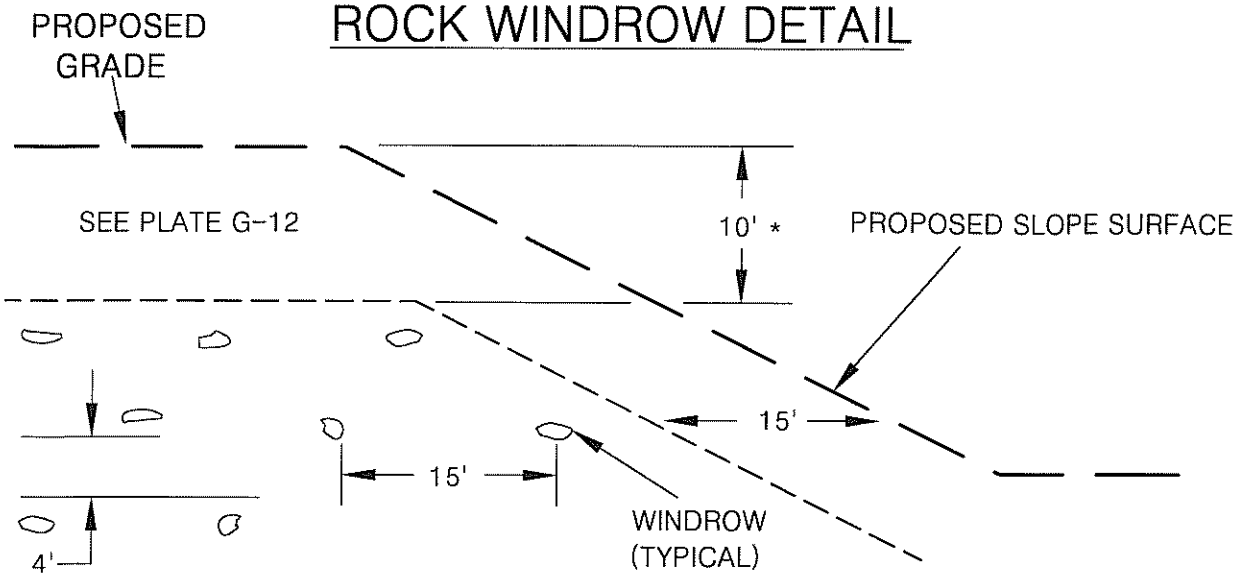


APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

OBSERVATION TESTING AND APPROVAL PROCEDURES

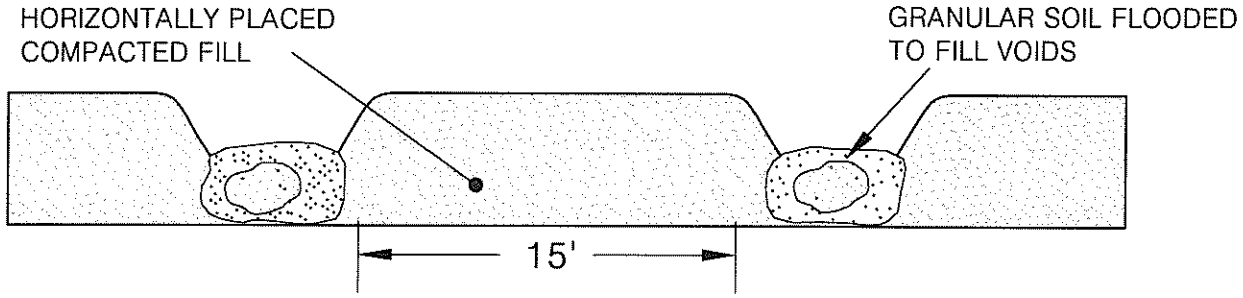
OBSERVE EQUIPMENT. SCRAPERS AND TRUCKS SHOULD BE FULLY SUPPORTED ON BLANKET WITHOUT SIGNIFICANT YIELDING. EXCAVATE TEST/OBSERVATION PITS TO CONFIRM EXISTENCE OF MIXTURE OF VARIOUS PARTICLE SIZES, WITHOUT SIGNIFICANT VOIDS, AND FORMING A DENSE, COMPACTED FILL MATRIX. TEST BY ASTM D1556, D2922 AND/OR D3017 WHEN APPROPRIATE. RECORD LIMITS AND ELEVATION OF BLANKET. ALL FILL AND COMPACTION OPERATIONS TO BE CONDUCTED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. SUBSEQUENT LIFTS TO BE APPLIED ONLY AFTER OBSERVATION AND CONFIRMATION OF SUITABILITY OF FILL AND RELEASE BY THE GEOTECHNICAL ENGINEER. BLANKETS TO BE CONSTRUCTED IN ACCORDANCE WITH PLATE G-12.

ROCK WINDROW DETAIL



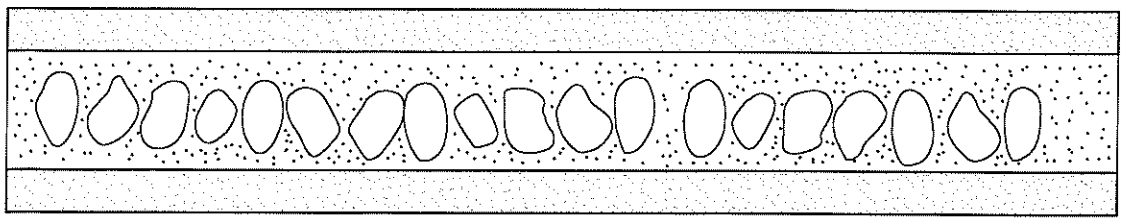
NOTE: OVERSIZED MATERIAL SHOULD BE REMOVED FROM THE 15' CLEAR ZONES WITH SPECIAL EQUIPMENT, SUCH AS A ROCK RAKE, PRIOR TO PLACING THE NEXT FILL LIFT.
*VARIANCES TO THE ABOVE ROCK HOLD DOWN MAY BE GRANTED SUBJECT TO APPROVAL BY THE OWNER, GEOTECHNICAL ENGINEER, AND GOVERNING AGENCY

TYPICAL WINDROW DETAIL (END VIEW)

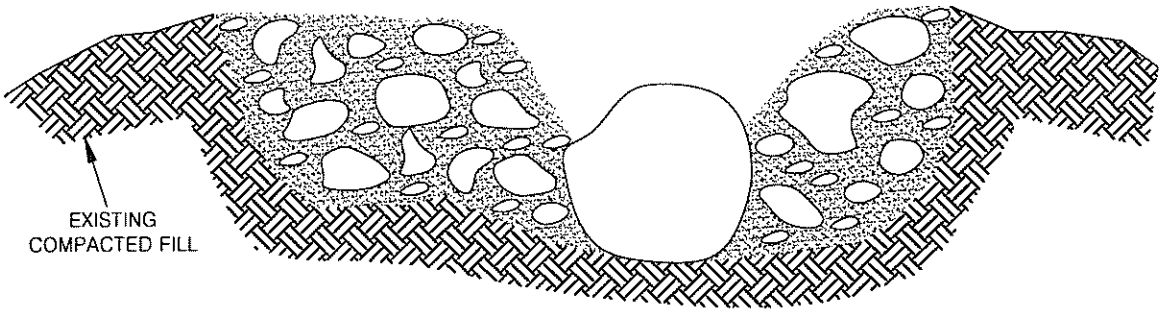


NOTE: COMPACTED FILL SHALL BE BROUGHT UP TO A HIGHER ELEVATION ALONG EACH WINDROW SO GRANULAR SOIL CAN BE FLOODED IN A "TRENCH CONDITION".

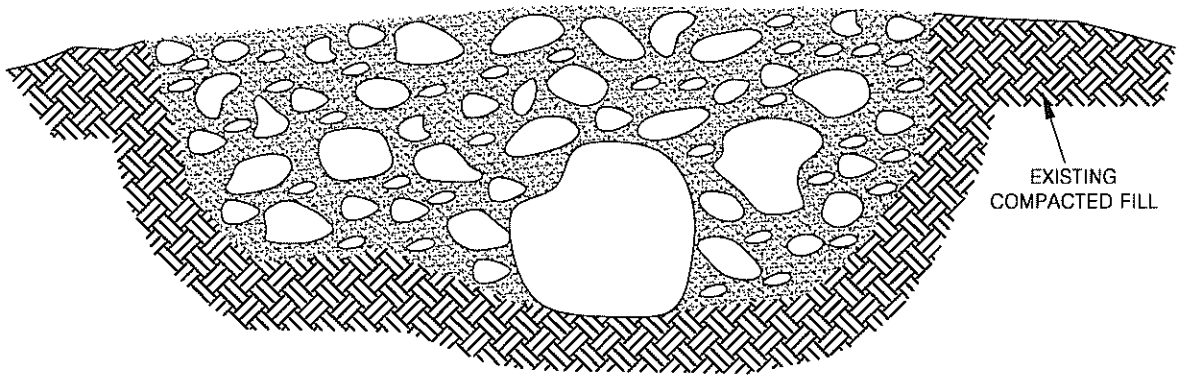
PROFILE VIEW



ISOLATED ROCK BURIAL DETAILS

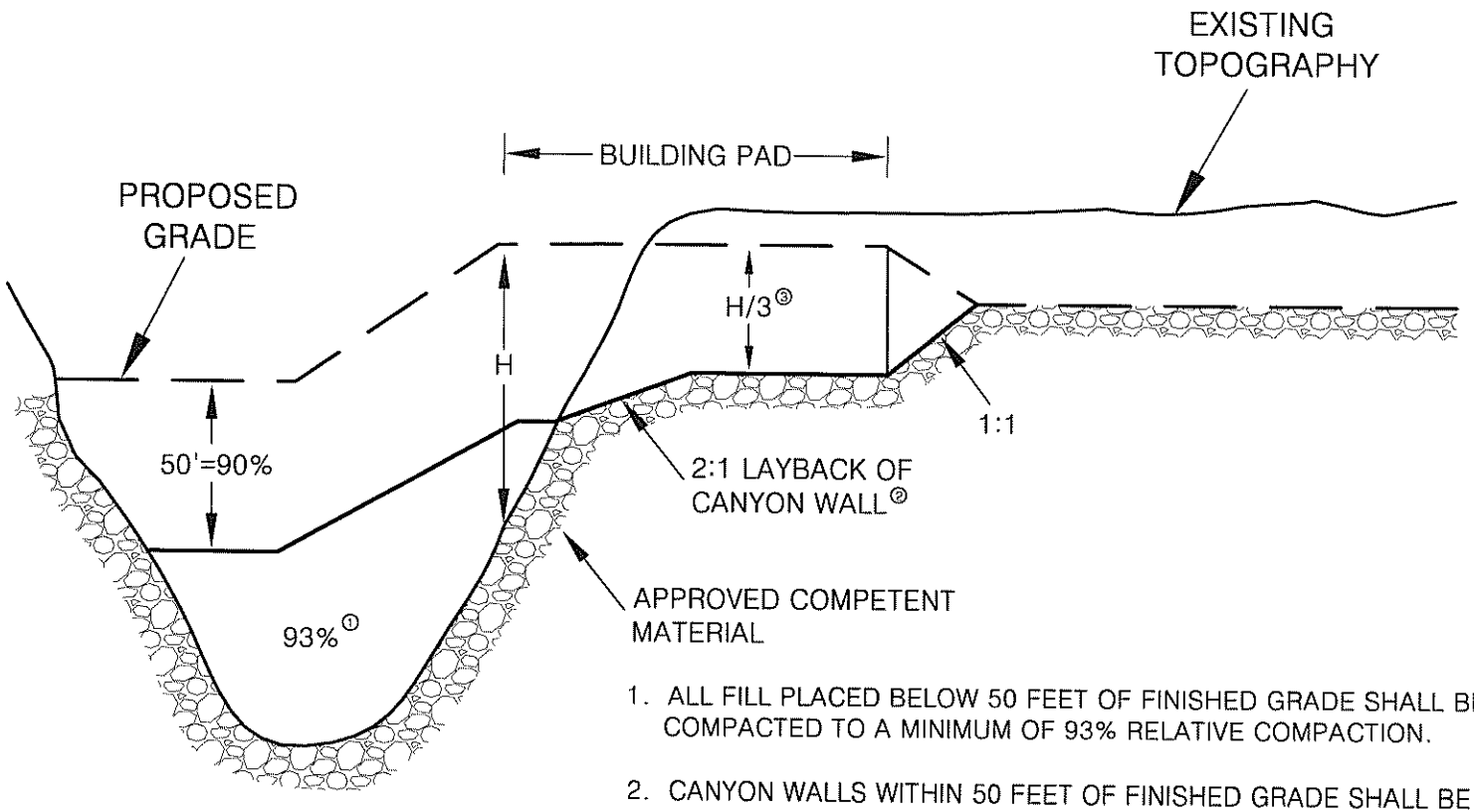


EXCAVATE HOLE INTO EXISTING FILL PRISM, PLACE BOULDER (< 8 feet in maximum dimension) INTO EXISTING COMPACTED FILL. SURROUND WITH SAND, GRAVEL, COBBLES AND WATER HEAVILY. TRACK WITH D8 OR LARGER EQUIPMENT UNTIL RESULTING FILL FULLY SUPPORTS EQUIPMENT. OBSERVE AND/OR TEST IN ACCORDANCE WITH ASTM D1556, D2922 OR D3017. ROCKS LARGER THAN 8 FEET SHALL BE FURTHER REDUCED IN SIZE BY SECONDARY BREAKING.



RELATIVE COMPACTION VS. DEPTH

CANYON WALL LAY BACK
DIFFERENTIAL FILL OVEREXCAVATION DETAILS



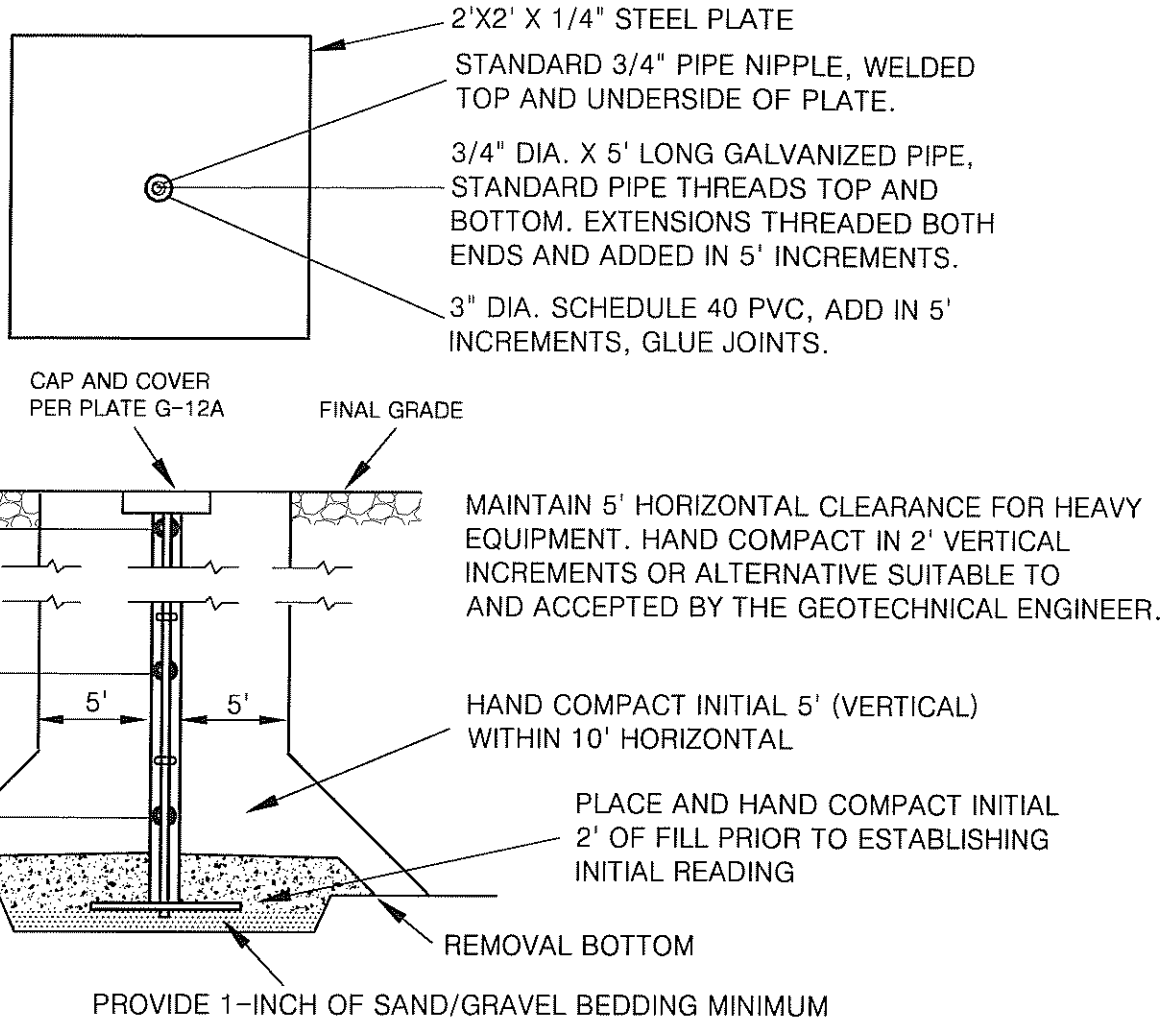
1. ALL FILL PLACED BELOW 50 FEET OF FINISHED GRADE SHALL BE COMPACTED TO A MINIMUM OF 93% RELATIVE COMPACTION.

2. CANYON WALLS WITHIN 50 FEET OF FINISHED GRADE SHALL BE LAID BACK TO A SLOPE RATIO OF 2:1 OR FLATTER.

3. ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF 1/3 OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET.

4. IF THE 2:1 LAY BACK OF THE CANYON WALL IS IMPRACTICAL, THEN AS AN ALTERNATIVE THE INCREASED COMPACTION STANDARDS IN NOTE 1 SHOULD BE EXTENDED UP TO H/3 AND THE LAY BACK WILL NOT BE REQUIRED.

SETTLEMENT PLATE DETAIL



NOTES:

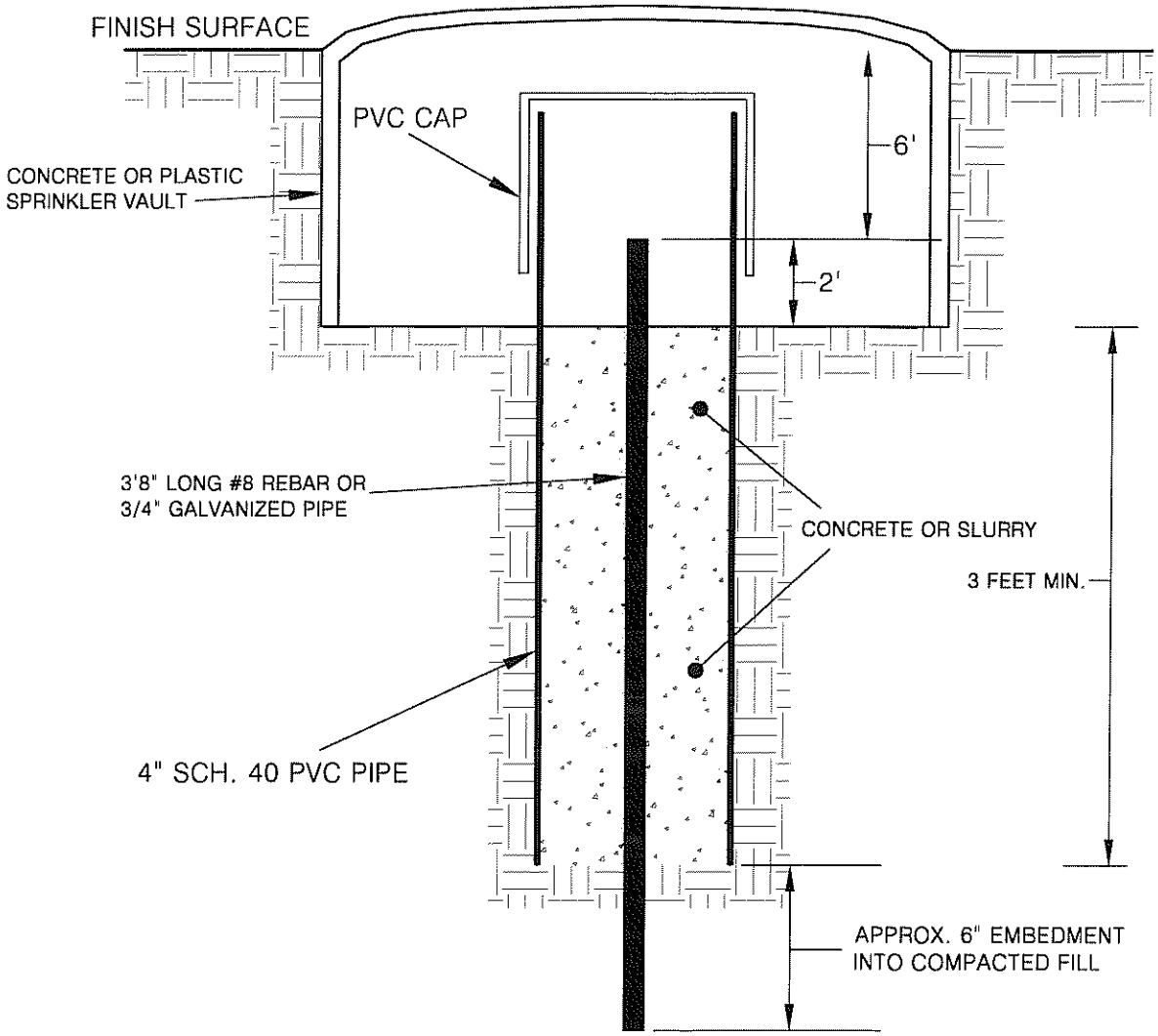
1) LOCATIONS OF SETTLEMENT PLATES SHALL BE CLEARLY MARKED AND READILY VISIBLE (RED FLAGGED) TO EQUIPMENT OPERATORS.

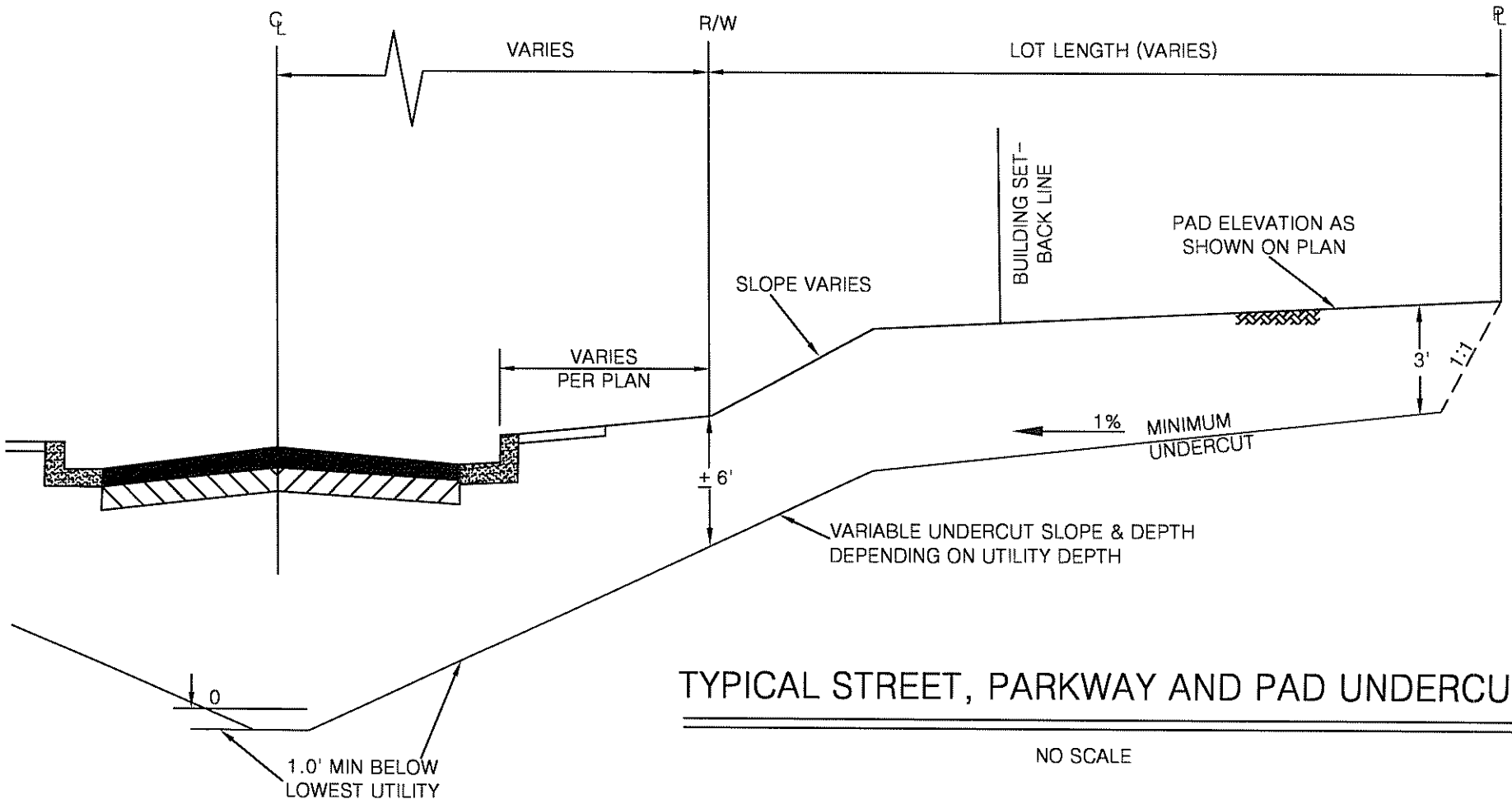
2) CONTRACTOR SHALL MAINTAIN 10' HORIZONTAL CLEARANCE FOR HEAVY EQUIPMENT WITHIN 5' (VERTICAL) OF PLATE BASE. FILL WITHIN CLEARANCE AREA SHALL BE HAND COMPACTED TO PROJECT SPECIFICATIONS OR COMPACTED BY ALTERNATIVE APPROVED BY THE GEOTECHNICAL ENGINEER.

3) AFTER 5' (VERTICAL) OF FILL IS IN PLACE, CONTRACTOR SHALL MAINTAIN 5' HORIZONTAL EQUIPMENT CLEARANCE. FILL IN CLEARANCE AREA SHALL BE HAND COMPACTED (OR APPROVED ALTERNATIVE) IN VERTICAL INCREMENTS NOT TO EXCEED 2 FEET.

4) IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE OR EXTENSION RESULTING FROM EQUIPMENT OPERATING WITHIN PRESCRIBED CLEARANCE AREA, CONTRACTOR SHALL IMMEDIATELY NOTIFY GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATE AND EXTENSION RODS TO WORKING ORDER.

SURFACE SETTLEMENT MONUMENT DETAIL





TYPICAL STREET, PARKWAY AND PAD UNDERCUT

NO SCALE

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VER. 3/13

PLATE G-19

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APPENDIX G:

Noise and Vibration Impact Analysis, The Commons Project, Cities of Claremont and Upland, Los Angeles and San Bernardino Counties, California, LSA Associates, Inc. December 2019

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NOISE AND VIBRATION IMPACT ANALYSIS

THE COMMONS PROJECT

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

LSA

December 2019

NOISE AND VIBRATION IMPACT ANALYSIS

THE COMMONS PROJECT

CITIES OF CLAREMONT AND UPLAND

LOS ANGELES AND SAN BERNARDINO COUNTIES, CALIFORNIA

Submitted to:

City of Claremont
207 Harvard Avenue
Claremont, California 91711

and

City of Upland
460 North Euclid Avenue
Upland, California 91786

Prepared by:

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Project No. CCT1801

LSA

December 2019

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A: FHWA HIGHWAY TRAFFIC NOISE MODEL PRINTOUTS
B: DETAILED NOISE LEVEL CALCULATIONS

LIST OF ABBREVIATIONS AND ACRONYMS

ac	acre/acres
ALUCP	Airport Land Use Compatibility Plan
CalEEMod	California Emission Estimator Model
CNEL	Community Noise Equivalent Level
dB	decibels
dBA	A-weighted decibels
EPA	United States Environmental Protection Agency
FHWA	Federal Highway Administration
ft	foot/feet
FTA	Federal Transit Administration
HVAC	heating, ventilation, and air conditioning
in/sec	inches per second
lbs/sf	pounds per square foot
L_{dn}	day-night average noise level
L_{eq}	equivalent continuous sound level
L_{max}	maximum instantaneous noise level
LSA	LSA Associates, Inc.
PPV	peak particle velocity
RMS	root-mean-square (velocity)
STC	sound transmission class
VdB	vibration velocity decibels

NOISE AND VIBRATION IMPACT ANALYSIS

INTRODUCTION

This noise and vibration impact analysis has been prepared to evaluate the potential impacts and reduction measures associated with the proposed Commons Project (project), which is a residential development project in Claremont and Upland, California. This analysis is intended to satisfy the requirements of the Cities of Claremont and Upland for a project-specific noise and vibration impact analysis by examining the short-term and long-term noise and vibration impacts on sensitive uses adjacent to the project site and evaluating reduction measures required by the proposed project.

PROJECT LOCATION AND DESCRIPTION

The proposed project is a master planned residential/mixed-use development on approximately 9.5 acres (ac) at the northwest corner of Foothill Boulevard and Monte Vista Avenue in the City of Claremont in Los Angeles County and the City of Upland in San Bernardino County. The 9.5 ac project site comprises 6.5 ac in the City of Claremont and 3.0 ac in the City of Upland.

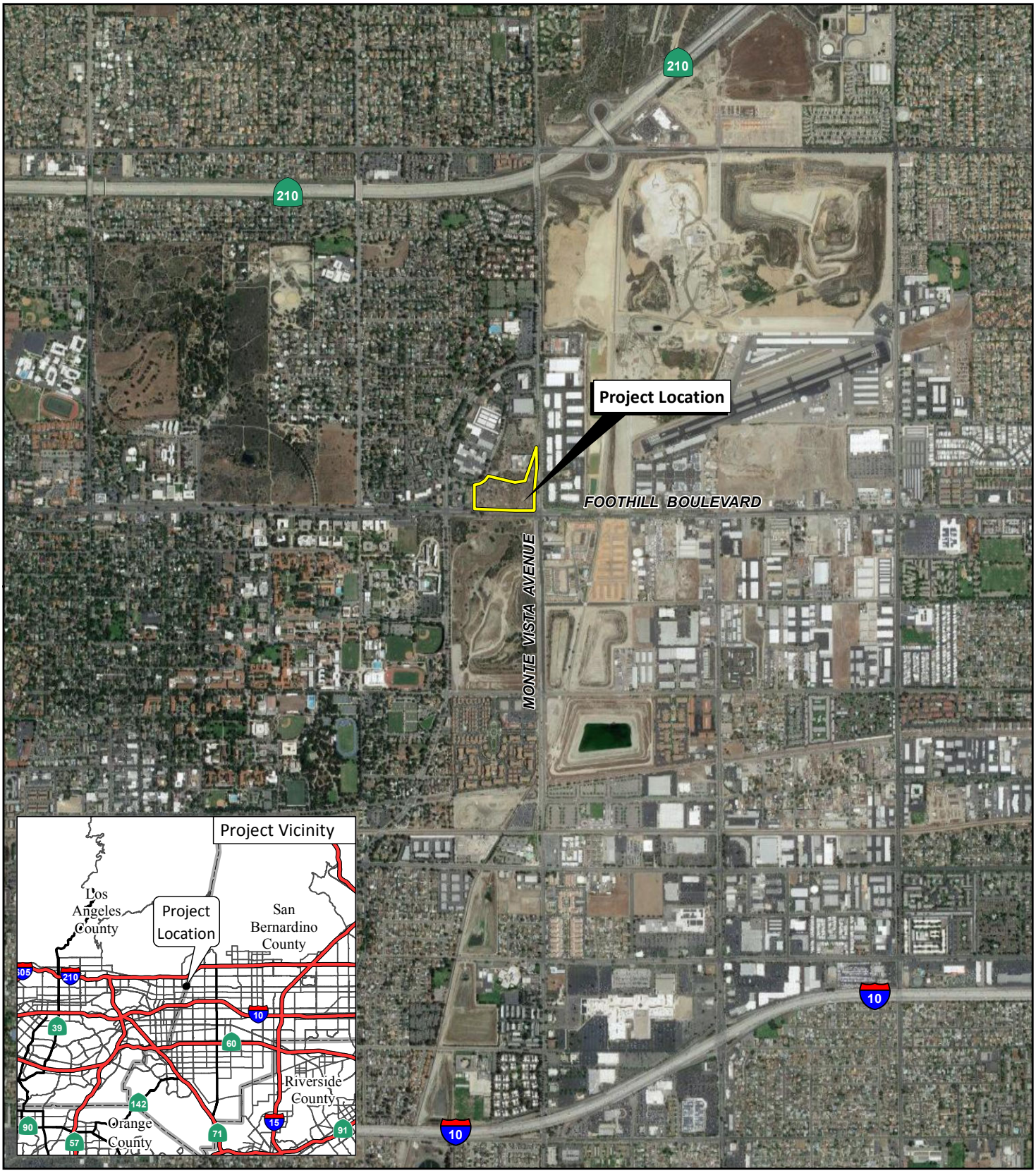
The proposed project would result in the development of 27 single-family homes, 68 townhomes, 15 second-story residential flats, and 5,000 square feet of retail space below the residential flats on the 9.5 ac site. The 27 single-family homes, 15 second-story residential flats (above the retail spaces), and 20 of the townhomes are located in the City of Claremont. The remaining 48 townhomes are located in the City of Upland. Figure 1 illustrates the regional and project location map.

The development will have a wide easement that will be used as active and passive open space for the project. Three types of plans will be built on site: single-family detached units, single-story flats, and two-, three-, and four-bedroom townhomes. The expected household size is between two and five occupants. Figure 2 illustrates the conceptual site plan.

CHARACTERISTICS OF SOUND

Sound is increasing to such disagreeable levels in the environment that it can threaten quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave resulting in the tone's range from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment and is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity is the average rate of sound energy transmitted through a unit area perpendicular to the direction in which the sound waves are traveling.



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LEGEND

Project Location

FIGURE 1

N

0 1000 2000

FEET

SOURCE: Google (2018)

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The Commons Project

Regional and Project Location

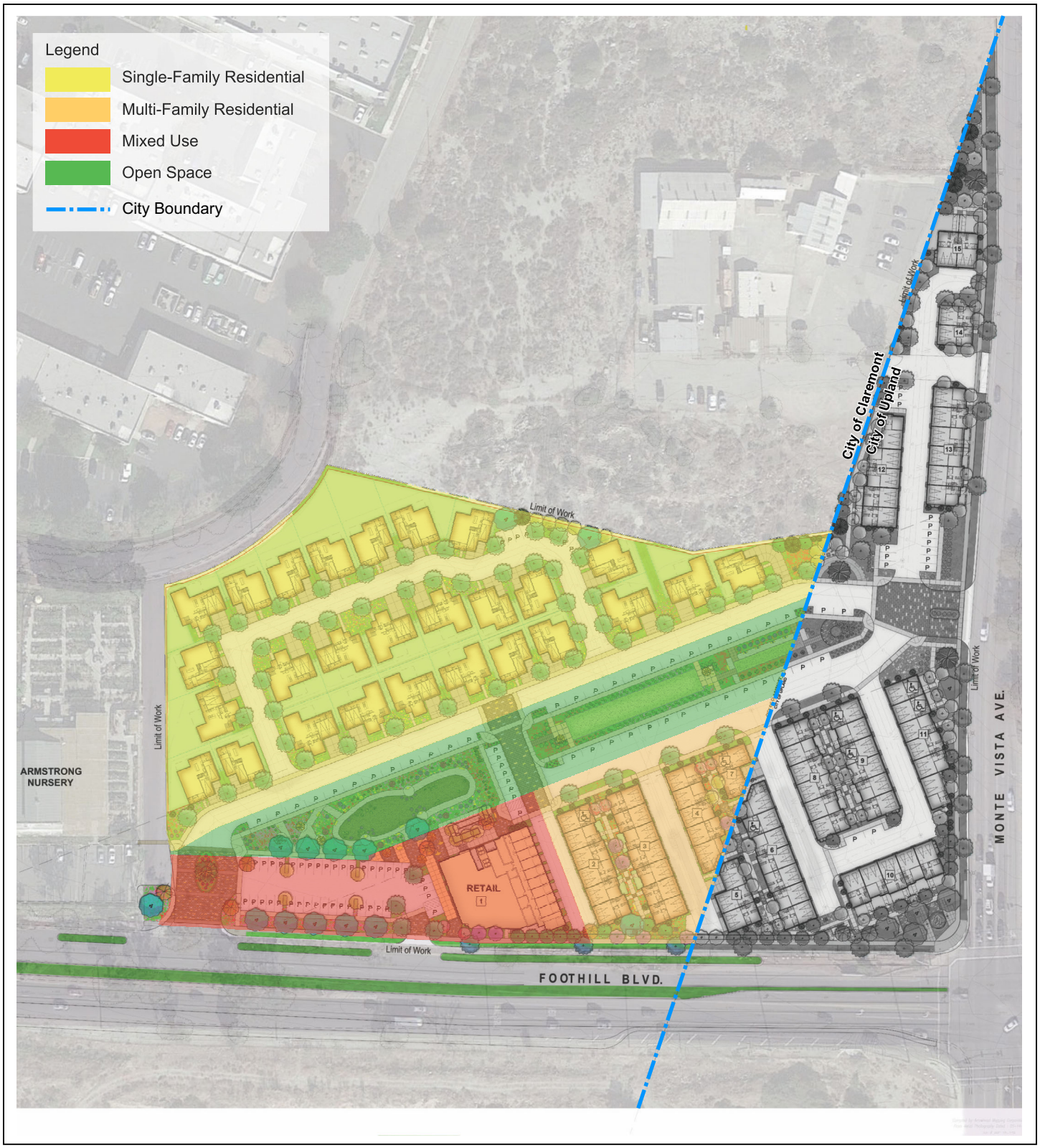

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FIGURE 2

N

0 100 200

FEET

SOURCE: KTGY Group, Inc. (9/2019)

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The Commons Project

Conceptual Site Plan

This characteristic of sound can be precisely measured with instruments. The analysis of a project defines the noise environment of the project area in terms of sound intensity and its effect on adjacent sensitive land uses.

Measurement of Sound

Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike the linear scale (e.g., inches or pounds) decibels are measured on a logarithmic scale representing points on a sharply rising curve.

For example, 10 decibels (dB) is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source (e.g., highway traffic or railroad operations) the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source (noise in a relatively flat environment with absorptive vegetation) decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq} and Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on A-weighted decibels (dBA). CNEL is the time-weighted average noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours), and a 10 dBA weighting factor applied to noises occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The Cities of Claremont and Upland use the CNEL noise scale for long-term noise impact assessment.

Other noise rating scales of importance when assessing the annoyance factor include the maximum instantaneous noise level (L_{max}), which is the highest sound level that occurs during a stated time period. The noise environments discussed in this analysis for short-term noise impacts are specified in terms of maximum levels denoted by L_{max}, which reflects peak operating conditions and addresses

the annoying aspects of intermittent noise. It is often used together with another noise scale, or noise standards in terms of percentile noise levels, in noise ordinances for enforcement purposes. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half the time the noise level exceeds this level, and half the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, the L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category includes audible impacts that refer to increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3 dB or greater because this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1 dB and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category includes changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear (the threshold of pain). A sound level of 160–165 dBA will result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less developed area. Table A lists definitions of acoustical terms, and Table B shows common sound levels and their sources.

FUNDAMENTALS OF VIBRATION

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but without the effects associated with the shaking of a building there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as the motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibration of walls, floors, and ceilings that radiate sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 vibration velocity decibels (VdB) or less. This is an order of magnitude below the damage threshold for normal buildings.

Table A: Definitions of Acoustical Terms

Term	Definitions
Decibel (dB)	A unit of measurement that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency (Hz)	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., number of cycles per second).
A-Weighted Sound Level (dBA)	The sound level obtained by use of A-weighting. The A-weighting filter deemphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted, unless reported otherwise.)
L_{01}, L_{10}, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 1%, 10%, 50%, and 90% of a stated time period.
Equivalent Continuous Noise Level (L_{eq})	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level (CNEL)	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dBA to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level (L_{dn})	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dBA to sound levels occurring in the night between 10:00 PM and 7:00 AM.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle at a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near Freeway Auto Traffic	70	Moderately Loud	—
Average Office	60	Quiet	One-half as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	One-quarter as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	One-eighth as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA Associates, Inc. (2015).

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Problems with both ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet (ft) from the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (FTA 2018). When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. It is assumed for most projects that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, both construction of a project and freight train operations on railroad tracks could result in ground-borne vibration that may be perceptible and annoying.

Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path will usually be greater than ground-borne noise. Ground-borne vibration has the potential to disturb people and damage buildings. Although it is very rare for train-induced ground-borne vibration to cause even cosmetic building damage, it is not uncommon for heavy-duty construction processes (e.g., blasting and pile driving) to cause vibration of sufficient amplitudes to damage nearby buildings (FTA 2018). Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). The RMS is best for characterizing human response to building vibration, and PPV is used to characterize potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

Where L_v is the VdB, "V" is the RMS velocity amplitude, and "V_{ref}" is the reference velocity amplitude, or 1×10^{-6} inches/second (in/sec) used in the United States. Table C illustrates human response to various vibration levels, as described in the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

Factors that influence ground-borne vibration and noise include the following:

- **Vibration Source:** Vehicle suspension, wheel types and condition, railroad track/roadway surface, railroad track support system, speed, transit structure, and depth of vibration source
- **Vibration Path:** Soil type, rock layers, soil layering, depth to water table, and frost depth
- **Vibration Receiver:** Foundation type, building construction, and acoustical absorption

Among the factors listed above, there are significant differences in the vibration characteristics when the source is underground compared to at the ground surface. In addition, soil conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock.

Table C: Human Response to Different Levels of Ground-Borne Noise and Vibration

Vibration Velocity Level (VdB)	Noise Level (dBA)		Human Response
	Low-Frequency[1]	Mid-Frequency[2]	
65	25	40	Approximate threshold of perception for many humans. Low-frequency sound usually inaudible; mid-frequency sound excessive for quiet sleeping areas.
75	35	50	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find transit vibration at this level annoying. Low-frequency noise acceptable for sleeping areas, mid-frequency noise annoying in most quiet occupied areas.
85	45	60	Vibration acceptable only if there are an infrequent number of events per day. Low-frequency noise annoying for sleeping areas, mid-frequency noise annoying even for infrequent events with institutional land uses such as schools and churches.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] Approximate noise level when vibration spectrum peak is near 30 Hz.
[2] Approximate noise level when vibration spectrum peak is near 60 Hz.
dBA = A-weighted decibels Hz = Hertz
FTA = Federal Transit Administration VdB = vibration velocity decibels

Experience with ground-borne vibration indicates: (1) vibration propagation is more efficient in stiff, clay soils than in loose, sandy soils; and (2) shallow rock seems to concentrate the vibration energy close to the surface and can result in ground-borne vibration problems at large distances from a railroad track. Factors including layering of the soil and the depth to the water table can have significant effects on the propagation of ground-borne vibration. Soft, loose, sandy soils tend to attenuate more vibration energy than hard, rocky materials. Vibration propagation through groundwater is more efficient than through sandy soils.

REGULATORY SETTING

Federal Regulations

Federal Transit Administration

Vibration standards included in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018) are used in this analysis for ground-borne vibration impacts on human annoyance. Table D provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building.

The criteria for environmental impact from ground-borne vibration and noise are based on the maximum levels for a single event. Table E lists the potential vibration building damage criteria associated with construction activities, as suggested in the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). FTA guidelines show that a vibration level of up to 102 VdB (equivalent to 0.5 in/sec in PPV [FTA 2018]) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For non-engineered timber and masonry buildings, the construction building vibration damage criterion is 94 VdB (0.2 in/sec in PPV).

Table D: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Max L_V (VdB)[1]	Description of Use
Workshop	90	Distinctly feelable vibration. Appropriate to workshops and non-sensitive areas.
Office	84	Feelable vibration. Appropriate to offices and non-sensitive areas.
Residential Day	78	Feelable vibration. Appropriate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night and Operating Rooms	72	Vibration not feelable, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100X) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] As measured in 1/3-Octave bands of frequency over the frequency range 8 to 80 Hertz.
FTA = Federal Transit Administration
L_V = velocity in decibels
Max = maximum
VdB = vibration velocity decibels

Table E: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)	Approximate L_V (VdB)[1]
Reinforced concrete, steel, or timber (no plaster)	0.50	102
Engineered concrete and masonry (no plaster)	0.30	98
Non-engineered timber and masonry buildings	0.20	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] RMS vibration velocity in decibels (VdB) re 1 µin/sec.
µin/sec = inches per second
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

Local Regulations

City of Claremont

Noise Element of the General Plan. The maximum exterior and interior noise standards specified in Table 6-5 of the City's General Plan Noise Element (shown in Table F of this document) are used as a guideline to evaluate the acceptability of the noise levels generated by traffic. These standards are for assessment of long-term vehicular traffic noise impacts. As shown in Table F, the City has a maximum exterior noise standard of 65 dBA CNEL for residential uses and a maximum exterior noise standard of 70 dBA CNEL for commercial and office uses. In addition, the City has a maximum interior noise standard 45 dBA CNEL for residential uses.

Table F: Claremont Land Use/Noise Guidelines

Property Receiving Noise		Maximum Noise Level (dBA L_{dn} or CNEL)	
Type of Use	**Zoning Designation**	**Interior**	**Exterior[1]**
Residential	Hillside	45	65
	Rural		
	Very Low		
	Low Medium		
	Medium	45	65/70[2]
	High	45	70[2]
Commercial and Office	Professional Commercial	--	70
	Neighborhood		
	Limited		
	Major		
	Highway		
	Freeway		
	Professional Office	50	70
Business Park	Business Park	55	75
Public/Institutional	Schools	50	65
	All Others	50	70
Open Space	Active Open Space	--	70
	Passive Open Space	--	70/65[3]

Source: Table 6-5, Chapter 6, Public Safety and Noise, City of Claremont General Plan (2009).
[1] Regarding aircraft-related noise, the maximum acceptable exposure for new residential development is 60 dBA CNEL.
[2] Maximum exterior noise level up to 70 dBA CNEL are allowed for multiple-family housing.
[3] Where quiet is a basis for the land use.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
L_{dn} = day-night average noise level

Municipal Code. Section 16.154.020(D) and (E) of the City of Claremont Municipal Code establishes noise level standards for various land use categories affected by stationary noise sources. Land use categories in the City of Claremont are defined in three noise zones, as listed below. Tables G and H provide the City of Claremont's exterior and interior noise standard based on the noise zone and the time period, respectively.

- **Noise Zone I:** All single-, double-, and multi-family residential properties
- **Noise Zone II:** All commercial properties
- **Noise Zone III:** All manufacturing or industrial properties

Table G: City of Claremont Exterior Noise Level Standards

Noise Zone	Time Interval	15 minutes[1] (dBA)	10 minutes[2] (dBA)	5 minutes[3] (dBA)	Anytime[4] (dBA)
I	7:00 AM to 10:00 PM	60	65	74	75
	10:00 PM to 7:00 AM	55	60	69	70
II	7:00 AM to 10:00 PM	65	70	79	80
	10:00 PM to 7:00 AM	60	65	74	75
III	Anytime	70	75	84	85

Source: City of Claremont Municipal Code Section 16.154.020(D) (2019).
Note: It shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted above. Each of the noise limits above shall be reduced by 5 dBA for noise consisting of impulse or simple tone noise. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured.
[1] 15-minute noise standard. Basic noise level for a cumulative period of more than 15 minutes in any 1 hour.
[2] 10-minute noise standard. Basic noise level plus 5 dBA for a cumulative period of more than 10 minutes in any 1 hour.
[3] 5-minute noise standard. Basic noise level plus 14 dBA for a cumulative period of more than 5 minutes in any 1 hour.
[4] Anytime noise standard. Basic noise level plus 15 dBA at any time.
dBA = A-weighted decibels

Table H: City of Claremont Interior Noise Level Standards

Noise Zone	Type of Land Use	Time Interval	Allowable Interior Noise Level (dBA)
All	Residential	7:00 AM to 10:00 PM	47
		10:00 PM to 7:00 AM	37

Source: City of Claremont Municipal Code Section 16.154.020(E).
Note: Each of the noise limits above shall be reduced by 5 dBA for noise consisting of impulse or simple tone noise. It shall be unlawful for any person at any location within the incorporated area of the City to create any noise or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person which causes the noise level when measured on the property line of any other property to exceed the basic noise level as adjusted above. If the measurement location is a boundary between two different noise zones, the lower noise level standard shall apply. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be determined, the measured noise level obtained while the noise is in operation shall be compared directly to the allowable noise level standards as specified respective to the measurement location's designated land use and for the time of day the noise level is measured.
dBA = A-weighed decibels

Section 16.154.020(F) of the City of Claremont Municipal Code exempts noise sources associated with or vibration created by construction, repair, remodeling or grading of any real property or during authorized seismic surveys provided:

a. Activities take place between the hours of 7:00 a.m. and 8:00 p.m. weekdays and Saturdays, excluding national holidays; and

b. Noise levels as measured on residential properties do not exceed 65 dBA for a cumulative period of more than 15 minutes in any 1 hour, 70 dBA for a cumulative period of more than 10 minutes

in any 1 hour, and 79 dBA for a cumulative period of more than 5 minutes in any 1 hour or 80 dBA at any time; and

c. Any vibration created does not endanger the public health, welfare, and safety.

Only construction, repair, remodeling, and grading activities that do not exceed the noise levels set by Section 16.154.020(D) may occur on Sundays and national holidays.

Section 16.154.020(H) of the City of Claremont Municipal Code states that the noise standards specified in Section 16.154.020(D) and (E) for noise levels generated by air conditioning, a refrigeration system, or associated equipment shall be increased by 5 dBA. In addition, no person shall cause the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 p.m. and 7:00 a.m. in such a manner as to cause a noise disturbance across a residential real property boundary or within Noise Zone I.

Section 16.154.020(J) of the City of Claremont Municipal Code states that it shall be unlawful for any person to create, maintain, or cause any ground vibration that is perceptible without instruments at any point on any affected property adjoining the project on which the vibration source is located. The perception threshold shall be presumed to be more than 0.05 in/sec RMS vertical velocity (PPV).

City of Upland

Safety Element of the General Plan. The City of Upland has adopted exterior noise standards (shown in Table I) that are similar to those recommended by the State. As shown in Table I, low-density single-family, duplex, and mobile homes are normally acceptable in areas up to 60 dBA L_{dn}, multifamily residential is normally acceptable in areas up to 65 dBA L_{dn}, and mixed-use is normally acceptable in areas up to 70 dBA L_{dn}. In addition, the City of Upland has established an interior noise standard of 45 dBA L_{dn} for residential, transient lodgings, hospitals, nursing homes, and other uses where people normally sleep, and a noise standard of 45 dBA L_{dn} (peak hour) for office buildings and similar uses. In addition, Table J shows the City of Upland has exterior incremental noise standards for residences and buildings where people normally sleep. Although the City of Upland describes noise levels using the L_{dn} level, the CNEL level is more conservative and was used for consistency.

Below are applicable policies:

Policy SAF-1.1 **Exterior Noise Standards.** Require noise mitigation for all development where the projected exterior noise levels exceed those shown in Table I, to the extent feasible.

Policy SAF-1.2 **Exterior Incremental Noise Standards.** Require noise mitigation for all development that increases existing noise levels by more than the allowable increment shown in Table J, to the extent feasible.

Table I: Exterior Noise Compatibility Standards

Land Use Type	Highest Level of Noise Exposure that is Regarded as "Normally Acceptable" (dBA L_{dn} or CNEL)
Residential – Low Density Single-Family, Duplex, Mobile Homes	60 dBA
Residential – Multi-Family	65 dBA
Mixed-Use	70 dBA
Transient Lodging – Hotels, Motels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Auditoriums, Concert Halls, Amphitheaters	Mitigation based on site-specific study
Sports Arena, Outdoor Spectator Sports	Mitigation based on site-specific study
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings – Commercial, Office/Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

Source: Table SAF-3, City of Upland General Plan Safety Element (2015b).
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
L_{dn} = day-night average noise level

Table J: Exterior Noise Compatibility Standards

Existing Noise Level (dBA L_{dn})	Allowable Noise Increment (dBA)
45	8
50	5
55	3
60	2
65	1
70	1
75	0
70	0

Source: Table SAF-4, City of Upland General Plan Safety Element (2015b).
dBA = A-weighted decibels
L_{dn} = day-night average noise level

Policy SAF-1.3 **Interior Standards.** Require new development to include noise mitigation to assure acceptable interior noise levels appropriate to the land use type: 45 dBA L_{dn} for residential, transient lodgings, hospitals, nursing homes, and other uses where people normally sleep; and 45 dBA L_{dn} (peak-hour) for office buildings and similar uses.

Policy SAF-1.13 **Airport Compatibility.** Prohibit new residential development within the 60 dBA CNEL airport noise contour, and only approve noise-compatible land uses consistent with the ALUCP [Airport Land Use Compatibility Plan].

Policy SAF-1.14 **Noise Level Reduction Near Airport.** Require new structures within any Airport Land Use Compatibility Zone except D or E to incorporate exterior-to-interior

noise level reduction design features sufficient to meet the interior noise level criteria specified in the ALUCP.

Municipal Code. Sections 9.40.070 and 9.40.080 of the City of Upland Municipal Code establishes maximum noise level standards for various land use categories affected by stationary noise sources. Table K provides the City of Upland exterior maximum noise standard based on the zone use and the time.

Table K: City of Upland Exterior Maximum Noise Level Standards

Zone Use	Time	30 Minutes (L_{50})	15 Minutes (L_{25})	5 Minutes (L_8)	1 Minute (L_2)	Anytime (L_{max})
Residential	7:00 AM to 10:00 PM	55	60	65	70	75
	10:00 PM to 7:00 AM	45	55	60	65	70
Uses not specified	Anytime	--	--	--	--	65
Industrial and Commercial	Anytime	--	--	--	--	75

Source: City of Upland Municipal Code Sections 9.40.070 and 9.40.080 (2019).
Note: It is unlawful for any person at any location to create any noise or to allow the creation of any noise when such noise causes the noise level to exceed any noise level for the cumulative time periods specified in this table.
L_N (L_{50}, L_{25},L_8, L_2) = percentile noise exceedance level
L_{max} = maximum instantaneous noise level

Section 9.40.100(E) of the City of Upland Municipal Code states it is unlawful for any person to operate, cause to operate or permit the operation of any machinery, equipment, device, pump, fan, compressor, air conditioning apparatus, or similar mechanical device in any manner so as to create any noise that would cause the noise level at the property line of any property to exceed the ambient noise-based level by 5 dBA.

Section 9.40.100(M) of the City of Upland Municipal Code states it is unlawful for any person to engage in or permit the erection (including excavation), demolition, alteration or repair of any building other than between the hours of 7:00 a.m. and 6:00 p.m. on weekdays.

EXISTING SETTING

Overview of the Existing Noise Environment

The existing noise environment includes traffic noise on Foothill Boulevard, Monte Vista Avenue, Andrew Drive, and other local streets in the project vicinity. Noise from motor vehicles is generated by engine vibrations, interaction between tires and the road, and exhaust systems. Cable Airport operations also contribute to the existing ambient noise levels in Project vicinity.

Sensitive Land Uses in the Project Vicinity

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest residences are located approximately 475 ft northwest (within the City of Claremont) and 500 ft southeast (within the City of Upland) of the project site. Land uses located immediately adjacent to

the project site include vacant land and a manufacturing facility to the north, office park to the east, commercial to the southeast, vacant land to the south, Armstrong Garden Center and Arco Station to the west, and a business park to the northwest.

Ambient Noise Level Measurements

Short-Term Noise Level Measurements

Short-term (20-minute) noise level measurements were conducted on October 22, 2019, using a Larson Davis Model 831 Type 1 sound level meter. Table L shows the results of the short-term measurements along with a description of the measurement location and noise sources that occurred during the measurement. Figure 3 shows the short-term monitoring location.

Table L: Short-Term Ambient Noise Level Measurements

Location Number	Location	Date	Start Time	Duration (minutes)	Noise Level			Noise Source(s)
					dBA L_{eq}	dBA L_{max}	dBA L_{min}	
ST-1	735 E Foothill Boulevard. At the Armstrong Garden Center. On the east edge of the parking lot.	10/22/19	10:22 a.m.	15	60.2	74.1	48.6	Traffic on Foothill Boulevard. Construction equipment (small screen, backhoe, and generator) operating on the project site.

Source: Compiled by LSA Associates, Inc. (2019).
dBA = A-weighted decibels
L_{max} = maximum measured sound level
L_{eq} = equivalent continuous sound level
L_{min} = minimum measured sound level

Long-Term Noise Level Measurement

A total of three long-term (24-hour) noise level measurements were conducted from October 22 through October 23, 2019, using Larson Davis Spark 706RC Dosimeters. Tables M, N, and O show hourly L_{eq} results from the long-term measurement, and Table P shows the calculated CNEL level from the long-term noise level measurement. As shown in Table P, the calculated CNEL level ranges from 60.1 to 72.6 dBA CNEL. Figure 3 shows the long-term monitoring locations.

Existing Aircraft Noise

Airport-related noise levels are primarily associated with aircraft engine noise made while aircraft are taking off, landing, or running their engines while still on the ground. Cable Airport is the closest airport to the proposed project. The closest source of aircraft noise is Cable Airport, which is located approximately 1,540 ft east of the project. According to the City of Claremont General Plan, the portion of the site within Claremont's jurisdiction is exposed to Cable Airport operational noise ranging between 60 to 65 dBA CNEL. Based on the Cable Airport Land Use Compatibility Plan, the Upland portion of the Project site is also located in the 60 to 65 dBA CNEL noise contour of Cable Airport. Overall, this indicates that the Project site is exposed to noise generated by Cable Airport aircraft operations ranging from 60.0 dBA to 64.9 dBA CNEL.



LSA

LEGEND

- Project Site
- Short-Term Monitoring Location
- Long-Term Monitoring Locations

0 75 150
FEET

SOURCE: Google (2019), KTGY (9/9/19)

I:\CCT1801\GIS\MXD\Noise\Noise Monitoring Locations.mxd (10/31/2019)

FIGURE 3

The Commons Project

Noise Monitoring Locations

Table M: Long-Term (24-Hour) Noise Level Measurement Results at LT-1

	Start Time	Date	Noise Level (dBA L_{eq})
1	11:00 AM	10/22/19	76
2	12:00 PM	10/22/19	70
3	1:00 PM	10/22/19	70
4	2:00 PM	10/22/19	68
5	3:00 PM	10/22/19	69
6	4:00 PM	10/22/19	70
7	5:00 PM	10/22/19	69
8	6:00 PM	10/22/19	68
9	7:00 PM	10/22/19	67
10	8:00 PM	10/22/19	65
11	9:00 PM	10/22/19	63
12	10:00 PM	10/22/19	63
13	11:00 PM	10/22/19	61
14	12:00 AM	10/23/19	56
15	1:00 AM	10/23/19	57
16	2:00 AM	10/23/19	55
17	3:00 AM	10/23/19	60
18	4:00 AM	10/23/19	66
19	5:00 AM	10/23/19	68
20	6:00 AM	10/23/19	72
21	7:00 AM	10/23/19	69
22	8:00 AM	10/23/19	68
23	9:00 AM	10/23/19	66
24	10:00 AM	10/23/19	67

Source: Compiled by LSA Associates, Inc. (2019).
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

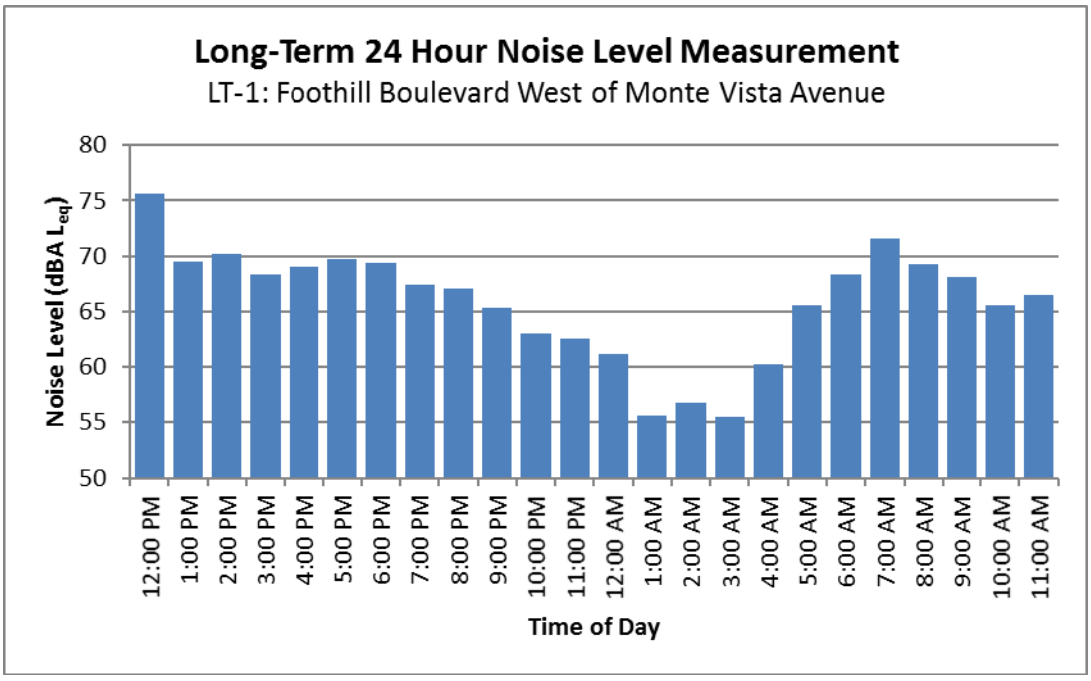

Table N: Long-Term (24-Hour) Noise Level Measurement Results at LT-2

	Start Time	Date	Noise Level (dBA L_{eq})
1	9:00 AM	10/22/19	71
2	10:00 AM	10/22/19	70
3	11:00 AM	10/22/19	70
4	12:00 PM	10/22/19	70
5	1:00 PM	10/22/19	69
6	2:00 PM	10/22/19	70
7	3:00 PM	10/22/19	70
8	4:00 PM	10/22/19	70
9	5:00 PM	10/22/19	70
10	6:00 PM	10/22/19	70
11	7:00 PM	10/22/19	69
12	8:00 PM	10/22/19	68
13	9:00 PM	10/22/19	67
14	10:00 PM	10/22/19	65
15	11:00 PM	10/22/19	63
16	12:00 AM	10/23/19	61
17	1:00 AM	10/23/19	59
18	2:00 AM	10/23/19	57
19	3:00 AM	10/23/19	59
20	4:00 AM	10/23/19	65
21	5:00 AM	10/23/19	67
22	6:00 AM	10/23/19	69
23	7:00 AM	10/23/19	71
24	8:00 AM	10/23/19	70

Source: Compiled by LSA Associates, Inc. (2019).
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

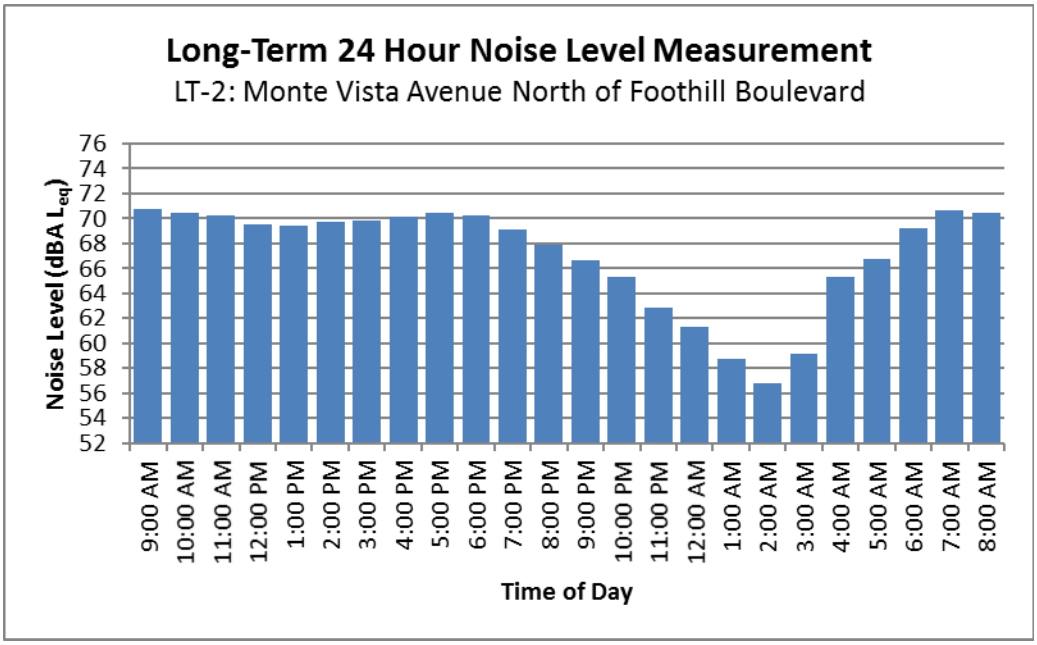

Table O: Long-Term (24-Hour) Noise Level Measurement Results at LT-3

	Start Time	Date	Noise Level (dBA L_{eq})
1	9:00 AM	10/22/19	71
2	10:00 AM	10/22/19	70
3	11:00 AM	10/22/19	70
4	12:00 PM	10/22/19	70
5	1:00 PM	10/22/19	69
6	2:00 PM	10/22/19	70
7	3:00 PM	10/22/19	70
8	4:00 PM	10/22/19	70
9	5:00 PM	10/22/19	70
10	6:00 PM	10/22/19	70
11	7:00 PM	10/22/19	69
12	8:00 PM	10/22/19	68
13	9:00 PM	10/22/19	67
14	10:00 PM	10/22/19	65
15	11:00 PM	10/22/19	63
16	12:00 AM	10/23/19	61
17	1:00 AM	10/23/19	59
18	2:00 AM	10/23/19	57
19	3:00 AM	10/23/19	59
20	4:00 AM	10/23/19	65
21	5:00 AM	10/23/19	67
22	6:00 AM	10/23/19	69
23	7:00 AM	10/23/19	71
24	8:00 AM	10/23/19	70

Source: Compiled by LSA Associates, Inc. (2019).
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

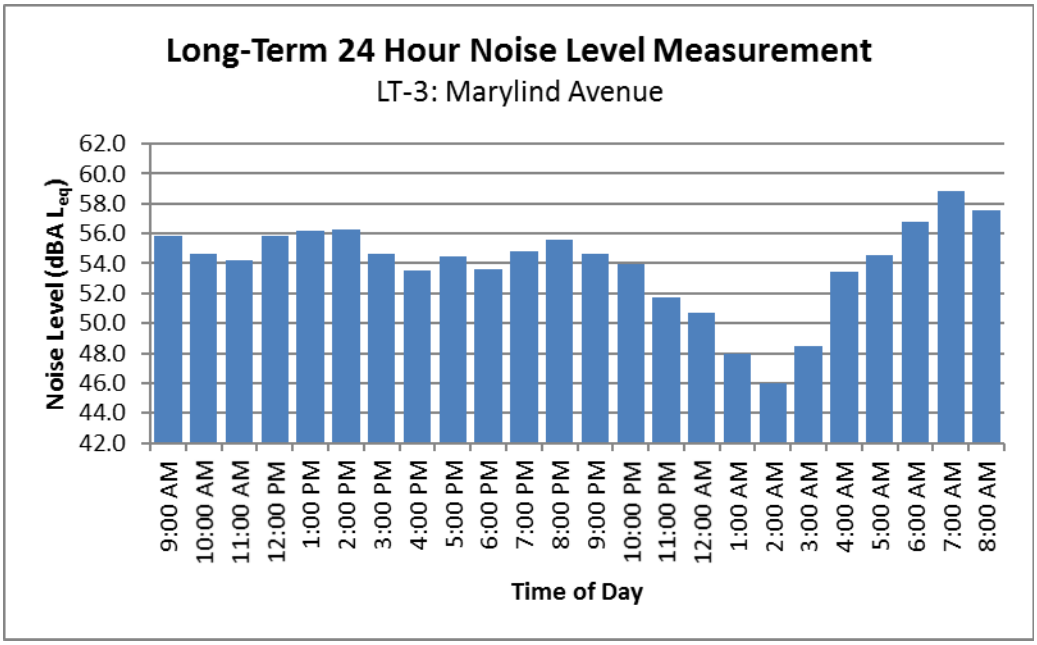

Table P: Long-Term Ambient Noise Level Measurements

Location Number	Location	Start Date	Start Time	Duration (hours)	Noise Level (dBA CNEL)	Noise Source(s)
LT-1	Along Foothill Boulevard west of Monte Vista Avenue	10/22/19	12:00 PM	24	71.6	Traffic on Foothill Boulevard and activity on the project site
LT-2	Along Monte Vista Avenue north of Foothill Boulevard	10/22/19	9:00 AM	24	72.6	Traffic on Monte Vista Avenue
LT-3	Along the south side of Marylind Avenue, north of the project site	10/22/19	9:00 AM	24	60.1	Traffic on Monte Vista Avenue

Source: Compiled by LSA Associates, Inc. (2019).
dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level

Existing Traffic Noise

The guidelines included in the Federal Highway Administration (FHWA) 1977 Highway Traffic Noise Prediction Model (FHWA RD-77-108) were used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over a 24-hour period to determine the CNEL values. Existing traffic volumes were obtained from the *Traffic Impact Analysis* (LSA 2019a). The standard vehicle mix for Southern California roadways was used for all roadway segments. Table Q provides the existing traffic noise levels for roadways within the project area. These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the location where the noise contours are drawn. Appendix A provides the specific assumptions used in developing these noise levels and model printouts.

As shown in Table Q, traffic noise levels along Foothill Boulevard immediately adjacent to the project are moderate and the 65 dBA CNEL and 60 dBA CNEL noise contours extend to 88 ft and 185 ft, respectively, from the roadway centerline. Traffic noise levels along Monte Vista Avenue immediately adjacent to the project are also moderate, and the 65 dBA CNEL and 60 dBA CNEL noise contours extend to 94 ft and 185 ft, respectively, from the roadway centerline.

IMPACTS

Short-Term Construction Noise Impacts

Two types of short-term noise impacts would occur during construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally raise noise levels on access roads leading to the site. Although there would be high single-event noise exposure potential at a maximum level of 84 dBA L_{max} from trucks passing at 50 ft, the effect on longer-term (hourly or daily) ambient noise levels would be small. The building construction phase would generate the highest daily construction vehicle trips

Table Q: Existing Traffic Noise Levels Without Project

Roadway	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane
Foothill Boulevard West of Claremont Boulevard	18,020	< 50	94	196	66.7
Foothill Boulevard between Claremont Boulevard and Driveway 1	16,120	< 50	87	182	66.2
Foothill Boulevard between Driveway 1 and Driveway 2	16,455	< 50	88	185	66.3
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	16,460	< 50	88	185	66.3
Foothill Boulevard East of Monte Vista Avenue	17,800	59	113	236	67.5
Monte Vista Avenue North of Claremont Boulevard	16,320	< 50	88	184	66.2
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3	11,800	< 50	87	180	66.0
Monte Vista Avenue between Marylind Avenue/ Driveway 3 and Driveway 4	11,785	< 50	91	182	65.3
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	11,910	< 50	94	185	65.0
Monte Vista Avenue South of Foothill Boulevard	13,700	< 50	101	202	65.6
Claremont Boulevard South of Foothill Boulevard	9,210	< 50	63	127	63.6
Claremont Boulevard North of Foothill Boulevard	8,280	< 50	60	119	63.2
Claremont Boulevard West of Monte Vista Avenue	5,590	< 50	< 50	94	61.2

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level ft = feet

based on California Emission Estimator Model (Version 2016.3.2) (CalEEMod) output, shown in Appendix A of the *Air Quality and Greenhouse Gas Impact Analysis* for the project (LSA 2019b). There would be up to 60 vehicles per hour or 119 vehicles per day from project construction vehicle trips during the building construction phase. Roadways that would be used to access the project site are Foothill Boulevard and Monte Vista Avenue, which have an estimated existing hourly/daily traffic volume of 1,612/16,120 and 1,179/11,785, respectively, near the project site. Construction-related traffic would increase hourly traffic noise levels by up to 0.2 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during site preparation, grading, building construction, paving, and architectural coating on the project site. Construction is undertaken in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on the project site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table R lists the maximum noise levels recommended for noise impact assessments for typical

Table R: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor[1]	Maximum Noise Level (L_{max}) at 50 ft[2]
Backhoe	40	80
Compactor (ground)	20	80
Compressor	40	80
Crane	16	85
Bulldozer	40	85
Dump Truck	40	84
Excavator	40	85
Flatbed Truck	40	84
Forklift	20	85
Front-End Loader	40	80
Grader	40	85
Impact Pile Driver	20	95
Jackhammer	20	85
Pickup Truck	40	55
Pneumatic Tools	50	85
Pump	50	77
Rock Drill	20	85
Roller	20	85
Scraper	40	85
Tractor	40	84
Welder	40	73

Source: Table 9.1, *Highway Construction Noise Handbook* (FHWA 2006).
Note: The noise levels reported in this table are rounded to the nearest whole number.
[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.
[2] Maximum noise levels were developed based on Spec 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.
CA/T = Central Artery/Tunnel
L_{max} = maximum instantaneous noise level
FHWA = Federal Highway Administration

construction equipment based on a distance of 50 ft between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1 to 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings.

Typical noise levels range up to 88 dBA L_{max} at 50 ft during the noisiest construction phases. The site preparation phase, which includes excavation and grading of the site, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders.

Project construction is expected to require the use of bulldozers, graders, and water trucks/pickup trucks. Noise associated with the use of construction equipment is estimated to be between 55 dBA L_{max} and 85 dBA L_{max} at a distance of 50 ft from the active construction area for the grading phase. As shown in Table R, the maximum noise level generated by each bulldozer is assumed to be approximately 85 dBA L_{max} at 50 ft. Each grader would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks/pickup trucks is approximately 55 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some

distance from the other equipment, the worst-case combined noise level during this phase of construction would be 88 dBA L_{max} at a distance of 50 ft from the active construction area. Based on a usage factor of 40 percent, the worst-case combined noise level during this phase of construction would be 82 dBA L_{eq} at a distance of 50 ft from the active construction area.

Table S shows the property lines of the closest existing land use adjacent to the project and the projected construction noise level. As shown in Table S, the manufacturing facility to the north and commercial uses to the west are located within 50 ft of the project construction boundary and would be exposed to construction noise levels of 88 dBA L_{max} (84 dBA L_{eq}) or higher. The property lines of other land uses would be exposed to construction noise levels of 88 dBA L_{max} (84 dBA L_{eq}) or less. The proposed project would be required to comply with the construction hours and days specified in the Municipal Codes of the Cities of Claremont and Upland. Construction noise levels at the closest residence in the City of Claremont would not exceed that City's exterior 15-minute, 10-minute, 5-minute, and anytime noise standards of 65 dBA, 70 dBA, 79 dBA, and 80 dBA, respectively. The implementation of measures that include compliance with the construction hours and days specified in the Municipal Codes of the Cities of Claremont and Upland, using construction equipment with noise mufflers that are properly operating and maintained, placing construction staging areas away from off-site sensitive uses, and placing all stationary construction equipment so that the emitted noise is directed away from sensitive receptors would further minimize construction noise impacts. Therefore, noise generated by project construction activities would be less than significant with implementation of the measures described above.

Table S: Summary of Construction Noise Levels

Land Use	Direction	Maximum Reference Noise Level (dBA L_{max})	Average Reference Noise Level (dBA L_{eq})	Reference Distance (ft)	Distance (ft)	Maximum Noise Level (dBA L_{max})	Average Noise Level (dBA L_{eq})
Residential	Northwest	88	86	50	475	68	64
Residential	Southeast	88	86	50	500	68	64
Manufacturing	North	88	86	50	>50	>88	>84
Office Park	East	88	86	50	100	82	78
Commercial	Southeast	88	86	50	190	76	72
Commercial	West	88	86	50	>50	>88	>84
Business Park	Northwest	88	86	50	50	88	84

Source: Compiled by LSA Associates, Inc. (2019).
dBA L_{eq} = average A-weighted hourly noise level
dBA L_{max} = maximum A-weighted instantaneous sound level
ft = feet

Short-Term Construction Vibration Impacts

This construction vibration impact analysis discusses the level of human annoyance using vibration levels in VdB and will assess the potential for building damage using vibration levels in PPV (in/sec) because vibration levels calculated in RMS are best for characterizing human response to building vibration, whereas vibration levels in PPV are best used to characterize potential for damage. As shown in Table D, the FTA guidelines indicate that a vibration level up to 102 VdB (equivalent to 0.5 PPV [in/sec]) is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage (FTA 2018). For a non-engineered timber and masonry building, the construction vibration damage criterion is 94 VdB

(0.2 PPV [in/sec]). For a fragile building, the construction vibration damage criterion is 90 VdB (0.12 PPV [in/sec]).

Table T shows the PPV and VdB values at a distance of 25 ft from the construction vibration source. As shown in Table T, bulldozers and other heavy-tracked construction equipment (except for pile drivers and vibratory rollers) generate approximately 87 VdB of ground-borne vibration when measured at a distance of 25 ft, based on the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). Outdoor site preparation and grading for the project is expected to use a large bulldozer or similar equipment and a loaded truck. The greatest levels of vibration are anticipated to occur during the site preparation and grading phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary) because vibration impacts normally occur within the buildings.

Table T: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)[1]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer[2]	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks[2]	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Sources: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] RMS vibration velocity in decibels (VdB) is 1 µin/sec.
[2] Equipment shown in **bold** is expected to be used on site.
µin/sec = microinches per second
ft = feet
FTA = Federal Transit Administration
in/sec = inches per second
L_V = velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

The formula for vibration transmission is provided below:

$$L_vdB\ (D) = L_vdB\ (25\ ft) - 30\ Log\ (D/25)$$

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Table U lists the projected vibration level from various construction equipment expected to be used on the project site to the nearest buildings in the project vicinity. For typical construction activity, the equipment with the highest vibration generation potential is the large bulldozer, which would generate 87 VdB at 25 ft. The closest building to the project construction boundary is a commercial building structure that is located approximately 30 ft west of the boundary. As shown in Table U, this commercial building structure to the west would experience vibration levels of up to 85 VdB (0.068 PPV [in/sec]). Although this vibration level has the potential to result in community annoyance because the vibration levels exceed the FTA's community annoyance threshold of

Table U: Summary of Construction Vibration Levels

Land Use	Direction	Equipment/ Activity	Reference Vibration Level (VdB) at 25 ft	Reference Vibration Level (PPV) at 25 ft	Distance to Nearest Building Structure (ft)	Maximum Vibration Level (VdB)	Maximum Vibration Level (PPV)
Manufacturing	North	Large Bulldozers	87	0.089	115	67	0.009
		Loaded Trucks	86	0.076	115	66	0.008
Office Park	East	Large Bulldozers	87	0.089	100	69	0.011
		Loaded Trucks	86	0.076	100	68	0.010
Commercial	Southeast	Large Bulldozers	87	0.089	195	60	0.004
		Loaded Trucks	86	0.076	195	59	0.003
Commercial	West	Large Bulldozers	87	0.089	30	85	0.068
		Loaded Trucks	86	0.076	30	84	0.058
Business Park	Northeast	Large Bulldozers	87	0.089	120	67	0.008
		Loaded Trucks	86	0.076	120	66	0.007

Source: Compiled by LSA Associates, Inc. (2019).
Note: The FTA-recommended building damage threshold is 94 VdB (0.2 PPV [in/sec]) for non-engineered timber and masonry structures.
ft = feet PPV = peak particle velocity
in/sec = inches per second VdB = velocity decibels

84 VdB for non-sensitive uses, the vibration level would not result in building damage because vibration levels would not exceed the FTA vibration damage threshold of 94 VdB (0.2 PPV [in/sec]) for structures constructed of non-engineered timber. Other nearby building structures surrounding the project construction boundary would experience vibration levels of up to 69 VdB (0.011 PPV [in/sec]) or lower and would not result in community annoyance or damage. Therefore, vibration levels generated by project construction activities would be less than significant. No vibration reduction measures are required.

Long-Term Aircraft Noise Impacts

The Project site is in close proximity to Cable Airport and is exposed to single-event noise increases caused by aircraft departures from and landings at the airport. As the Project site is located within two jurisdictions, the following analysis is divided into the portion of the site within the City of Claremont and the portion of the site within the City of Upland.

Project Site within Claremont

The City of Claremont does not recognize the Cable Airport Land Use Compatibility Plan that was adopted by the City of Upland. Therefore, in lieu of this plan, the impact analysis for future residents occupying the site and being exposed to Cable Airport noise is based on the California Airport Land Use Planning Handbook. Noise generated by the operation of aircraft is primarily measured in terms of the cumulative noise levels of all aircraft operations to, from and around an airport. In California, the cumulative noise level metric established by state regulations is the CNEL (Caltrans 2011). The basic California guidance sets a CNEL of 65 dBA as the maximum noise level generated by an airport that is normally compatible with urban residential land uses (Caltrans 2011). However, the Claremont General Plan indicates that the maximum acceptable exposure from aircraft-related noise for new residential development is 60 dBA CNEL (Claremont 2009).

Since the Claremont General Plan establishes this development standard on new residential development, it is reasonable to use this standard as a threshold limitation, rather than the

guideline of 65 dBA CNEL as presented in the California Airport Land Use Planning Handbook. The Claremont General Plan Environmental Impact Report provides a diagram (Figure 5-18) showing the noise contours of Cable Airport. Based on the Claremont General Plan EIR, the Claremont portion of the proposed Project is located within the 60 to 65 dBA CNEL contour of Cable Airport; as such, it can be assumed that the Claremont portion of the Project site is and will be exposed to Cable Airport operational noise levels ranging between 60 to 64.9 dBA CNEL (Claremont Figure 5-18). Based on the noise contours of Cable Airport presented in the Claremont General Plan, single-family residential units, residential townhomes, and residential flats on the Claremont portion of the site would be exposed to noise levels from Cable Airport that exceed exterior threshold standards for residential units within the City of Claremont. This would be considered a significant impact under CEQA.

Residential units on the Project site would also be exposed to excessive interior noise levels due to Cable Airport Operations. Implementation of mitigation measures listed below would reduce interior noise levels to 40 dBA CNEL, which would not be considered an excessive noise level per the City of Claremont standards.

Project Site within Upland

The Upland portion of the Project site is located within the jurisdiction of the Cable Airport Land Use Compatibility Plan that was adopted by the City of Upland in 2015. According to the CALUCP, the Upland portion of the Project site is within the 60 to 65.0 dBA CNEL noise contour of Cable Airport (Upland 2015a). Based on these noise contour limits, it is assumed that the residential units on the Upland portion of the Project site would be exposed to noise levels ranging between 60.0 to 64.9 dBA CNEL.

For Cable Airport, a CNEL 60 dBA standard is defined by the CALUCP as the maximum acceptable noise levels for new residential development, schools, and other similarly noise-sensitive land uses. Furthermore, the City of Upland General Plan cites Policy SAF-1.13, which prohibits new residential development within the 60 dBA CNEL airport contour. Based on these standards, implementation of the Upland portion of the Project site would expose new residential units to exterior noise levels from Cable Airport that exceed the thresholds established by the City of Upland and the CALUCP. This would be considered a significant impact under CEQA.

Residential units on the Project site would also be exposed to excessive interior noise levels due to Cable Airport Operations. It is recommended that the City of Upland implement mitigation measures listed below, which would reduce interior noise levels to 40 dBA CNEL. With implementation of the recommended mitigation measures, interior noise levels at residential units in the Upland portion of the Project would not exceed City of Upland standards.

- A Final Acoustic Report shall be prepared once final architectural plans are available with the exterior wall details and window types to confirm that aircraft-related interior noise levels will be no greater than 40 dBA CNEL with windows and doors closed for all interior living spaces of residential dwelling units.

- The proposed project shall include the installation of mechanical ventilation (e.g., air conditioning) for all dwelling units so that windows and doors can remain closed for a prolonged period of time.

- As a condition for approval, the project applicant shall provide an avigation easement dedication to Cable Airport.

- Prior to the issuance of building permits, the project applicant shall provide the City of Claremont a copy of an Airport Proximity Disclosure that will be presented to prospective buyers of real estate within the project site. The Airport Proximity Disclosure shall convey information to prospective buyers about airport-associated annoyances or inconveniences such as noise, vibration, or odors.

Long-Term Off-Site Traffic Noise Impacts

The guidelines included in the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) were used to evaluate traffic-related noise conditions along roadway segments in the project vicinity. This model requires various parameters (including traffic volumes, vehicle mix, vehicle speed, and roadway geometry) to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the CNEL values. Traffic volumes were obtained from the *Traffic Impact Analysis* (LSA 2019a). The standard vehicle mix for Southern California roadways was used for all roadway segments. Tables V, W, X, and Y provide the traffic noise levels for the existing, 2021 Opening Year, 2021 Cumulative, and 2040 with and without project traffic noise levels, respectively. These noise levels represent a worst-case scenario that assumes no shielding is provided between the traffic and the location where the noise contours are drawn. Appendix A provides the specific assumptions used in developing these noise levels and model printouts.

Tables V, W, X, and Y show that the project-related traffic noise increase would reach up to 0.2 dBA. Noise level increases less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, no long-term off-site traffic noise impacts would occur. No noise reduction measures are required.

Table V: Existing Traffic Noise Levels Without and With Project

Roadway Segment	Existing Without Project					Existing With Project					
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions
Foothill Boulevard West of Claremont Boulevard	18,020	< 50	94	196	66.7	18,350	< 50	95	199	66.7	0.0
Foothill Boulevard between Claremont Boulevard and Driveway 1	16,120	< 50	87	182	66.2	16,360	< 50	88	184	66.2	0.0
Foothill Boulevard between Driveway 1 and Driveway 2	16,455	< 50	88	185	66.3	16,995	< 50	90	189	66.4	0.1
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	16,460	< 50	88	185	66.3	17,065	< 50	90	189	66.4	0.1
Foothill Boulevard East of Monte Vista Avenue	17,800	59	113	236	67.5	18,251	60	115	240	67.6	0.1
Monte Vista Avenue North of Claremont Boulevard	16,320	< 50	88	184	66.2	16,590	< 50	89	186	66.3	0.1
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3	11,800	< 50	87	180	66.0	11,970	< 50	88	182	66.0	0.0
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	11,785	< 50	91	182	65.3	11,945	< 50	92	184	65.3	0.0
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	11,910	< 50	94	185	65.0	12,190	< 50	95	187	65.1	0.1
Monte Vista Avenue South of Foothill Boulevard	13,700	< 50	101	202	65.6	14,060	< 50	103	205	65.7	0.1
Claremont Boulevard South of Foothill Boulevard	9,210	< 50	63	127	63.6	9,210	< 50	63	127	63.6	0.0
Claremont Boulevard North of Foothill Boulevard	8,280	< 50	60	119	63.2	8,280	< 50	60	119	63.2	0.0
Claremont Boulevard West of Monte Vista Avenue	5,590	< 50	< 50	94	61.2	5,690	< 50	< 50	95	61.3	0.1

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet

Table W: 2021 (Opening Year) Traffic Noise Levels Without and With Project

Roadway Segment	2023 Cumulative Without Project					2023 Cumulative With Project						Significant?
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions	
Foothill Boulevard West of Claremont Boulevard	19,090	< 50	97	204	66.9	19,420	< 50	98	206	67.0	0.1	No
Foothill Boulevard between Claremont Boulevard and Driveway 1	17,070	< 50	90	189	66.4	17,310	< 50	91	191	66.5	0.1	No
Foothill Boulevard between Driveway 1 and Driveway 2	17,440	< 50	92	192	66.5	17,980	< 50	93	196	66.7	0.2	No
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	17,445	< 50	92	192	66.5	18,050	< 50	94	196	66.7	0.2	No
Foothill Boulevard East of Monte Vista Avenue	18,860	60	117	246	67.8	19,311	61	119	249	67.9	0.1	No
Monte Vista Avenue North of Claremont Boulevard	17,300	< 50	91	191	66.5	17,570	< 50	92	193	66.6	0.1	No
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3	12,510	< 50	90	187	66.2	12,680	< 50	91	189	66.3	0.1	No
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	12,490	< 50	94	189	65.5	12,650	< 50	95	191	65.6	0.1	No
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	12,625	< 50	97	191	65.3	12,905	< 50	98	194	65.4	0.1	No
Monte Vista Avenue South of Foothill Boulevard	14,520	< 50	105	209	65.9	14,880	< 50	106	213	66.0	0.1	No
Claremont Boulevard South of Foothill Boulevard	9,760	< 50	65	132	63.9	9,760	< 50	65	132	63.9	0.0	No
Claremont Boulevard North of Foothill Boulevard	8,780	< 50	62	123	63.4	8,780	< 50	62	123	63.4	0.0	No
Claremont Boulevard West of Monte Vista Avenue	5,930	< 50	< 50	98	61.5	6,030	< 50	< 50	98	61.5	0.0	No

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level ft = foot/feet

Table X: 2021 Cumulative Traffic Noise Levels Without and With Project

Roadway Segment	2023 Cumulative Without Project					2023 Cumulative With Project						Significant?
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions	
Foothill Boulevard West of Claremont Boulevard	22,980	< 50	109	230	67.7	23,310	< 50	110	232	67.8	0.1	No
Foothill Boulevard between Claremont Boulevard and Driveway 1	20,490	< 50	101	213	67.2	20,730	< 50	102	215	67.3	0.1	No
Foothill Boulevard between Driveway 1 and Driveway 2	20,860	< 50	103	216	67.3	21,400	< 50	104	220	67.4	0.1	No
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	21,005	< 50	103	217	67.3	21,610	< 50	105	221	67.5	0.2	No
Foothill Boulevard East of Monte Vista Avenue	22,070	66	129	272	68.4	22,400	66	130	275	68.5	0.1	No
Monte Vista Avenue North of Claremont Boulevard	22,280	< 50	107	226	67.6	22,550	< 50	108	227	67.6	0.0	No
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3	16,640	< 50	107	226	67.5	16,810	< 50	108	227	67.5	0.0	No
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	16,620	< 50	111	227	66.8	16,780	< 50	111	229	66.8	0.0	No
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	17,035	< 50	114	232	66.6	17,315	< 50	116	234	66.6	0.0	No
Monte Vista Avenue South of Foothill Boulevard	22,000	73	133	273	67.7	22,360	73	134	276	67.7	0.0	No
Claremont Boulevard South of Foothill Boulevard	10,900	< 50	70	142	64.4	10,900	< 50	70	142	64.4	0.0	No
Claremont Boulevard North of Foothill Boulevard	9,630	< 50	65	131	63.8	9,630	< 50	65	131	63.8	0.0	No
Claremont Boulevard West of Monte Vista Avenue	6,780	< 50	< 50	106	62.0	6,880	< 50	< 50	107	62.1	0.1	No

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level ft = foot/feet

Table Y: 2040 Traffic Noise Levels Without and With Project

Roadway Segment	2040 Cumulative Without Project					2040 Cumulative With Project						Significant?
	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	ADT	Centerline to 70 dBA CNEL (ft)	Centerline to 65 dBA CNEL (ft)	Centerline to 60 dBA CNEL (ft)	CNEL (dBA) 50 ft from Centerline of Outermost Lane	Increase from Baseline Conditions	
Foothill Boulevard West of Claremont Boulevard	24,120	56	112	238	67.9	24,450	57	113	240	68.0	0.1	No
Foothill Boulevard between Claremont Boulevard and Driveway 1	21,500	< 50	104	220	67.4	21,740	< 50	105	222	67.5	0.1	No
Foothill Boulevard between Driveway 1 and Driveway 2	21,510	< 50	105	220	67.4	22,050	< 50	106	224	67.5	0.1	No
Foothill Boulevard between Driveway 2 and Monte Vista Avenue	21,830	< 50	105	223	67.5	22,435	< 50	107	227	67.6	0.1	No
Foothill Boulevard East of Monte Vista Avenue	23,130	67	133	281	68.6	23,581	68	135	284	68.7	0.1	No
Monte Vista Avenue North of Claremont Boulevard	23,390	< 50	110	233	67.8	23,660	56	111	235	67.8	0.0	No
Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3	17,530	56	111	234	67.7	17,700	57	112	235	67.7	0.0	No
Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4	17,450	< 50	114	234	67.0	17,610	63	115	236	67.0	0.0	No
Monte Vista Avenue between Driveway 4 and Foothill Boulevard	17,890	67	118	239	66.8	18,170	67	119	242	66.8	0.0	No
Monte Vista Avenue South of Foothill Boulevard	23,100	74	137	282	67.9	23,460	75	138	285	68.0	0.1	No
Claremont Boulevard South of Foothill Boulevard	11,960	< 50	74	150	64.8	11,960	< 50	74	150	64.8	0.0	No
Claremont Boulevard North of Foothill Boulevard	10,330	< 50	68	137	64.1	10,330	< 50	68	137	64.1	0.0	No
Claremont Boulevard West of Monte Vista Avenue	7,230	< 50	< 50	110	62.3	7,330	< 50	< 50	111	62.4	0.1	No

Source: Compiled by LSA Associates, Inc. (2019).
Note: Traffic noise within 50 ft of the roadway centerline should be evaluated with site-specific information.
ADT = average daily traffic
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibels
ft = foot/feet

Land Use Compatibility Assessment

Exterior Noise Assessment

The land use compatibility of the project site was assessed based on the exterior noise standard contained in the City of Claremont General Plan Public Safety and Noise Element and the City of Upland General Plan Safety Element. The City of Claremont has an exterior noise standard of 65 dBA CNEL for outdoor living areas associated with single-family residences and 70 dBA CNEL for outdoor living areas associated with multifamily residences as well as active and passive open space areas. Multifamily residences and active and passive open space areas in the City of Upland were evaluated with an exterior noise standard of 65 dBA CNEL and 70 dBA CNEL, respectively. The City of Upland also has exterior incremental noise standards for residences and buildings where people normally sleep shown in Table J. The exterior incremental noise standard is based on the existing noise level.

Traffic noise levels at proposed on-site uses were assessed using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) based on the results show in Tables Q and Y. Details of the noise calculation at each receptor location are provided in Appendix B. Table Z shows the existing and 2040 with project traffic noise levels at each receptor location. The receptor locations are shown in Figure 4. As shown in Table Z, Residences and active and passive open space areas in the City of Claremont would not exceed the exterior noise standard of 70 dBA CNEL. However, outdoor active use areas such as upper floor balconies associated with townhomes represented by Receptors T-5.2, T-6.1, T-10.3, T-11.1 through T-11.3, T-13.1 through T-13.3, T-14.1, and T-15.1 in the City of Upland would exceed the City's exterior noise standard of 65 dBA CNEL. Outdoor active use areas such as upper floor balconies associated with townhomes represented by Receptors T-10.3, T-11.1 through T-11.3, T-13.2, T-13.3, and T-15.1 in the City of Upland would exceed the City's exterior noise standard of 65 dBA CNEL. Proposed amenities located northwest of the Foothill Boulevard and Monte Vista Avenue intersection represented by Receptors R-19 and R-21 would experience a noise level of 71 dBA CNEL. However, these areas are considered passive areas and no noise impacts would occur.

Implementation of noise reduction measures with a minimum 8 ft high barrier that surround the upper floor balconies associated with townhomes represented by Receptors T-5.2, T-6.1, T-10.3, T-11.1 through T-11.3, T-13.1 through T-13.3, T-14.1, and T-15.1 in the City of Upland would provide a minimum noise reduction of 6 dBA and would reduce noise levels to 65 dBA CNEL or below. The minimum 8 ft high barrier shall be continuous with no gaps or holes and have a minimum density of 4 pounds per square foot (lbs/sf). Therefore, no on-site exterior traffic noise impacts would occur with the implementation of noise reduction measures described above.



LSA

LEGEND

Project Site

Receptor

N

0 75 150

FEET

FIGURE 4

The Commons Project

Modeled Receptor Locations

SOURCE: Google (2018), KTGY (9/9/19)

I:\CCT1801\GIS\MXD\Noise\Modeled Receptor Locations.mxd (10/31/2019)

Table Z: Existing and 2040 with Project Traffic Noise Levels

Receptor No.	Use	City	Exterior Noise (dBA CNEL)					Noise Increase (dBA)[2]	Allowable Noise Increase (dBA)[1]	Exceed Allowable Noise Increase?	Interior Noise (dBA CNEL)			
			Aircraft Noise	Existing Noise Level	2040 Plus Project Noise Level[1]	Exterior Noise Standard	Exceed Noise Standard?				Windows and Doors Closed	Exceed?	Windows and Doors Open	Exceed?
F-1	Flat	Claremont	60	68	70	70	No	1	--	--	**58**	**Yes**	**46**	**Yes**
F-2	Flat	Claremont	60	64	66	70	No	0	--	--	**54**	**Yes**	42	No
F-3	Flat	Claremont	60	61	64	70	No	0	--	--	**52**	**Yes**	40	No
F-4	Flat	Claremont	60	59	63	70	No	0	--	--	**51**	**Yes**	39	No
F-5	Flat	Claremont	60	59	63	70	No	1	--	--	**51**	**Yes**	39	No
F-6	Flat	Claremont	60	57	62	70	No	0	--	--	**50**	**Yes**	38	No
F-7	Flat	Claremont	60	58	63	70	No	1	--	--	**51**	**Yes**	39	No
F-8	Flat	Claremont	60	60	64	70	No	1	--	--	**52**	**Yes**	40	No
F-9	Flat	Claremont	60	61	64	70	No	0	--	--	**52**	**Yes**	40	No
T-2.1	Townhome	Claremont	60	62	66	70	No	2	--	--	**54**	**Yes**	42	No
T-2.2	Townhome	Claremont	60	58	63	70	No	1	--	--	**51**	**Yes**	39	No
T-2.3	Townhome	Claremont	60	56	62	70	No	0	--	--	**50**	**Yes**	38	No
T-3-1	Townhome	Claremont	60	63	66	70	No	1	--	--	**54**	**Yes**	42	No
T-3-2	Townhome	Claremont	60	58	63	70	No	1	--	--	**51**	**Yes**	39	No
T-3-3	Townhome	Claremont	60	56	62	70	No	0	--	--	**50**	**Yes**	38	No
T-4.1	Townhome	Claremont	60	57	62	70	No	0	--	--	**50**	**Yes**	38	No
T-5.1	Townhome	Upland	60	62	65	65	No	1	2	No	**53**	**Yes**	41	No
T-5.2	Townhome	Upland	60	63	**66**	65	**Yes**	2	2	No	**54**	**Yes**	42	No
T-6.1	Townhome	Upland	60	64	**67**	65	**Yes**	1	2	No	**55**	**Yes**	43	No
T-6.2	Townhome	Upland	60	59	63	65	No	0	3	No	**51**	**Yes**	39	No
T-6.3	Townhome	Upland	60	58	63	65	No	1	3	No	**51**	**Yes**	39	No
T-7.1	Townhome	Claremont	60	56	62	70	No	1	--	--	**50**	**Yes**	38	No
T-89.1	Townhome	Claremont	60	61	65	65	No	2	2	No	**53**	**Yes**	41	No
T-89.2	Townhome	Claremont	60	58	63	65	No	1	3	No	**51**	**Yes**	39	No
T-89.3	Townhome	Upland	60	57	63	65	No	1	3	No	**51**	**Yes**	39	No
T-10.1	Townhome	Upland	60	66	**68**	65	**Yes**	1	1	No	**56**	**Yes**	44	No
T-10.2	Townhome	Upland	60	65	**68**	65	**Yes**	1	1	No	**56**	**Yes**	44	No
T-10.3	Townhome	Upland	60	66	**69**	65	**Yes**	2	**1**	**Yes**	**57**	**Yes**	45	No
T-11.1	Townhome	Upland	60	67	**71**	65	**Yes**	3	**1**	**Yes**	**59**	**Yes**	**47**	**Yes**
T-11.2	Townhome	Upland	60	65	**69**	65	**Yes**	3	**1**	**Yes**	**57**	**Yes**	45	No
T-11.3	Townhome	Upland	60	66	**69**	65	**Yes**	2	**1**	**Yes**	**57**	**Yes**	45	No
T-12.1	Townhome	Upland	60	57	63	65	No	1	3	No	**51**	**Yes**	39	No
T-12.2	Townhome	Upland	60	58	63	65	No	1	3	No	**51**	**Yes**	39	No
T-13.1	Townhome	Upland	60	68	**70**	65	**Yes**	1	1	No	**58**	**Yes**	**46**	**Yes**
T-13.2	Townhome	Upland	60	68	**71**	65	**Yes**	2	**1**	**Yes**	**59**	**Yes**	**47**	**Yes**
T-13.3	Townhome	Upland	60	68	**71**	65	**Yes**	2	**1**	**Yes**	**59**	**Yes**	**47**	**Yes**
T-14.1	Townhome	Upland	60	69	**71**	65	**Yes**	1	1	No	**59**	**Yes**	**47**	**Yes**
T-15.1	Townhome	Upland	60	65	**68**	65	**Yes**	2	**1**	**Yes**	**56**	**Yes**	44	No
R-1	Single-Family	Claremont	60	55	61	65	No	0	--	--	**49**	**Yes**	37	No
R-2	Single-Family	Claremont	60	54	61	65	No	0	--	--	**49**	**Yes**	37	No
R-3	Single-Family	Claremont	60	55	62	65	No	1	--	--	**50**	**Yes**	38	No
R-4	Single-Family	Claremont	60	52	61	65	No	0	--	--	**49**	**Yes**	37	No
R-5	Single-Family	Claremont	60	52	61	65	No	0	--	--	**49**	**Yes**	37	No
R-6	Single-Family	Claremont	60	52	61	65	No	0	--	--	**49**	**Yes**	37	No
R-7	Single-Family	Claremont	60	53	61	65	No	0	--	--	**49**	**Yes**	37	No
R-8	Single-Family	Claremont	60	52	61	65	No	0	--	--	**49**	**Yes**	37	No
R-9	Single-Family	Claremont	60	53	61	65	No	0	--	--	**49**	**Yes**	37	No
R-10	Single-Family	Claremont	60	52	61	65	No	0	--	--	**49**	**Yes**	37	No
R-11	Single-Family	Claremont	60	53	61	65	No	0	--	--	**49**	**Yes**	37	No
R-12	Single-Family	Claremont	60	54	62	65	No	1	--	--	**50**	**Yes**	38	No
R-13	Single-Family	Claremont	60	54	62	65	No	1	--	--	**50**	**Yes**	38	No
P-1	Central Park	Claremont	60	62	65	70	No	1	--	--	--	--	--	--
P-2	Central Park	Claremont	60	62	65	70	No	1	--	--	--	--	--	--
P-3	Central Park	Claremont	60	61	65	70	No	1	--	--	--	--	--	--
P-4	Central Park	Claremont	60	58	63	70	No	1	--	--	--	--	--	--

Table Z: Existing and 2040 with Project Traffic Noise Levels

Receptor No.	Use	City	Exterior Noise (dBA CNEL)					Noise Increase (dBA)[2]	Allowable Noise Increase (dBA)[1]	Exceed Allowable Noise Increase?	Interior Noise (dBA CNEL)			
			Aircraft Noise	Existing Noise Level	2040 Plus Project Noise Level[1]	Exterior Noise Standard	Exceed Noise Standard?				Windows and Doors Closed	Exceed?	Windows and Doors Open	Exceed?
P-5	Central Park	Claremont	60	59	63	70	No	0	--	--	--	--	--	--
P-6	Central Park	Claremont	60	58	63	70	No	1	--	--	--	--	--	--
P-7	Central Park	Claremont	60	58	63	70	No	1	--	--	--	--	--	--
P-8	Central Park	Claremont	60	60	63	70	No	0	--	--	--	--	--	--
P-9	Central Park	Claremont	60	57	62	70	No	0	--	--	--	--	--	--
P-10	Central Park	Claremont	60	56	62	70	No	0	--	--	--	--	--	--
P-11	Linear Park	Claremont	60	56	62	70	No	1	--	--	--	--	--	--
P-12	Linear Park	Claremont	60	55	62	70	No	1	--	--	--	--	--	--
P-13	Linear Park	Claremont	60	56	62	70	No	1	--	--	--	--	--	--
P-14	Linear Park	Claremont	60	56	62	70	No	1	--	--	--	--	--	--
P-15	Linear Park	Claremont	60	56	62	70	No	1	--	--	--	--	--	--
P-16	Linear Park	Claremont	60	56	63	70	No	1	--	--	--	--	--	--
P-17	Linear Park	Upland	60	58	63	70	No	1	--	--	--	--	--	--
P-18	Park	Upland	60	59	64	70	No	2	--	--	--	--	--	--
P-19	Plaza	Upland	60	68	**71**	70	**Yes**	2	--	--	--	--	--	--
P-20	Plaza	Upland	60	68	70	70	No	1	--	--	--	--	--	--
P-21	Plaza	Upland	60	69	**71**	70	**Yes**	2	--	--	--	--	--	--
P-22	Plaza	Upland	60	70	72	70	Yes	2	--	--	--	--	--	--

Source: Compiled by LSA Associates, Inc. (2019).

[1] Bold represents exceedance of exterior or interior noise standards.

[2] Noise increase from combined existing noise level to combined future 2040 plus project noise level shown in Appendix B.

Interior Noise Assessment

Based on the United States Environmental Protection Agency (EPA) *Protective Noise Levels, Condensed Version of EPA Levels Document* (1978), with a combination of exterior walls, doors, and windows, standard construction for Southern California (warm climate) residential buildings would provide more than 24 dBA in exterior-to-interior noise reduction with windows closed and 12 dBA or more with windows open (the national average is 25 dBA with windows closed and 15 dBA with windows open). Table Z shows the interior noise levels with windows and doors open and closed. As shown in Table Z, all flats and townhomes in the Cities of Claremont and Upland would exceed the interior noise standard of 45 dBA CNEL with windows and doors open. Therefore, mechanical ventilation such as air conditioning would be required so that windows and doors can remain closed for a prolonged period of time.

Also, as shown in Table Z, townhomes in the City of Upland represented by Receptors T-11.1, T-13.1 through T-13.3, and T-14.1 would exceed the City of Upland's interior noise standard of 45 dBA CNEL with windows and doors closed. Therefore, higher than standard construction such as windows with a sound transmission class (STC) of 28 or higher would be required. Once final architectural plans are available with the exterior wall details and window types, a Final Acoustic Report shall be prepared to confirm that the interior living spaces of residential dwelling units will meet the City of Upland's interior noise standard of 45 dBA CNEL with windows and doors closed. Therefore, no on-site interior traffic noise impacts would occur with implementation of the noise reduction measures described above.

Long-Term Vibration Impacts

The proposed project would not generate vibration. In addition, vibration levels generated from project-related traffic on the adjacent roadways are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, no vibration impacts from project-related traffic on the adjacent roadways would occur. No mitigation measures would be required.

Long-Term Off-Site Stationary Noise Impacts

Truck Delivery and Truck Unloading Activity

The proposed project would include truck deliveries and truck unloading activities associated with the retail on the southwestern corner of the project in the City of Claremont. Truck delivery and truck unloading activity operations for the proposed project would generate a noise level of 65 dBA L_{max} at 50 ft. Although a typical truck unloading process takes an average of 15 to 20 minutes, the maximum loading and unloading noise level occurs in a much shorter period of time, in a few minutes (at most 5 minutes) over each truck delivery.

Table AA shows the noise levels generated by truck deliveries and truck unloading activities at the property line of the adjacent land use along with the location of the adjacent land use, distance attenuation, and noise level reduction from shielding. The truck unloading area will be surrounded by the proposed on-site buildings, and it is assumed that these intervening buildings would provide a minimum noise reduction of 5 dBA. As shown in Table AA, noise levels generated by truck

Table AA: Summary of Truck Delivery and Truck Unloading Activity Noise Levels

Land Use	Direction	City	Reference Noise Level (dBA L_{eq}) at 20 ft	Distance from Loading Area (ft)[1]	Distance Attenuation (dBA)	Shielding Reduction (dBA)	Noise Level (dBA L_{eq})
Manufacturing	North	Claremont	75	445	27	5	43
Office Park	East	Upland	75	600	30	5	40
Commercial	Southeast	Upland	75	650	30	5	40
Commercial	West	Claremont	75	395	26	5	44
Business Park	Northwest	Claremont	75	450	27	5	43
Residential	Northwest	Claremont	75	930	33	5	37
Residential	Southeast	Upland	75	985	34	5	36

Source: Compiled by LSA Associates, Inc. (2019).
dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level

deliveries and truck unloading activities would not exceed the City of Claremont's daytime exterior noise standards of 65 dBA and 70 dBA for residential and commercial/business land uses, respectively.

Also, noise levels would not exceed the City of Claremont's anytime exterior noise standard of 75 dBA for manufacturing uses. In addition, noise levels would not exceed the City of Upland's daytime exterior 30-minute noise standard of 60 dBA for residential land uses and anytime exterior noise standard of 75 dBA for commercial/office park land uses. The Cities of Claremont and Upland's nighttime noise standards would not be exceeded because the project would be required to comply with Section 16.154.020(H) of the City of Claremont Municipal Code, which prohibits nighttime (10:00 p.m. to 7:00 a.m.) truck deliveries and truck unloading activities. Therefore, no off-site noise impacts from on-site truck delivery and truck unloading activity would occur. No noise reduction measures are required.

Heating, Ventilation, and Air Conditioning Equipment

The project would have heating, ventilation, and air conditioning (HVAC) units. The HVAC equipment could operate 24 hours per day. HVAC equipment would generate noise levels of 66.6 dBA L_{eq} at 5 ft. Table AB shows the noise levels generated by proposed on-site HVAC equipment at the property line of adjacent land uses along with the location of the adjacent land uses, distance attenuation, and noise level reduction from shielding. The closest residences to the northwest and southeast of the project have intervening buildings that would provide a minimum noise reduction of 5 dBA. As shown in Table AB, noise levels generated by proposed on-site HVAC equipment would not exceed the City of Claremont's daytime and nighttime exterior noise standards of 60 dBA and 55 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Claremont's daytime and nighttime exterior noise standards of 65 dBA and 60 dBA, respectively, for commercial and business park uses. Noise levels would not exceed the City of Claremont's anytime exterior noise standard of 70 dBA for manufacturing uses.

Table AB: Summary of HVAC Noise Levels

Land Use	Direction	City	No. of HVAC Units	Total Reference Noise Level[1] at 5 ft (dBA L_{eq})	Distance to Receptor's Property Line (ft)	Distance Attenuation (dBA)	Shielding Reduction (dBA)	Noise Level (dBA L_{eq})
Manufacturing	North	Claremont	2	69.6	30	15.6	0	54.0
Office Park	East	Upland	6	74.4	150	29.5	0	44.9
Commercial	Southeast	Upland	5	73.6	280	35.0	0	38.6
Commercial	West	Claremont	4	72.6	60	21.6	0	51.0
Business Park	Northwest	Claremont	5	73.6	65	22.3	0	51.3
Residential	Northwest	Claremont	5	73.6	520	40.3	5	28.3
Residential	Southeast	Upland	5	73.6	555	40.9	5	27.7

Source: Compiled by LSA Associates, Inc. (2019).
[1] Reference noise level for one HVAC unit is 66.6 dBA L_{eq} at a distance of 5 ft.
dBA L_{eq} = average A-weighted hourly noise level
ft = foot/feet

Also, noise levels would not exceed the City of Upland's daytime and nighttime exterior noise standards of 60 dBA and 50 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Upland's anytime exterior noise standard of 80 dBA for office park and commercial uses. Therefore, no off-site noise impacts from on-site HVAC equipment would occur. No noise reduction measures are required.

Parking Activities

The proposed project would include a surface parking lot for the retail component of the project to the southwest. Noise generated from parking activities includes vehicles traveling at slow speeds, engine start-up noise, car door slams, car horns, car alarms, and tire squeals. Representative parking activities would generate approximately 60 to 70 dBA L_{max} at 50 ft. Noise levels generated from parking activities are intermittent in nature.

Table AC shows the noise levels generated by the proposed on-site surface parking lot at the property line of adjacent land uses along with the location of the adjacent land uses, distance attenuation, and noise level reduction from shielding. All of the adjacent land uses to the project have intervening buildings that would provide a minimum noise reduction of 5 dBA except for the adjacent commercial land use west of the project. As shown in Table AC, noise levels generated by on-site surface parking activities associated with the retail component of the project would not exceed the City of Claremont's maximum daytime and nighttime exterior noise standards of 75 dBA and 70 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Claremont's maximum daytime and nighttime exterior noise standards of 80 dBA and 75 dBA, respectively, for commercial and business park uses. Noise levels would not exceed the City of Claremont's maximum anytime exterior noise standard of 85 dBA for manufacturing uses.

Also, noise levels would not exceed the City of Upland's maximum daytime and nighttime exterior noise standards of 75 dBA and 70 dBA, respectively, for residential land uses. Noise levels would not exceed the City of Upland's maximum anytime exterior noise standard of 75 dBA for office park and commercial uses. Therefore, no off-site noise impacts from on-site surface parking lot activities would occur. No noise reduction measures are required.

Table AC: Summary of HVAC Noise Levels

Land Use	Direction	City	Reference Noise Level[1] at 50 ft (dBA L_{max})	Distance to Receptor's Property Line (ft)	Distance Attenuation (dBA)	Shielding Reduction (dBA)	Noise Level (dBA L_{max})
Manufacturing	North	Claremont	70	550	21	5	44
Office Park	East	Upland	70	690	23	5	42
Commercial	Southeast	Upland	70	700	23	5	42
Commercial	West	Claremont	70	120	8	0	62
Business Park	Northwest	Claremont	70	365	17	5	48
Residential	Northwest	Claremont	70	700	23	5	42
Residential	Southeast	Upland	70	1050	26	5	39

Source: Compiled by LSA Associates, Inc. (2019).
dBA = A-weighted decibels HVAC = heating, ventilation, and air conditioning
ft = feet L_{max} = maximum instantaneous noise level

REDUCTION MEASURES

Short-Term Construction Noise Impacts

The following measures would be required to minimize construction noise:

- The construction contractor shall limit construction activities to between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays, excluding national holidays. In addition, noise levels on residential properties shall not exceed 65 dBA for a cumulative period of more than 15 minutes in any 1 hour, 70 dBA for a cumulative period of more than 10 minutes in any 1 hour, 79 dBA for a cumulative period of more than 5 minutes in any 1 hour, or 80 dBA at any time.

- During all project site excavation and grading, the project contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and most noise-sensitive receptors nearest the project site during all project construction.

- The construction contractor shall place all stationary construction equipment so that the emitted noise is directed away from the sensitive receptors nearest the project site.

Short-Term Construction Vibration Impacts

No vibration reduction measures are required.

Long-Term Aircraft Noise Impacts

The measures listed below are required to reduce aircraft noise.

- A Final Acoustic Report shall be prepared once final architectural plans are available with the exterior wall details and window types to confirm that aircraft-related interior noise levels will be no greater than 40 dBA CNEL with windows and doors closed for all interior living spaces of residential dwelling units.

- The proposed project shall include the installation of mechanical ventilation such as air conditioning for all dwelling units so that windows and doors can remain closed for a prolonged period of time.

- As a condition for approval, the project applicant shall provide an avigation easement dedication to Cable Airport.

- Prior to the issuance of building permits, the project applicant shall provide the City of Claremont a copy of an Airport Proximity Disclosure that will be presented to prospective buyers of real estate within the project site. The Airport Proximity Disclosure shall convey information to prospective buyers about airport-associated annoyances or inconveniences such as noise, vibration, or odors.

Long-Term Traffic Noise Impacts

The following measures are required to reduce traffic noise to on-site residents:

- A minimum 8 ft high barrier that surrounds the upper floor balconies associated with townhomes in the City of Upland represented by Receptors T-5.2, T-6.1, T-10.3, T-11.1 through T-11.3, T-13.1 through T-13.3, T-14.1, and T-15.1 would be required. The barrier shall be continuous with no gaps or holes and have a minimum density of 4 pounds per square foot (lbs/sf). In addition, the barrier can include a combination of materials such as Plexiglas. Receptor location are shown in Figure 4.

- The proposed project shall include the installation of mechanical ventilation such as air conditioning for all dwelling units so that windows and doors can remain closed for a prolonged period of time.

- Higher than standard construction (e.g., windows with an STC of 28 or higher) are required for townhomes in the City of Upland represented by Receptors T-11.1, T-13.1 through T-13.3, and T-14.1.

- A Final Acoustic Report shall be prepared once final architectural plans are available with the exterior wall details and window types to confirm that the interior living spaces of residential dwelling units will meet the Cities of Claremont and Upland's interior noise standard of 45 dBA CNEL with windows and doors closed.

Long-Term Vibration Impacts

No vibration measures are required.

Long-Term Stationary Noise Impacts

No noise reduction measures are required.

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APPENDIX A

FHWA HIGHWAY TRAFFIC NOISE MODEL PRINTOUTS

TABLE Existing (2019) No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18020 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	93.5	196.2	420.1

TABLE Existing (2019) No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16120 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	87.3	182.4	390.1

TABLE Existing (2019) No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16455 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.4	184.8	395.5

TABLE Existing (2019) No Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16460 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.4	184.9	395.6

TABLE Existing (2019) No Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.51

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
58.8	112.9	236.5	506.1

TABLE Existing (2019) No Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16320 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.24

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.0	183.8	393.3

TABLE Existing (2019) No Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	86.8	180.3	385.2

TABLE Existing (2019) No Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11785 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.0	182.1	385.5

TABLE Existing (2019) No Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11910 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.1	184.6	388.6

TABLE Existing (2019) No Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	101.4	201.7	426.2

TABLE Existing (2019) No Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9210 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	63.4	127.1	269.3

TABLE Existing (2019) No Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8280 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	59.8	118.8	251.0

TABLE Existing (2019) No Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5590 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	94.1	194.5

TABLE Existing (2019) with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18350 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.6	198.5	425.2

TABLE Existing (2019) with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16360 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.1	184.1	394.0

TABLE Existing (2019) with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16995 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.2	188.8	404.1

TABLE Existing (2019) with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17065 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.4	189.3	405.2

TABLE Existing (2019) with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18251 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
59.5	114.7	240.4	514.6

TABLE Existing (2019) with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16590 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.31

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	88.8	185.8	397.6

TABLE Existing (2019) with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11970 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.03

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	87.6	182.0	388.9

TABLE Existing (2019) with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11945 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.7	183.7	388.9

TABLE Existing (2019) with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12190 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	95.3	187.3	394.6

TABLE Existing (2019) with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14060 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	102.8	205.0	433.5

TABLE Existing (2019) with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9210 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	63.4	127.1	269.3

TABLE Existing (2019) with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8280 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	59.8	118.8	251.0

TABLE Existing (2019) with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - Existing (2019) with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5690 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	95.1	196.7

TABLE 2021 Opening Year No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19090 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.92

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	97.0	203.8	436.5

TABLE 2021 Opening Year No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17070 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.4	189.3	405.2

TABLE 2021 Opening Year No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17440 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.6	192.0	411.0

TABLE 2021 Opening Year No Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17445 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.7	192.0	411.1

TABLE 2021 Opening Year No Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18860 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
60.5	117.1	245.6	525.9

TABLE 2021 Opening Year No Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.2	191.0	408.9

TABLE 2021 Opening Year No Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12510 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.22

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.0	187.3	400.4

TABLE 2021 Opening Year No Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12490 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.0	189.0	400.6

TABLE 2021 Opening Year No Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12625 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	97.1	191.5	403.8

TABLE 2021 Opening Year No Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14520 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.7	209.2	442.8

TABLE 2021 Opening Year No Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9760 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.4	131.9	279.8

TABLE 2021 Opening Year No Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8780 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	61.7	123.3	260.9

TABLE 2021 Opening Year No Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 5930 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	97.5	202.1

TABLE 2021 Opening Year with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19420 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.0	206.1	441.5

TABLE 2021 Opening Year with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17310 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	91.2	191.1	409.0

TABLE 2021 Opening Year with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17980 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.66

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	93.4	195.9	419.5

TABLE 2021 Opening Year with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18050 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.67

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	93.6	196.4	420.5

TABLE 2021 Opening Year with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 19311 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.86

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
61.2	118.8	249.4	534.3

TABLE 2021 Opening Year with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17570 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	92.1	192.9	413.1

TABLE 2021 Opening Year with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12680 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.7	189.0	404.0

TABLE 2021 Opening Year with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12650 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.58

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	94.6	190.5	403.9

TABLE 2021 Opening Year with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12905 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	98.2	194.2	409.7

TABLE 2021 Opening Year with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 14880 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 65.98

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	106.1	212.5	450.1

TABLE 2021 Opening Year with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9760 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.87

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.4	131.9	279.8

TABLE 2021 Opening Year with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 8780 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	61.7	123.3	260.9

TABLE 2021 Opening Year with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2021 Opening Year with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6030 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.53

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	98.5	204.3

TABLE 2021 Cumulative No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22980 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	109.0	230.2	493.8

TABLE 2021 Cumulative No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20490 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.23

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	101.4	213.5	457.5

TABLE 2021 Cumulative No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20860 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.30

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	102.5	216.0	463.0

TABLE 2021 Cumulative No Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21005 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.33

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	103.0	217.0	465.1

TABLE 2021 Cumulative No Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22070 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
65.6	129.2	272.4	583.8

TABLE 2021 Cumulative No Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22280 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.59

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	106.9	225.6	483.7

TABLE 2021 Cumulative No Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16640 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	107.4	225.9	484.0

TABLE 2021 Cumulative No Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16620 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	110.7	227.2	483.9

TABLE 2021 Cumulative No Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17035 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	114.4	231.8	492.1

TABLE 2021 Cumulative No Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22000 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.68

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.9	132.8	273.4	582.8

TABLE 2021 Cumulative No Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	69.7	141.6	301.0

TABLE 2021 Cumulative No Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9630 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	64.9	130.8	277.4

TABLE 2021 Cumulative No Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6780 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	105.8	220.6

TABLE 2021 Cumulative with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23310 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.79

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	110.0	232.4	498.5

TABLE 2021 Cumulative with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 20730 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.28

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	102.1	215.1	461.1

TABLE 2021 Cumulative with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.41

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.2	219.7	470.9

TABLE 2021 Cumulative with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21610 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.46

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.8	221.1	474.0

TABLE 2021 Cumulative with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22400 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.1	130.4	275.0	589.6

TABLE 2021 Cumulative with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22550 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	107.7	227.4	487.6

TABLE 2021 Cumulative with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2021 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16810 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	108.0	227.4	487.3

TABLE 2021 Cumulative with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2021 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16780 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	111.3	228.6	487.0

TABLE 2021 Cumulative with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17315 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	115.5	234.2	497.5

TABLE 2021 Cumulative with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22360 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.75

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
73.4	134.0	276.3	589.1

TABLE 2021 Cumulative with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	69.7	141.6	301.0

TABLE 2021 Cumulative with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2021 Cumulative with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9630 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 63.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	64.9	130.8	277.4

TABLE 2021 Cumulative with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2021 Cumulative with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 6880 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.11

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	106.7	222.7

TABLE 2040 No Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24120 SPEED (MPH): 40 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
56.3	112.4	237.6	509.8

TABLE 2040 No Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.43

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.5	220.3	472.4

TABLE 2040 No Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21510 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	104.5	220.4	472.5

TABLE 2040 No Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21830 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	105.5	222.6	477.2

TABLE 2040 No Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2040 No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23130 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.3	133.1	280.9	602.3

TABLE 2040 No Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23390 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	110.2	232.9	499.6

TABLE 2040 No Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2040 No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17530 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
56.4	110.9	233.7	500.9

TABLE 2040 No Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2040 No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17450 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.97

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	113.9	234.4	499.8

TABLE 2040 No Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17890 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.78

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.1	117.7	239.1	508.2

TABLE 2040 No Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.89

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
74.5	136.7	282.2	602.0

TABLE 2040 No Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2040 No Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11960 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.5	150.4	320.1

TABLE 2040 No Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10330 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	67.6	136.8	290.5

TABLE 2040 No Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2040 No Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7230 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	110.0	230.0

TABLE 2040 with Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard West of Claremont Boulevard
NOTES: The Commons Project - 2040 with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24450 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.99

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
56.7	113.3	239.8	514.5

TABLE 2040 with Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Claremont Boulevard and Driveway 1
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 21740 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.48

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	105.2	222.0	475.9

TABLE 2040 with Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 1 and Driveway 2
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22050 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	106.2	224.0	480.4

TABLE 2040 with Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard between Driveway 2 and Monte Vista Avenue
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22435 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.62

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	107.3	226.6	486.0

TABLE 2040 with Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Foothill Boulevard East of Monte Vista Avenue
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23581 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.0	134.7	284.5	610.1

TABLE 2040 with Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue North of Claremont Boulevard
NOTES: The Commons Project - 2040 with Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23660 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 24 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
55.7	111.0	234.6	503.3

TABLE 2040 with Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Claremont Boulevard and Marylind Avenue/Driveway 3
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
56.7	111.6	235.2	504.2

TABLE 2040 with Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Marylind Avenue/Driveway 3 and Driveway 4
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17610 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 38 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
62.9	114.5	235.8	502.7

TABLE 2040 with Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue between Driveway 4 and Foothill Boulevard
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 18170 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.85

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.5	118.7	241.5	513.5

TABLE 2040 with Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Monte Vista Avenue South of Foothill Boulevard
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23460 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 44 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.96

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
75.0	137.9	285.0	608.2

TABLE 2040 with Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard South of Foothill Boulevard
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11960 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	73.5	150.4	320.1

TABLE 2040 with Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard North of Foothill Boulevard
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10330 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 26 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.12

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	67.6	136.8	290.5

TABLE 2040 with Project-13
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/26/2019
ROADWAY SEGMENT: Claremont Boulevard West of Monte Vista Avenue
NOTES: The Commons Project - 2040 with Project

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 7330 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 30 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.38

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	0.0	111.0	232.1

APPENDIX B

DETAILED NOISE LEVEL CALCULATIONS

Building/Outdoor Area	Receptor No.	City	Receptor to Roadway Centerline Distance (ft)		Aircraft Noise (dBA CNEL)	Existing Noise Level (dBA CNEL)		Future Plus Project Noise Level (dBA CNEL)		Shielding (dBA)		Existing Noise Level (dBA CNEL)		2040 Plus Project Noise Level (dBA CNEL)		Combined Existing Noise Level (dBA CNEL)	Combined 2040 Plus Project Exterior Noise Level (dBA CNEL)	Increase (dBA)	Exterior Noise Standard (dBA CNEL)	Exceed?	Allowable Increase (dBA)	Exceed Allowable Increase?	Combined Interior Noise Level (dBA CNEL)	Exceed?	Combined Interior Noise Level (dBA CNEL)	Exceed?
			Foothill Boulevard	Monte Vista		Foothill Boulevard	Monte Vista	Foothill Boulevard	Monte Vista	Foothill Boulevard	Monte Vista	Foothill Boulevard	Monte Vista	Foothill Boulevard	Monte Vista											
Building 1 - Flats	F-1	Claremont	58	489	60	68	54	69	57	0	5	68	49	69	52	69	70	1	70	No	--	--	58	Yes	46	Yes
Building 1 - Flats	F-2	Claremont	68	476	60	67	54	68	57	3	5	64	49	65	52	66	66	0	70	No	--	--	54	Yes	42	No
Building 1 - Flats	F-3	Claremont	103	491	60	64	54	65	57	3	5	61	49	62	52	64	64	0	70	No	--	--	52	Yes	40	No
Building 1 - Flats	F-4	Claremont	142	508	60	62	54	63	57	3	5	59	49	60	52	63	63	0	70	No	--	--	51	Yes	39	No
Building 1 - Flats	F-5	Claremont	171	518	60	61	54	62	57	3	5	58	49	59	52	62	63	1	70	No	--	--	51	Yes	39	No
Building 1 - Flats	F-6	Claremont	169	533	60	61	54	62	57	5	3	56	51	57	54	62	62	0	70	No	--	--	50	Yes	38	No
Building 1 - Flats	F-7	Claremont	134	614	60	62	53	64	56	5	3	57	50	59	53	62	63	1	70	No	--	--	51	Yes	39	No
Building 1 - Flats	F-8	Claremont	120	618	60	63	53	64	56	3	5	60	48	61	51	63	64	1	70	No	--	--	52	Yes	40	No
Building 1 - Flats	F-9	Claremont	100	611	60	64	53	65	56	3	5	61	48	62	51	64	64	0	70	No	--	--	52	Yes	40	No
Building 2 - Townhome	T-2.1	Claremont	84	407	60	65	55	67	58	3	5	62	50	64	53	64	66	2	70	No	--	--	54	Yes	42	No
Building 2 - Townhome	T-2.2	Claremont	142	431	60	62	55	63	58	5	5	57	50	58	53	62	63	1	70	No	--	--	51	Yes	39	No
Building 2 - Townhome	T-2.3	Claremont	198	453	60	60	55	61	58	5	5	55	50	56	53	62	62	0	70	No	--	--	50	Yes	38	No
Building 3 - Townhome	T-3-1	Claremont	72	386	60	66	56	68	59	3	5	63	51	65	54	65	66	1	70	No	--	--	54	Yes	42	No
Building 3 - Townhome	T-3-2	Claremont	137	413	60	62	55	63	58	5	5	57	50	58	53	62	63	1	70	No	--	--	51	Yes	39	No
Building 3 - Townhome	T-3-3	Claremont	204	439	60	60	55	61	58	5	5	55	50	56	53	62	62	0	70	No	--	--	50	Yes	38	No
Building 4 - Townhome	T-4.1	Claremont	187	319	60	60	57	61	60	5	5	55	52	56	55	62	62	0	70	No	--	--	50	Yes	38	No
Building 5 - Townhome	T-5.1	Upland	88	319	60	65	57	66	60	3	5	62	52	63	55	64	65	1	65	No	2	No	53	Yes	41	No
Building 5 - Townhome	T-5.2	Upland	85	271	60	65	58	67	61	3	5	62	53	64	56	64	66	2	65	Yes	2	No	54	Yes	42	No
Building 6 - Townhome	T-6.1	Upland	65	247	60	67	59	68	62	3	5	64	54	65	57	66	67	1	65	Yes	2	No	55	Yes	43	No
Building 6 - Townhome	T-6.2	Upland	120	270	60	63	58	64	61	5	5	58	53	59	56	63	63	0	65	No	3	No	51	Yes	39	No
Building 6 - Townhome	T-6.3	Upland	171	290	60	61	58	62	61	5	5	56	53	57	56	62	63	1	65	No	3	No	51	Yes	39	No
Building 7 - Townhome	T-7.1	Claremont	232	320	60	59	57	60	60	5	5	54	52	55	55	61	62	1	70	No	--	--	50	Yes	38	No
Building 8 and 9 - Townhome	T-89.1	Upland	180	165	60	60	61	62	64	3	3	57	58	59	61	63	65	2	65	No	2	No	53	Yes	41	No
Building 8 and 9 - Townhome	T-89.2	Upland	236	186	60	59	61	60	63	5	5	54	56	55	58	62	63	1	65	No	3	No	51	Yes	39	No
Building 8 and 9 - Townhome	T-89.3	Upland	287	207	60	57	60	59	63	5	5	52	55	54	58	62	63	1	65	No	3	No	51	Yes	39	No
Building 10 - Townhome	T-10.1	Upland	88	161	60	65	62	66	64	0	3	65	59	66	61	67	68	1	65	Yes	1	No	56	Yes	44	No
Building 10 - Townhome	T-10.2	Upland	103	121	60	64	63	65	66	0	3	64	60	65	63	67	68	1	65	Yes	1	No	56	Yes	44	No
Building 10 - Townhome	T-10.3	Upland	115	82	60	63	66	65	69	0	3	63	63	65	66	67	69	2	65	Yes	1	Yes	57	Yes	45	No
Building 11 - Townhome	T-11.1	Upland	243	67	60	58	67	60	70	3	0	55	67	57	70	68	71	3	65	Yes	1	Yes	59	Yes	47	Yes
Building 11 - Townhome	T-11.2	Upland	327	96	60	56	65	58	68	3	0	53	65	55	68	66	69	3	65	Yes	1	Yes	57	Yes	45	No
Building 11 - Townhome	T-11.3	Upland	286	85	60	57	66	59	68	3	0	54	66	56	68	67	69	2	65	Yes	1	Yes	57	Yes	45	No
Building 12 - Townhome	T-12.1	Upland	510	169	60	54	61	55	64	3	5	51	56	52	59	62	63	1	65	No	3	No	51	Yes	39	No
Building 12 - Townhome	T-12.2	Upland	596	155	60	53	62	54	64	3	5	50	57	51	59	62	63	1	65	No	3	No	51	Yes	39	No
Building 13 - Townhome	T-13.1	Upland	518	60	60	53	68	55	70	3	0	50	68	52	70	69	70	1	65	Yes	1	No	58	Yes	46	Yes
Building 13 - Townhome	T-13.2	Upland	575	58	60	53	68	54	71	3	0	50	68	51	71	69	71	2	65	Yes	1	Yes	59	Yes	47	Yes
Building 13 - Townhome	T-13.3	Upland	636	55	60	52	68	53	71	3	0	49	68	50	71	69	71	2	65	Yes	1	Yes	59	Yes	47	Yes
Building 14 - Townhome	T-14.1	Upland	705	51	60	51	69	53	71	3	0	48	69	50	71	70	71	1	65	Yes	1	No	59	Yes	47	Yes
Building 15 - Townhome	T-15.1	Upland	811	59	60	51	68	52	70	5	3	46	65	47	67	66	68	2	65	Yes	1	Yes	56	Yes	44	No
Single-Family	R-1	Claremont	225	895	60	59	50	60	53	5	5	54	45	55	48	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-2	Claremont	257	826	60	58	51	59	54	5	5	53	46	54	49	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-3	Claremont	272	895	60	58	50	59	53	3	5	55	45	56	48	61	62	1	65	No	--	--	50	Yes	38	No
Single-Family	R-4	Claremont	419	865	60	55	51	56	53	5	3	50	48	51	50	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-5	Claremont	470	792	60	54	51	55	54	5	3	49	48	50	51	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-6	Claremont	517	710	60	53	52	55	55	5	3	48	49	50	52	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-7	Claremont	510	594	60	54	53	55	56	5	3	49	50	50	53	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-8	Claremont	521	663	60	53	52	55	55	5	3	48	49	50	52	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-9	Claremont	297	750	60	57	51	58	54	5	5	52	46	53	49	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-10	Claremont	342	642	60	56	52	57	55	5	5	51	47	52	50	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-11	Claremont	397	493	60	55	54	56	57	5	5	50	49	51	52	61	61	0	65	No	--	--	49	Yes	37	No
Single-Family	R-12	Claremont	476	423	60	54	55	55	58	5	3	49	52	50	55	61	62	1	65	No	--	--	50	Yes	38	No
Single-Family	R-13	Claremont	430	308	60	55	57	56	60	5	5	50	52	51	55	61	62	1	65	No	--	--	50	Yes	38	No
Central Park	P-1	Claremont	148	787	60	62	51	63	54	0	2	62	49	63	52	64	65	1	70	No	--	--	--	--	--	--
Central Park	P-2	Claremont	149	744	60	62	52	63	54	0	2	62	50	63	52	64	65	1	70	No	--	--	--	--	--	--
Central Park	P-3	Claremont	156	698	60	61	52	63	55	0	2	61	50	63	53	64	65	1	70	No	--	--	--	--	--	--
Central Park	P-4	Claremont	196	674	60	60	52	61	55	3	3	57	49	58	52	62	63	1	70	No	--	--	--	--	--	--
Central Park	P-5	Claremont	142	658	60	62	52	63	55	3	3	59	49	60	52	63	63	0	70	No	--	--	--	--	--	--
Central Park	P-6	Claremont	180	643	60	60	52	62	55	3	3	57	49	59	52	62	63	1	70	No	--	--	--	--	--	--
Central Park	P-7	Claremont	185	623	60	60	53	61	56	3	3	57	50	58	53	62	63	1	70	No	--	--	--	--	--	--
Central Park	P-8	Claremont	148	617	60	62	53	63	56	3	3	59	50	60	53	63	63	0	70	No	--	--	--	--	--	--
Central Park	P-9	Claremont	171	571	60	61	53	62	56	5	3	56	50	57	53	62	62	0	70	No	--	--	--	--	--	--
Central Park	P-10	Claremont	182	554	60	60	53	62	56	5	3	55	50	57	53	62	62	0	70	No	--	--	--	--	--	--
Linear Park	P-11	Claremont	279	467	60	58	55	59	57	5	3	53	52	54	54	61	62	1	70	No	--	--	--	--	--	--
Linear Park	P-12	Claremont	296	432	60	57	55	58	58	5	3	52	52	53	55	61	62	1	70	No	--	--	--	--	--	--
Linear Park	P-13	Claremont	324	396	60	57	56	58	58	5	3	52	53	53	55	61	62	1	70	No	--	--	--	--	--	--
Linear Park	P-14	Claremont	335	326	60	56	57	58	60	5	3	51	54	53	57	61	62	1	70	No	--	--	--	--	--	--
Linear Park	P-15	Claremont	346	303	60	56	57	57	60	5	3	51	54	52	57	61	62	1	70	No	--	--	--	--	--	--
Linear Park	P-16	Claremont	368	263	60	56	58	57	61	5	3	51	55	52	58	62	63	1	70	No	--	--	--	--	--	--
Linear Park	P-17	Upland	385	188	60	55	60	57	63	5	3	50	57	52	60	62	63	1	70	No	--	--	--	--	--	--
Park	P-18	Upland	457	170	60	54	61	56	64	5	3	49	58	51	61	62	64	2	70	No	--	--	--	--	--	--
Plaza	P-19	Upland	62	121	60	67	63	69	66	0	0	67	63	69	66	69	71	2	70	Yes	--	--	--	--	--	--
Plaza	P-20	Upland	75	112	60	66	64	67	67	0	0	66	64	67	67	69	70	1	70	No	--	--	--	--	--	--
Plaza	P-21	Upland	88	86	60	65	66	66	68	0	0	65	66	66	68	69	71	2	70	Yes	--	--	--	--	--	--
Plaza	P-22	Upland	74	69	60	66	67	67	70	0	0	66	67	67	70	70	72	2	70	Yes	--	--	--	--	--	--

APPENDIX H-1:

The Commons Project Traffic Impact Analysis, City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California, LSA Associates, Inc., October 2019

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TRAFFIC IMPACT ANALYSIS

THE COMMONS PROJECT

CITY OF CLAREMONT AND CITY OF UPLAND

LOS ANGELES COUNTY AND SAN BERNARDINO COUNTY, CALIFORNIA

LSA

October 2019

TRAFFIC IMPACT ANALYSIS

THE COMMONS PROJECT

CITY OF CLAREMONT AND CITY OF UPLAND

LOS ANGELES COUNTY AND SAN BERNARDINO COUNTY, CALIFORNIA

Submitted to:

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Claremont, California 91711

And

City of Upland
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Project No. CCT1801

LSA

October 2019

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1.0 INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared to assess the potential circulation impacts associated with the proposed The Commons project to be located on an undeveloped parcel (APN No. 8307-003-066), in the city of Claremont, and three parcels (APN Nos. 1006-312-02, 1006-312-02-03, and 1006-312-0204), in the city of Upland.

This report is intended to satisfy the requirements established the San Bernardino County Transportation Authority (SBCTA) *San Bernardino County Congestion Management Program (CMP) TIA Guidelines* (dated 2016), the City of Claremont Mobility Element, City of Upland's TIA requirements, and the Los Angeles County Metropolitan Transportation Authority (LAMTA) *Congestion Management Program* (dated 2010), as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA). The City of Claremont is the lead agency for this project. Therefore, the scope of work for this TIA, including trip generation, trip distribution, study area, and analysis methodologies have been approved by the City of Claremont staff via the City's scoping agreement process (Appendix A).

This study examines traffic operations in the vicinity of the proposed project under the following eight scenarios:

- Existing Traffic conditions;
- Existing with Project Traffic conditions;
- Project Opening Year (2021) without Project Traffic conditions;
- Project Opening Year (2021) with Project Traffic conditions;
- Cumulative (2021) without Project Traffic conditions;
- Cumulative (2021) with Project Traffic conditions;
- Future Build-out year (2040) Traffic conditions; and
- Future Build-out Year (2040) with Project Traffic conditions.

Traffic conditions were examined for the weekday a.m., and p.m. peak hour conditions. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. The p.m. peak hour is the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m.

1.1 PROJECT DESCRIPTION

The project site is located on an undeveloped parcel (APN No. 8307-003-066) in the City of Claremont, and three parcels (APN Nos. 1006-312-02, 1006-312-02-03, and 1006-312-0204), in the City of Upland. This site is in a block bounded by Marylind Avenue to the north, Foothill Boulevard to the south, Monte Vista Avenue to the east, and Andrew Drive to the west. Marylind Avenue, Foothill Boulevard, Monte Vista Avenue, and Andrew Drive are all two-way streets. Figure 1-2 illustrates the conceptual site plan for the project.

The project site consists of four parcels. At present, one of the parcels is occupied by a one-story structure which houses a nursery store called Armstrong Nursery Store. The existing structure will not be removed and will become the adjacent neighboring property to the west of the proposed project.

The proposed development will add approximately 27 single family detached homes, 73 townhomes, and 5,000 square feet of retail with 10 flats above retail. The project will have four driveways, out of which three will operate as right-in/right-out (RIRO) driveways (Driveways 1, 2, and 4) and one as a full-access driveway (Driveway 3). The project can also be accessed through an existing asphalt road between the Armstrong Nursery and project site. Figure 1-2 illustrates the conceptual site plan for the project.

1.2 STUDY AREA

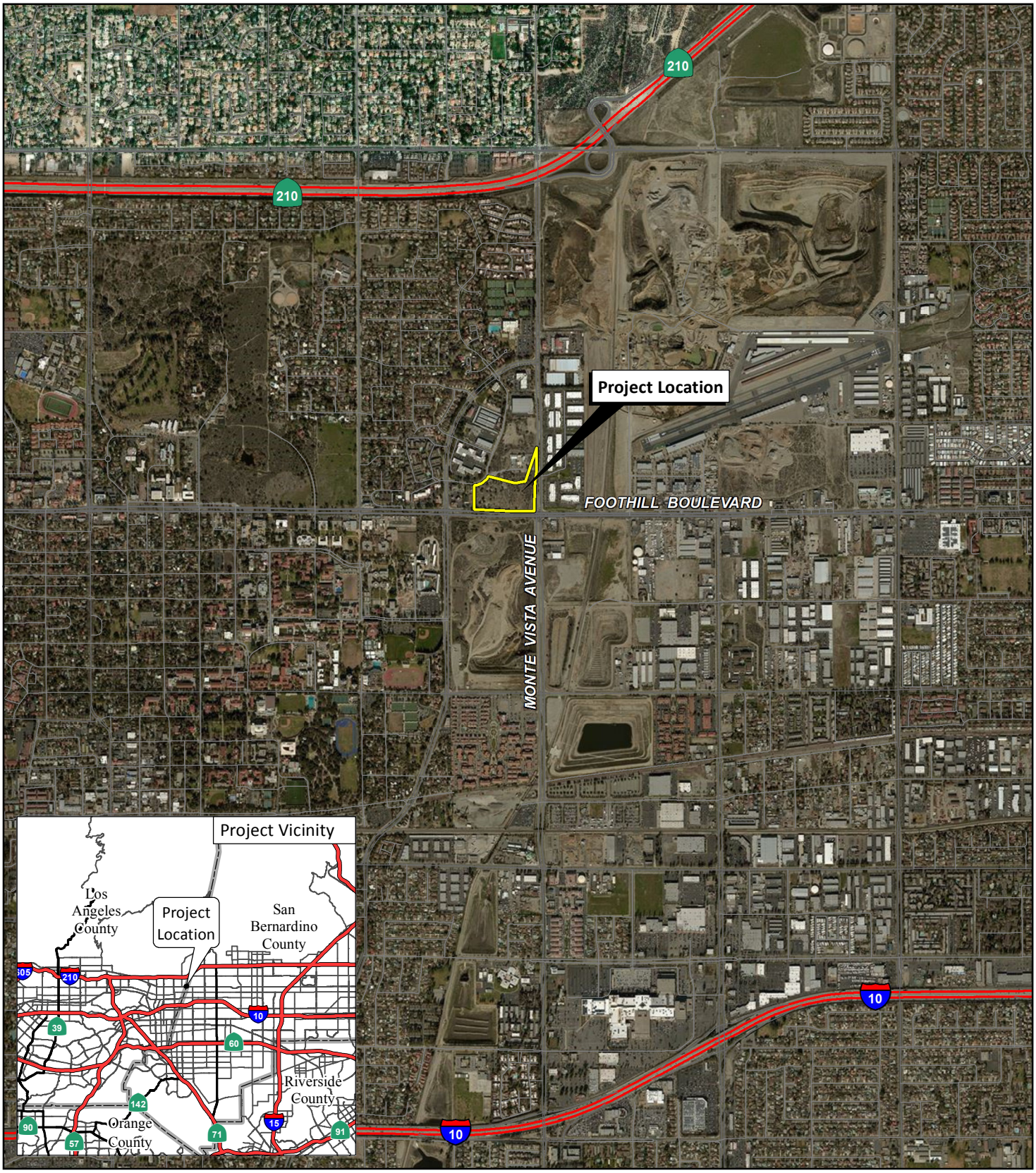
The study area was approved during the scoping agreement process (Appendix A). The study area consists of the following intersections that have been included in this analysis:

1. Claremont Boulevard/Foothill Boulevard (City of Claremont);
2. Driveway 1/E Foothill Boulevard (City of Claremont);
3. Driveway 2/E Foothill Boulevard (City of Claremont);
4. Monte Vista Avenue/N Claremont Boulevard (City of Claremont);
5. Monte Vista Avenue/Marylind Avenue - Driveway 3 (City of Upland);
6. Monte Vista Avenue/Driveway 4 (City of Upland); and
7. Monte Vista Avenue/E Foothill Boulevard (City of Upland).

Figure 1-3 illustrates the locations of all analysis intersections.

1.3 LIST OF CHAPTER 1.0 FIGURES

- Figure 1-1: Regional and Project Location
- Figure 1-2: Conceptual Site Plan
- Figure 1-3: Study Area Intersections



LSA

FIGURE 1-1

N

0 1000 2000
FEET

SOURCE: ESRI Streetmap, 2013, Bing Aerial, 2018.

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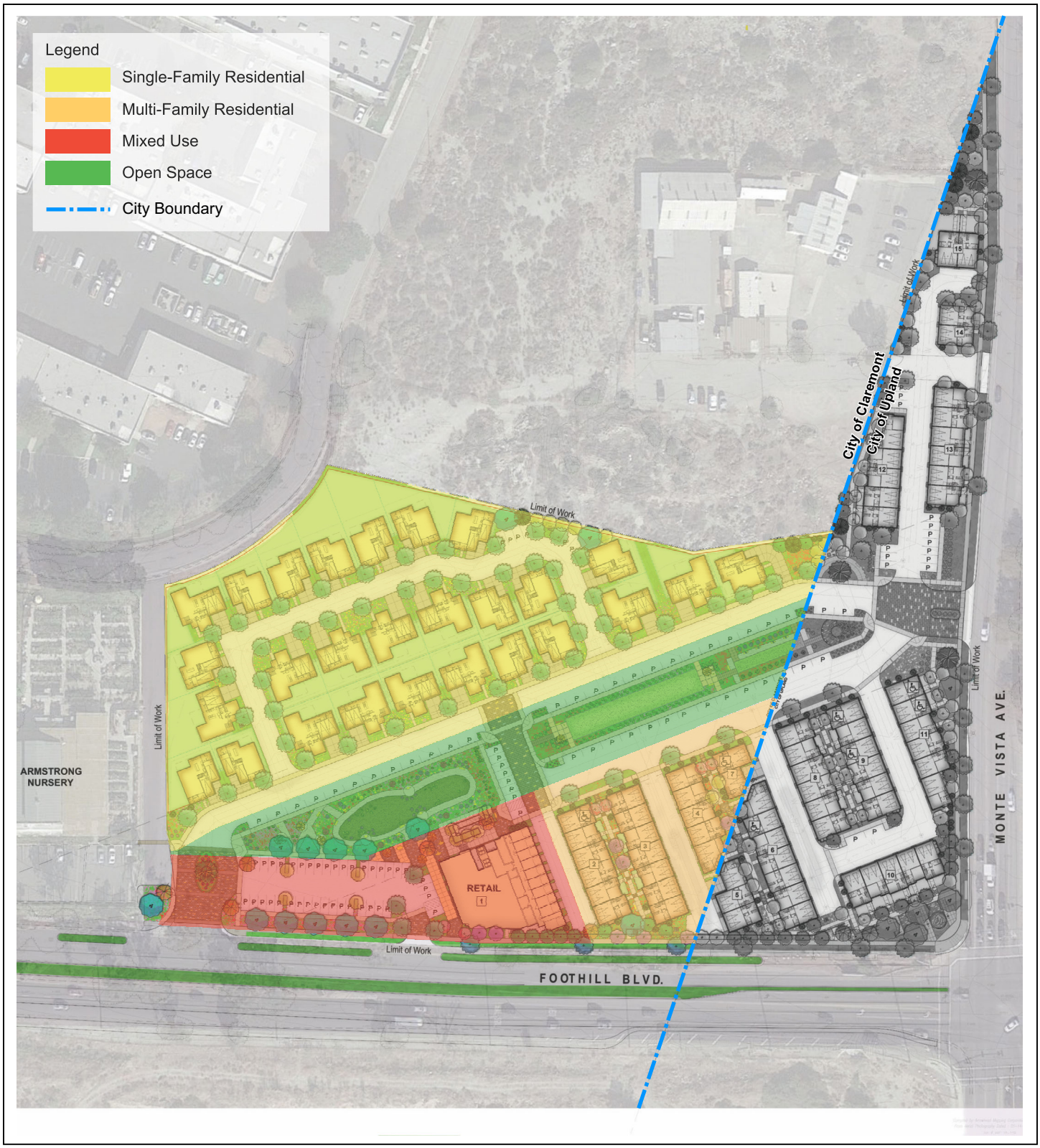
The Commons Project
Traffic Impact Analysis
Regional and Project Location



LSA

FIGURE 1-2

N

0 100 200

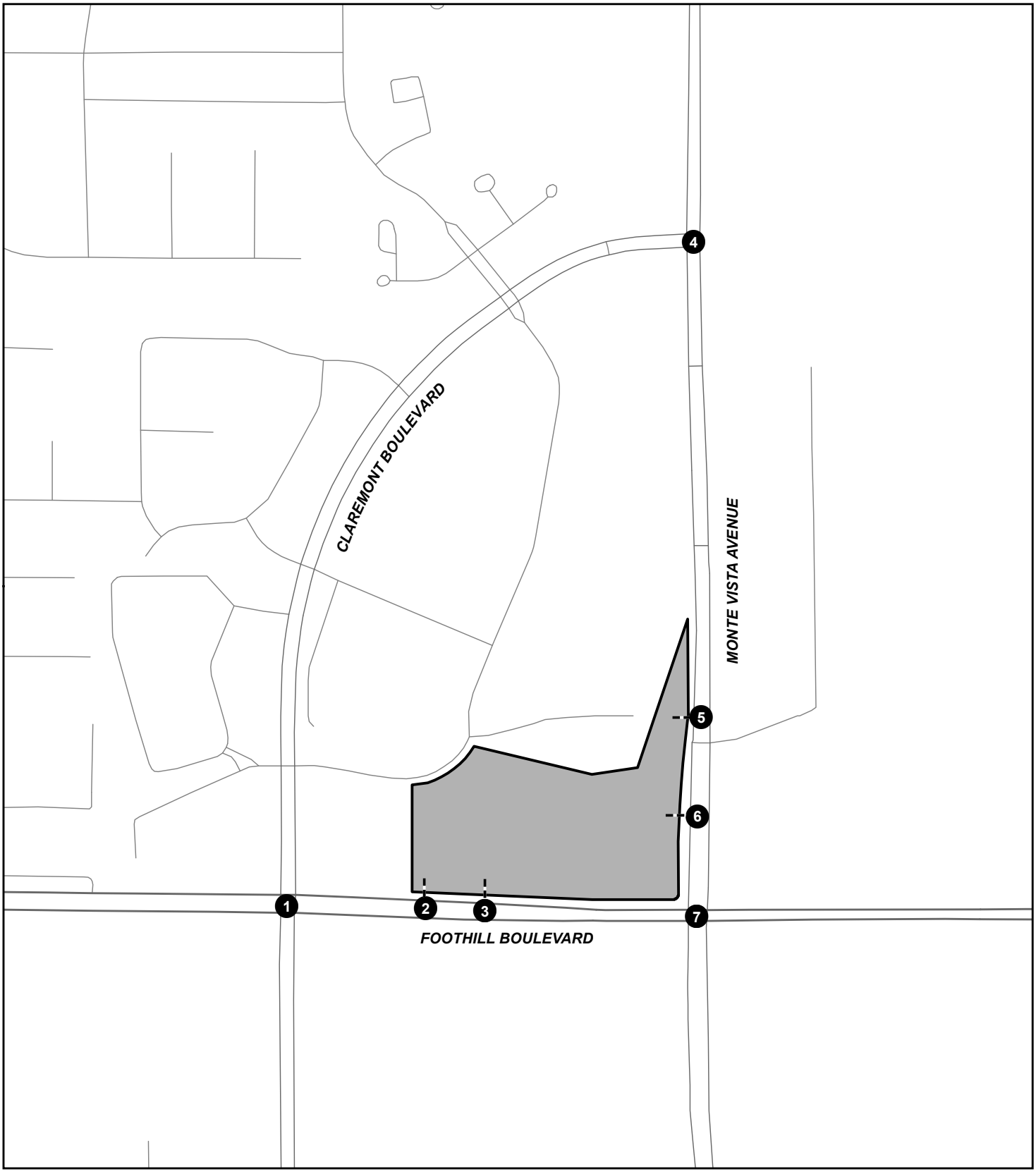
FEET

SOURCE: KTGY Group, Inc. (9/2019)

I:\CCT1801\G\Site_Plan_2.cdr (10/18/2019)

The Commons Project
Traffic Impact Analysis

Conceptual Site Plan



LSA

FIGURE 1-3

LEGEND

Project Location

Study Area Intersections

Project Driveway

N

0 225 450

FEET

SOURCE: ESRI Streetmap, 2013.

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The Commons Project
Traffic Impact Analysis

Study Area Intersections

2.0 ANALYSIS METHODOLOGY

2.1 LEVEL OF SERVICE DEFINITIONS AND PROCEDURES

Level of service (LOS) can be characterized for the whole intersection, each intersection approach, and by each lane group. Control delay alone is used to characterize LOS for the entire intersection. Control delay quantifies the increase in travel time due to the traffic signal control, and is a surrogate measure of driver discomfort and fuel consumption. Both the Cities of Claremont and Upland follow the *Highway Capacity Manual* (HCM) methodologies. Therefore, for purposes of this analysis HCM methodology has been used to determine intersection LOS.

A complete description of the meaning of LOS can be found in the Transportation Research Board Special Report 209, HCM. The HCM establishes LOS A through F for intersections. A description of LOS for signalized and unsignalized intersections is summarized in Table 2-A. Table 2-B shows the LOS criteria for unsignalized and signalized intersections.

For all study area intersections, the *Highway Capacity Manual 6th Edition* (HCM 6) analysis methodologies were used to determine intersection LOS. Intersection LOS was calculated using Synchro 10 software, which uses the HCM 6 methodologies.

2.2 SIGNIFICANCE THRESHOLD

Study intersections analyzed in this report are under the jurisdictions of the Cities of Claremont and Upland. Based on the City of Claremont *General Plan* (adopted November 14, 2006), the minimum acceptable LOS for a major arterial is LOS E and the minimum acceptable LOS for a rural secondary arterial is LOS D. If the intersection currently operates at a deficient level of service, the existing level of service shall be maintained. When an acceptable level of service cannot be maintained with a proposed development, mitigation measures should be required to meet the City's standards. Such measures could include traffic signal improvements, additional turning and merging lanes, and/or changes to the Project.

Based on the City of Upland *General Plan* (dated March 2015), the minimum acceptable LOS for all intersections outside the Downtown Specific Plan area and the Transit Priority Roadways is LOS D. Since the City of Upland does not have its own TIA guidelines, the determination of a significant circulation impact is based on the impact criteria contained in the SBCTA CMP TIA guidelines, which state that a significant project impact occurs at a study intersection when the peak hour LOS falls below the City's LOS standard, LOS D (to E or F), or the project contributes to an existing or forecast deficiency.

2.3 LIST OF CHAPTER 2.0 TABLES

- Table 2-A: Intersection Level of Service Definitions
- Table 2-B: Level of Service Criteria for Unsignalized and Signalized Intersections

Table 2-A: Intersection Level of Service Definitions

LOS	Description
A	Traffic operations with a control delay of 10 seconds per vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	Traffic operations with control delay between 10 seconds per vehicle and 20 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	Traffic operations with control delay between 20 and 35 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of the insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	Traffic operations with control delay between 35 and 55 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	Traffic operations with control delay between 55 and 80 seconds per vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	Traffic operations with control delay exceeding 80 seconds per vehicle or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: *Highway Capacity Manual* (6th Edition)

Table 2-B: Level of Service Criteria for Unsignalized and Signalized Intersections

Level of Service	Unsignalized Intersection Average Delay per Vehicle (sec.)	Signalized Intersection Average Delay per Vehicle (sec.)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: *Highway Capacity Manual* (6th Edition)

3.0 CIRCULATION NETWORK SETTING

3.1 EXISTING CIRCULATION NETWORK

Access to the project site is provided via three right in right out (RIRO) driveways and one full access driveway. The access locations for the driveways are located on Foothill Boulevard and Monte Vista Avenue.

Figure 3-1 illustrates existing study intersection geometrics and traffic control. Figure 3-2 illustrates the existing with project intersection geometrics and traffic control. Figure 3-3 illustrates roadway classifications as per the Circulation Element included in the City of Claremont General Plan*, 2009*. Figure 3-4 illustrates roadway classifications per the Circulation Element included in the City of Upland *General Plan*.

Following is a brief description of major roadways within the TIA study area:

- Foothill Boulevard: Foothill Boulevard is designated as a Major Arterial in the City of Claremont General Plan as well as in the City of Upland General Plan. Within the study area, Foothill Boulevard is an east-west four-lane divided road with a raised median. Provision for on-street parking exists in this segment in the westbound direction only. The posted speed limit is 40mph. Parking is not permitted on either side of this roadway within the project study area.
- Monte Vista Avenue: Monte Vista Avenue is designated as a Major Arterial in the City of Claremont General Plan as well as in the City of Upland General Plan. Within the study area, Monte Vista Avenue is a north-south two-lane divided road with a two-way-left turn lane. Bicycle lanes are present in this segment and there is no provision for on-street parking on both sides of the road. The speed limit along Monte Vista Avenue is 45 mph. Parking is not permitted on either side of this roadway within the project study area.
- Claremont Boulevard: Claremont Boulevard is designated as a four-lane, divided roadway oriented in the north-south direction. It borders the Project site on the west. According to the City's General Plan, Claremont Boulevard is classified as a secondary arterial. The posted speed limit of 45 miles per hour. On-street parking is permitted within or adjoining these bike lanes, depending on the location along Claremont Boulevard.

3.2 NON-MOTORIZED TRANSPORTATION

According to the City of Claremont General Plan and the City of Upland General Plan, Class I facilities are bike lanes are located on in a separate protected path, Class II facilities are marked bike lanes on the pavement adjacent to traffic. Class III facilities consist of posted riding areas. As part of the City of Claremont Foothill Boulevard Master Plan Improvements, Class I bike lanes will be added to eastbound and westbound directions of Foothill Boulevard within the study area. The bike lanes are expected to be completed by November of 2019. Class II bike lanes are located on both sides of Monte Vista Avenue and Claremont Boulevard. Figure 3-5 illustrates the City of Claremont Bike Plan. Figure 3-6 illustrates the City of Upland Bicycle Routes.

3.3 LIST OF CHAPTER 3.0 FIGURES

- Figure 3-1: Existing Study Intersection Geometrics and Traffic Control
- Figure 3-2: Existing with Project Study Intersection Geometrics and Traffic Control
- Figure 3-3: City of Claremont Master Plan of Roadways
- Figure 3-4: City of Upland Roadway System
- Figure 3-5: City of Claremont Bike Plan
- Figure 3-6: City of Upland Bicycle Routes

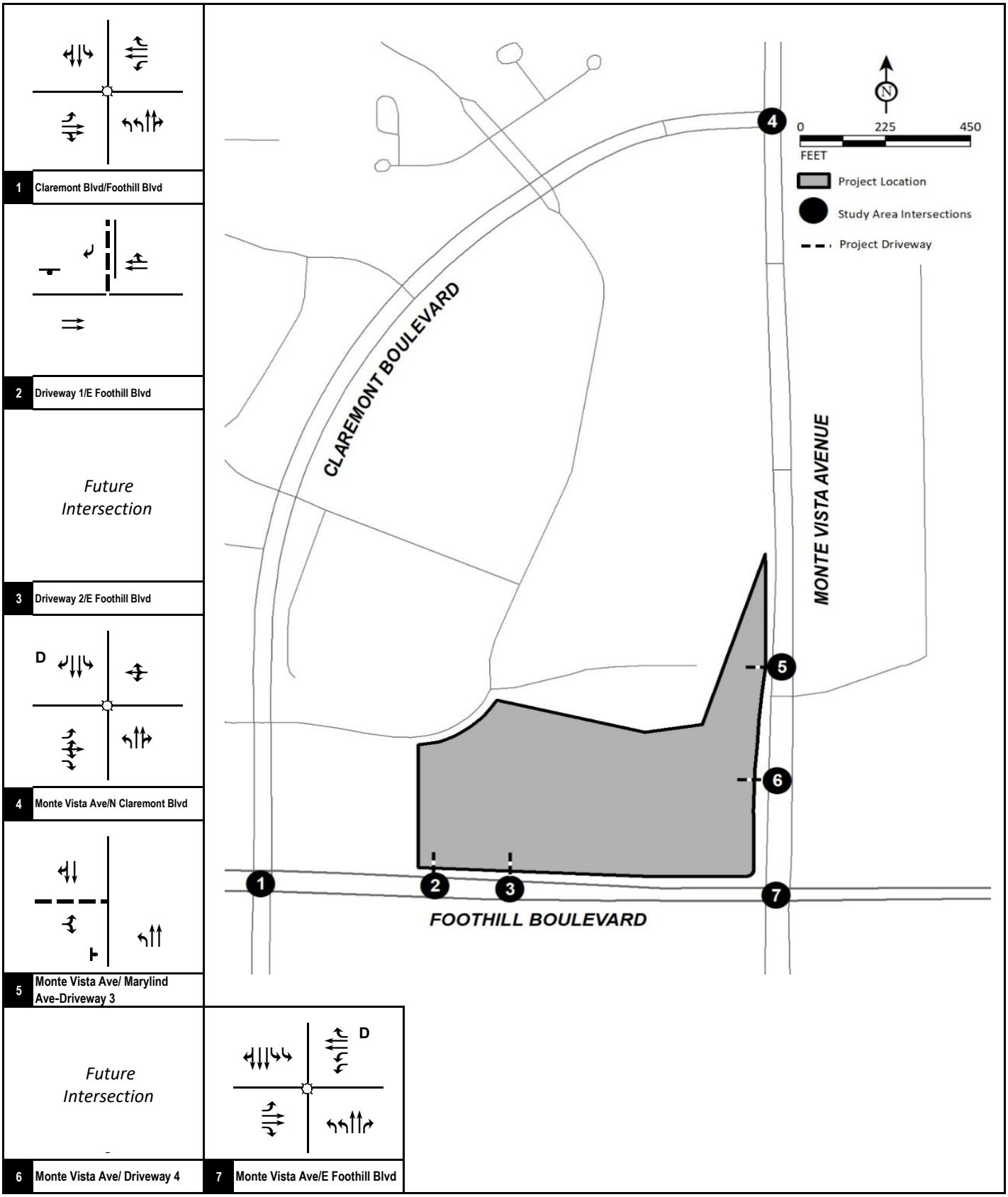

FIGURE 3-1

LSA

Legend

Signal
Stop Sign
--- Project Driveway
D De-facto Right

The Commons Project
Traffic Impact Analysis
Existing Intersection Geometrics and Stop Control

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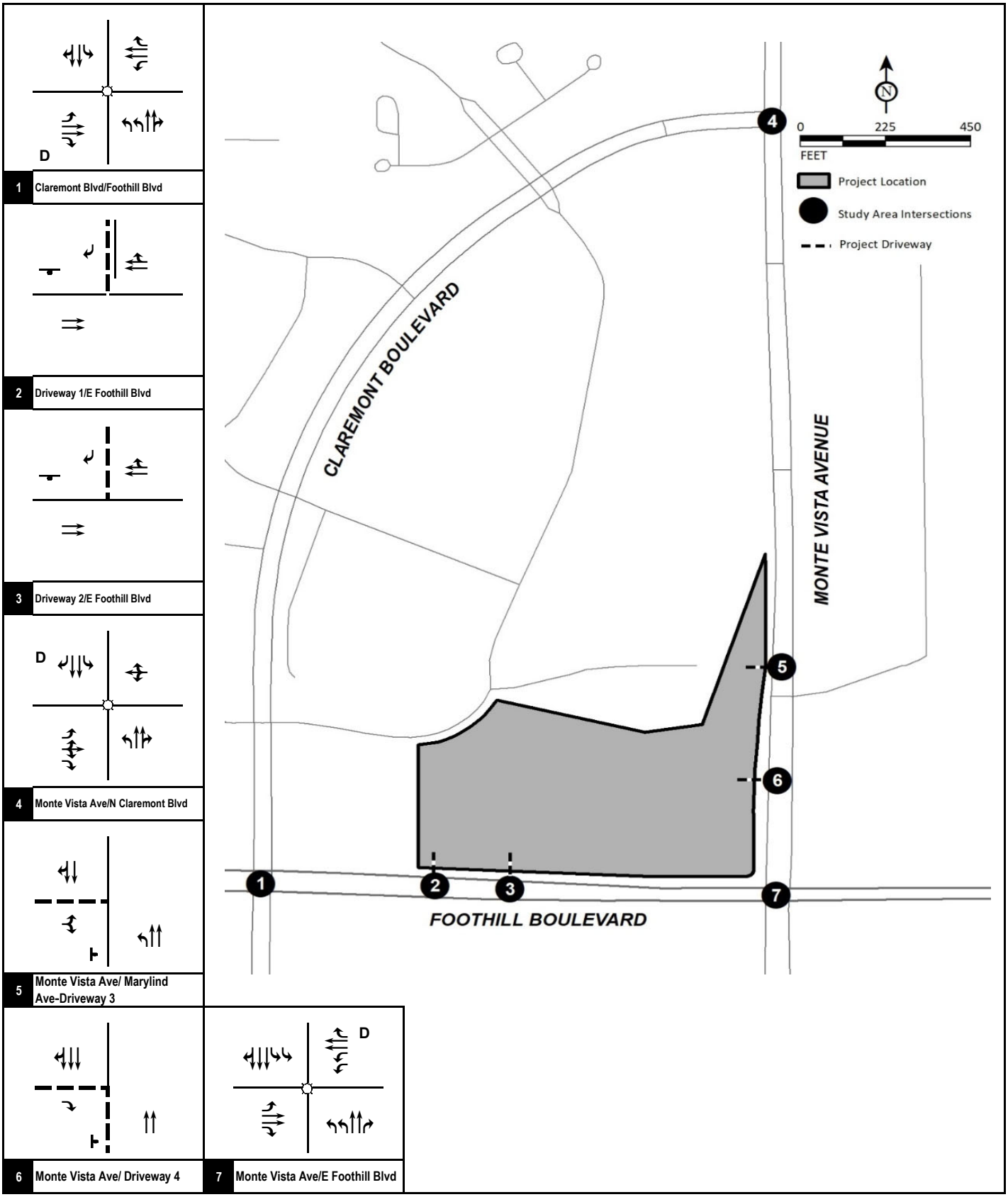

FIGURE 3-2

LSA

Legend

- Signal
- Stop Sign
- --- Project Driveway
- **D** De-facto Right

The Commons Project
Traffic Impact Analysis

Existing with Project Study Intersection Geometrics and Stop Control

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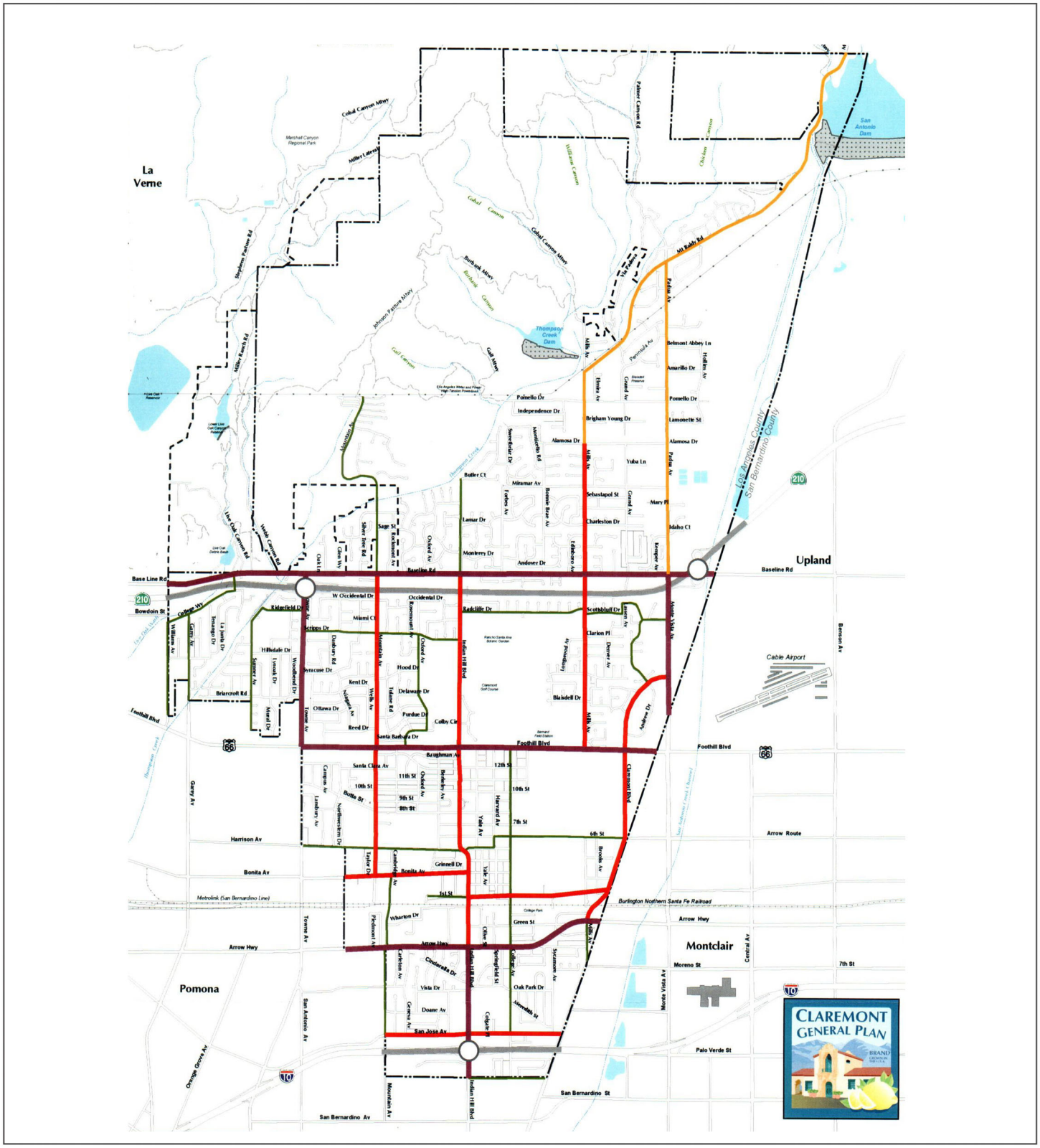

LSA

FIGURE 3-3

Roadway Classification

- Major Arterial
- Secondary Arterial
- Rural Secondary Arterial
- Collector Roadway
- Local Streets
- Freeway
- Freeway Offramps

Base Map Features

- Claremont City Boundary
- Claremont Sphere of Influence
- Water
- Streams/Water Courses

The Commons Project
Traffic Impact Analysis

City of Claremont Master Plan of Roadways

SOURCE:City of Claremont General Plan

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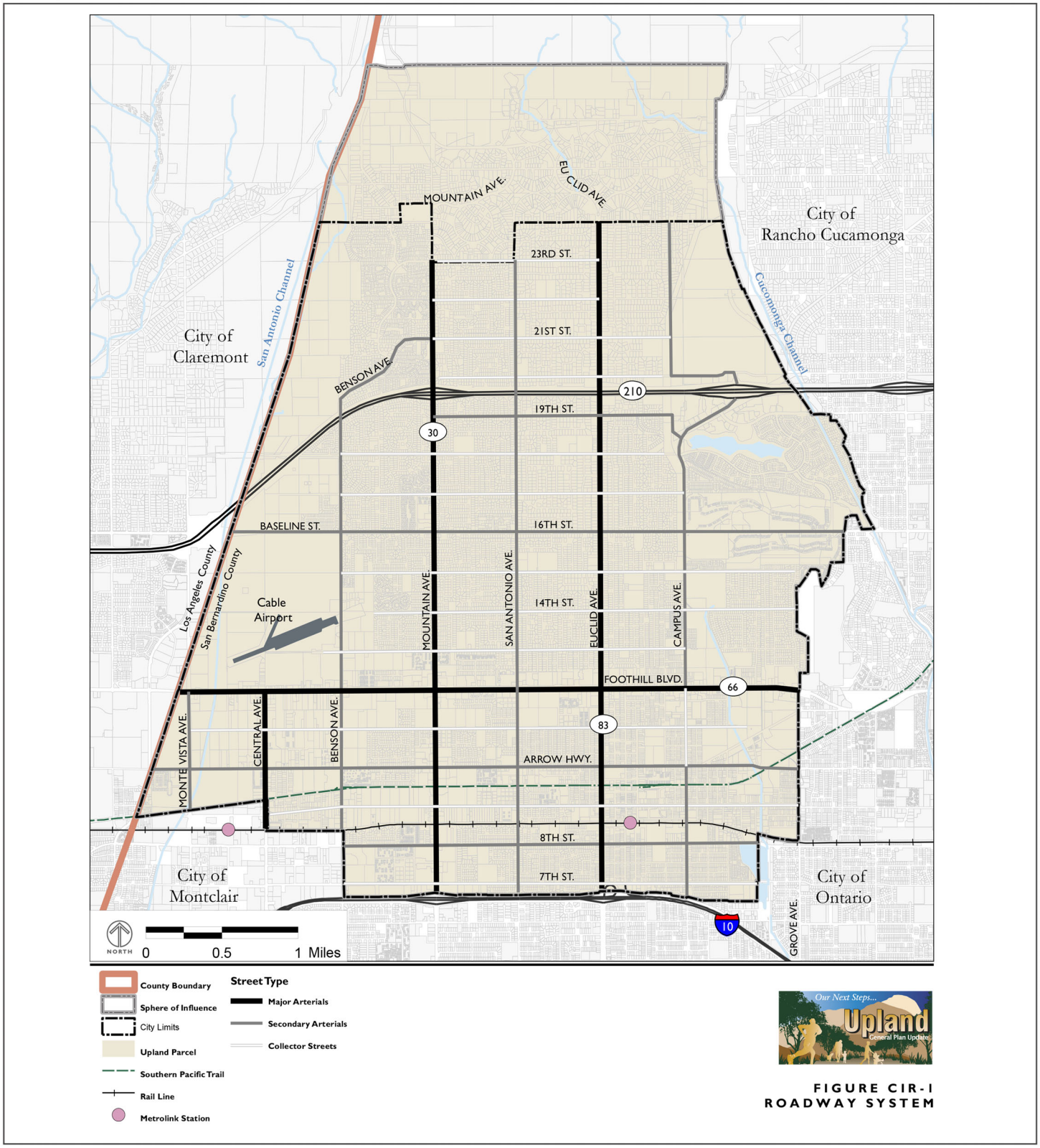

FIGURE CIR-1
ROADWAY SYSTEM

LSA

FIGURE 3-4

The Commons Project
Traffic Impact Analysis

City of Upland Roadway System

SOURCE:City of Upland General Plan

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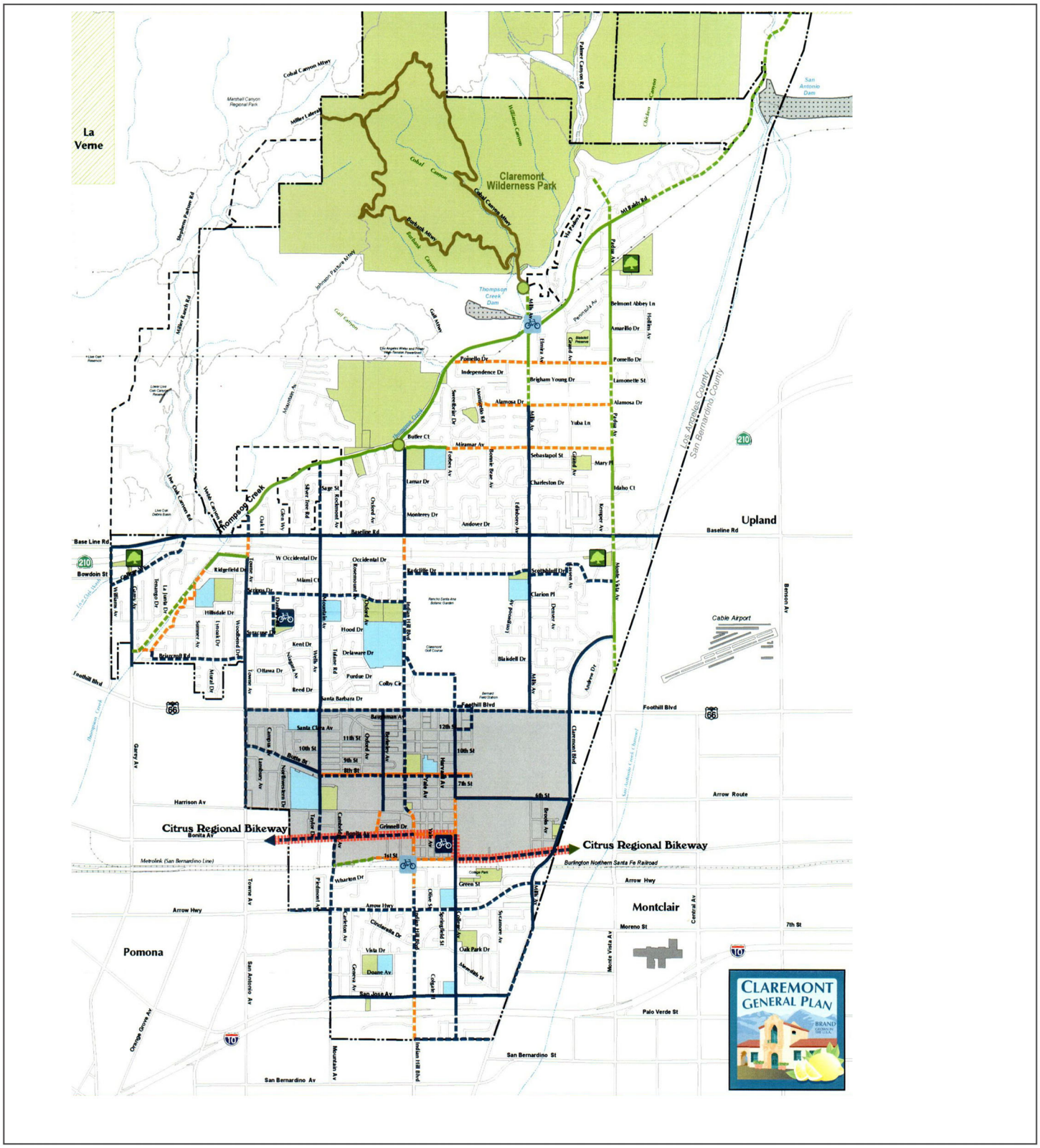

LSA

FIGURE 3-5

The Commons Project
Traffic Impact Analysis

City of Claremont Bike Plan

SOURCE:City of Upland General Plan

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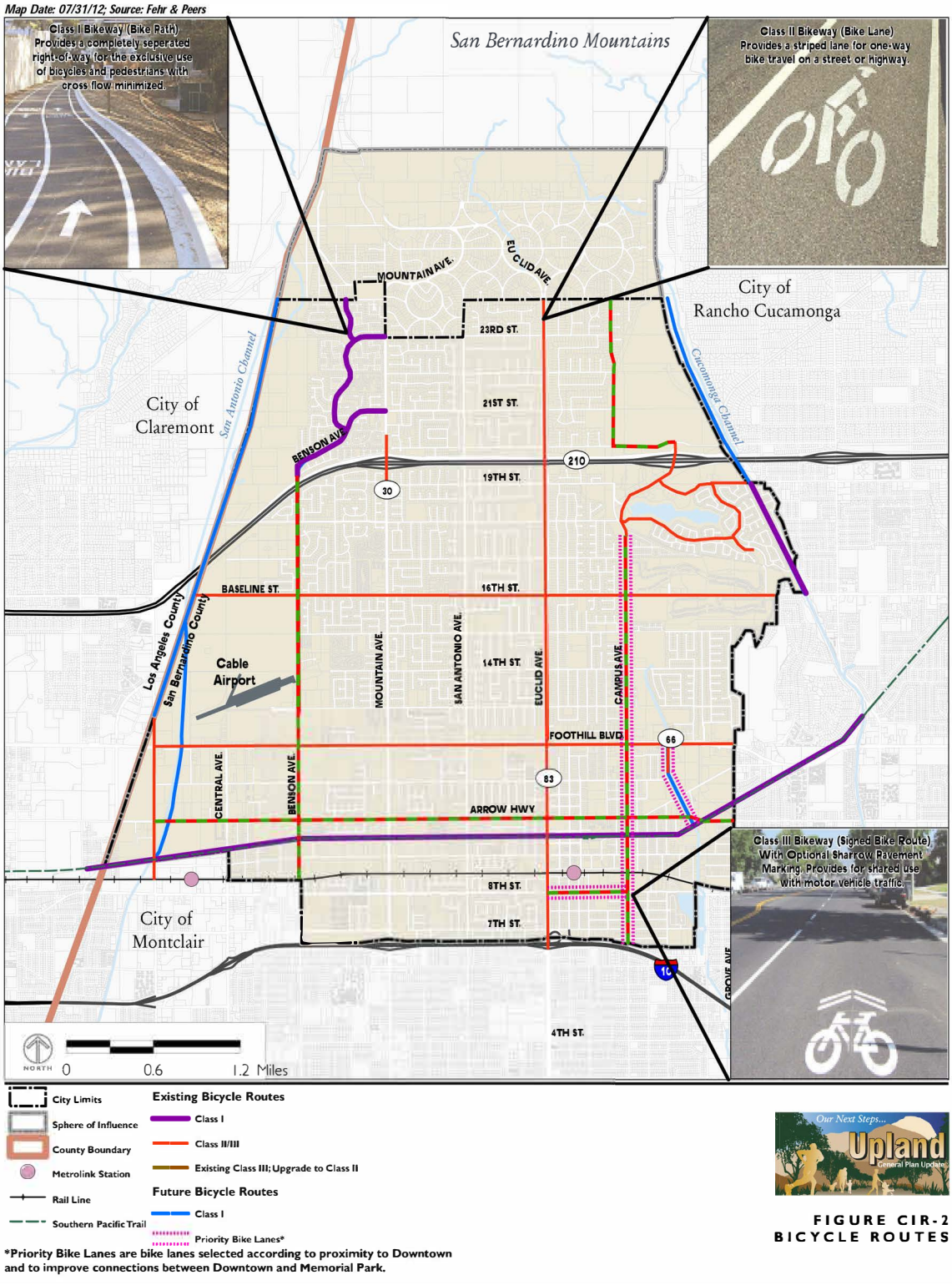

FIGURE CIR-2
BICYCLE ROUTES

LSA

FIGURE 3-6

N

The Commons Project
Traffic Impact Analysis

City of Upland Bicycle Routes

SOURCE:City of Upland General Plan

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4.0 TRAFFIC VOLUMES WITHOUT PROJECT SCENARIOS

4.1 EXISTING TRAFFIC VOLUMES

For all intersections, existing traffic volumes are based on counts collected by Counts Unlimited in June 2019. Detailed count sheets are contained in Appendix B.

Figure 4-1 illustrates existing peak hour traffic volumes at study intersections.

4.2 PROJECT OPENING YEAR (2021) WITHOUT PROJECT TRAFFIC VOLUMES

As approved during the scoping agreement process (Appendix A), traffic volumes for project completion without project conditions were developed by applying a growth of 3.0 percent per annum to the existing without project traffic volumes for all the study intersections.

Figure 4-2 illustrates peak hour traffic volumes at study intersections for project opening year without project conditions.

4.3 CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUMES

Information concerning cumulative projects in the vicinity of the proposed project were obtained from the Cities of Claremont and Upland, and the adjacent jurisdiction of Montclair. Figure 4-3 illustrates the cumulative project locations.

Cumulative without project traffic volumes were developed by adding traffic from approved/pending development projects to project opening year without project traffic volumes. The North Montclair Downtown Specific Plan Amendment has been included as one of the cumulative projects. It is anticipated that this project will be built-out by year 2040, therefore, a proportionate build-out of this project by year 2021 has been included in the analysis of this scenario. Figure 4-3 illustrates the cumulative project locations. Table 4-A shows cumulative projects are expected to generate 4,282 net trips during the a.m. peak hour, 5,185 net trips during the p.m. peak hour, and 45,112 daily trips. Project trips for these cumulative projects were assigned to the roadway network based on their locations in relation to surrounding land uses and regional arterials. Figure 4-4 illustrates peak hour cumulative project trips at study area intersections. Figure 4-5 illustrates peak hour traffic volumes at study intersections under cumulative without project conditions.

4.4 FUTURE BUILD-OUT YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES

The traffic volumes for future build-out year was developed using the 2016 Southern California Association of Government (SCAG) Regional Transportation Plan (RTP) Model. It was verified that the full build-out of the North Montclair Downtown Specific Plan Amendment Project is included in the 2016 SCAG RTP Model. Figure 4-6 illustrates the peak hour traffic volumes at study intersections under future build-out without project conditions.

Detailed volume development worksheets are included in Appendix C.

4.5 LIST OF CHAPTER 4.0 FIGURES AND TABLES

- Figure 4-1: Existing Peak Hour Traffic Volumes
- Figure 4-2: Project Opening Year (2021) Peak Hour Traffic Volumes
- Figure 4-3: Cumulative Projects Locations
- Figure 4-4: Cumulative Projects Trip Assignment
- Figure 4-5: Cumulative (2021) Peak Hour Traffic Volumes
- Figure 4-6: Future Build-out Year (2040) Peak Hour Traffic Volumes
- Table 4-A: Cumulative Projects Trip Generation

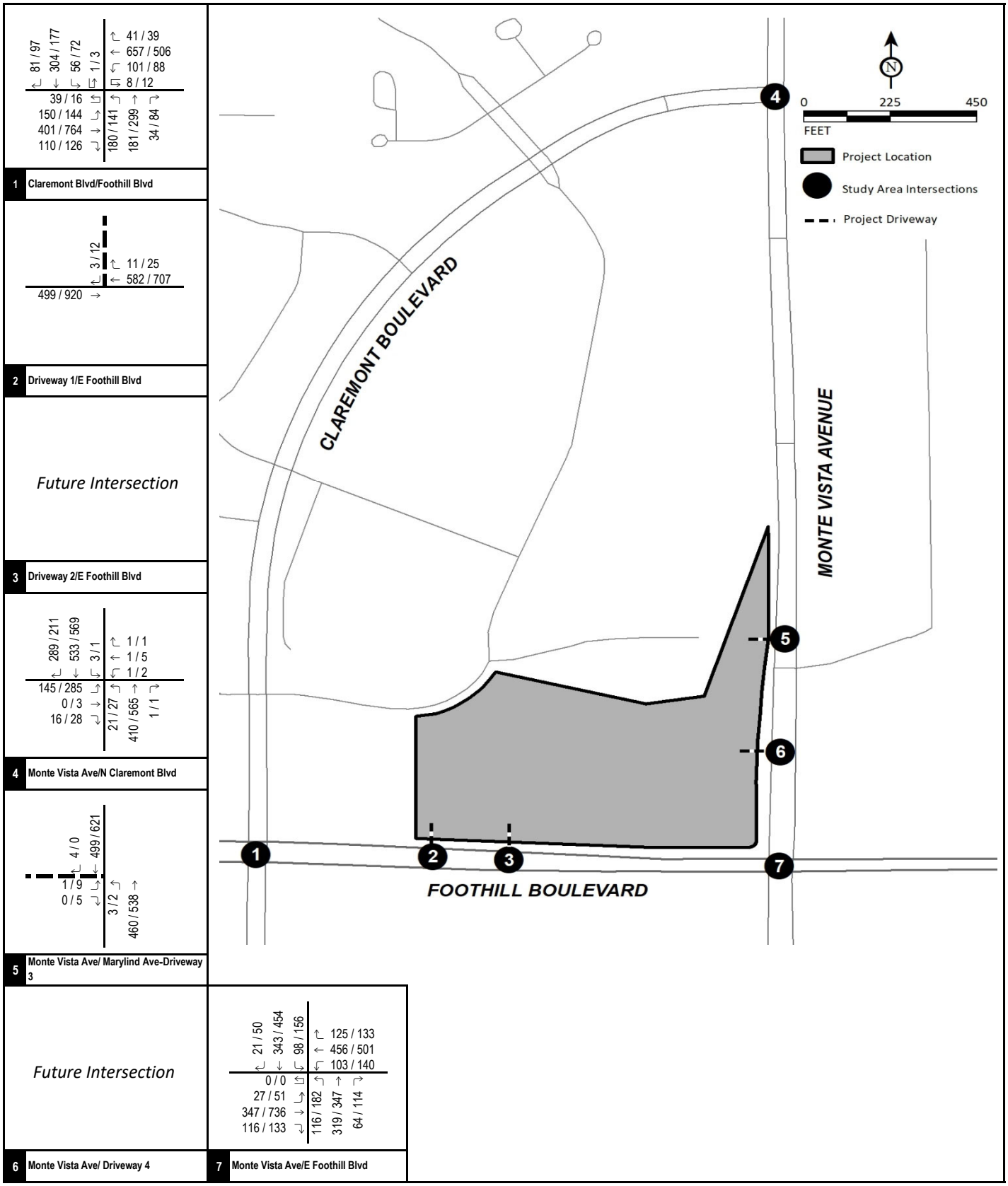


FIGURE 4-1

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Existing Peak Hour Traffic Volumes

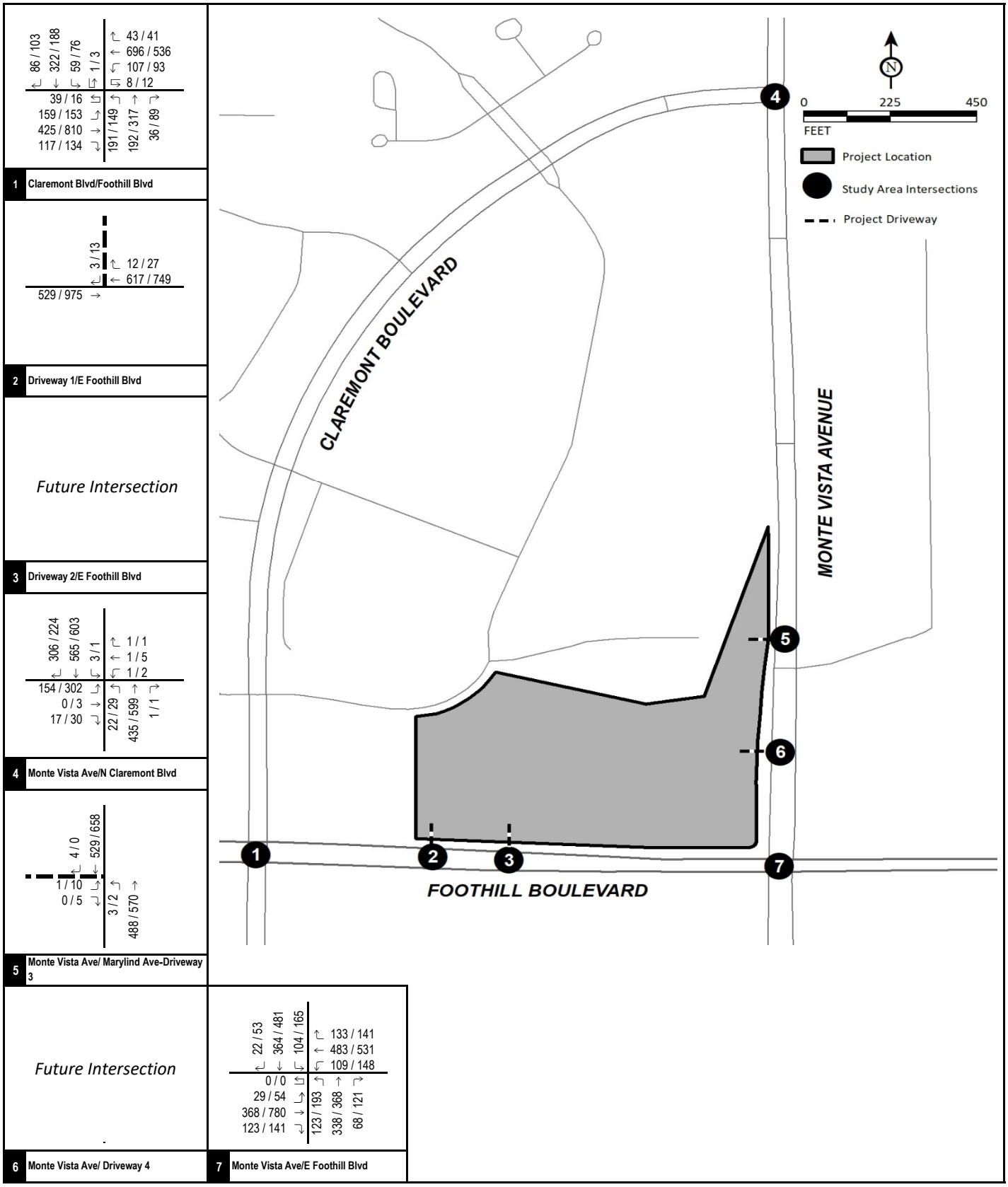


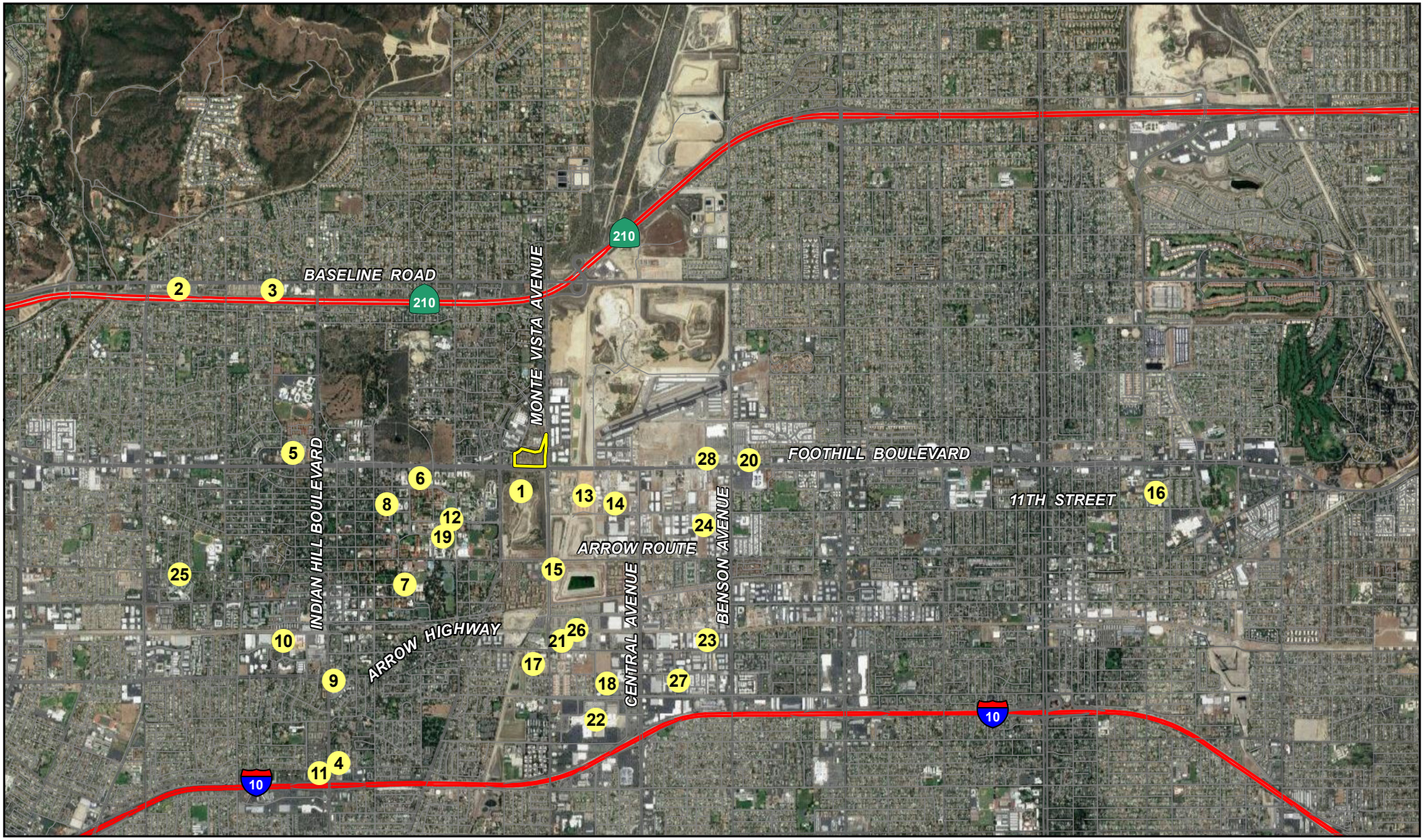
FIGURE 4-2

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Project Opening Year (2021) Peak Hour Traffic Volumes



LSA

LEGEND

Project Site

Cumulative Projects

FIGURE 4-3

0 2000 4000

FEET

SOURCE: ESRI Streetmap, 2013, Google Earth, 2018.

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The Commons Project
Traffic Impact Analysis

Cumulative Project Locations

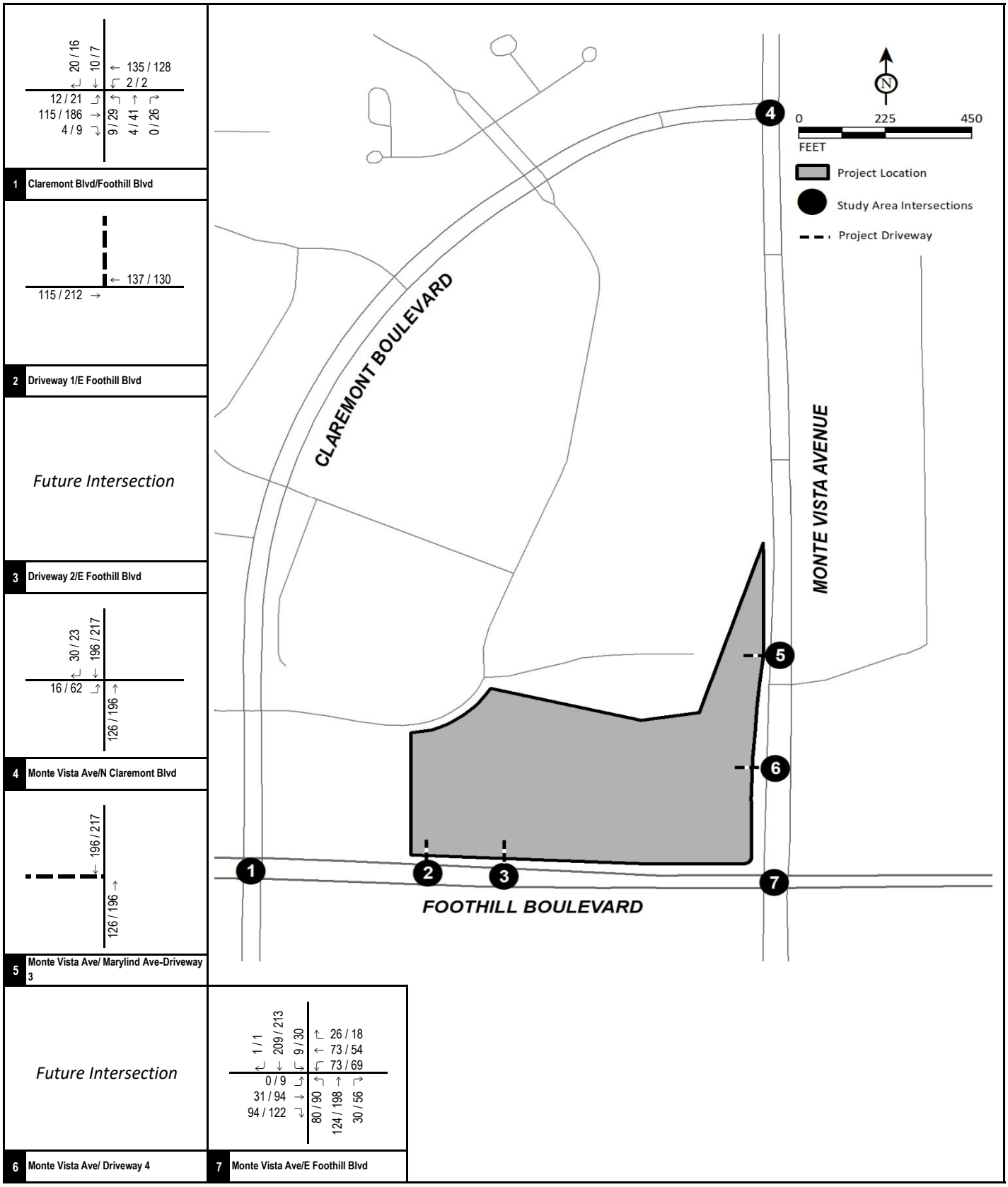


FIGURE 4-4

LSA

XXX / YYY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Cumulative Projects Trip Assignment

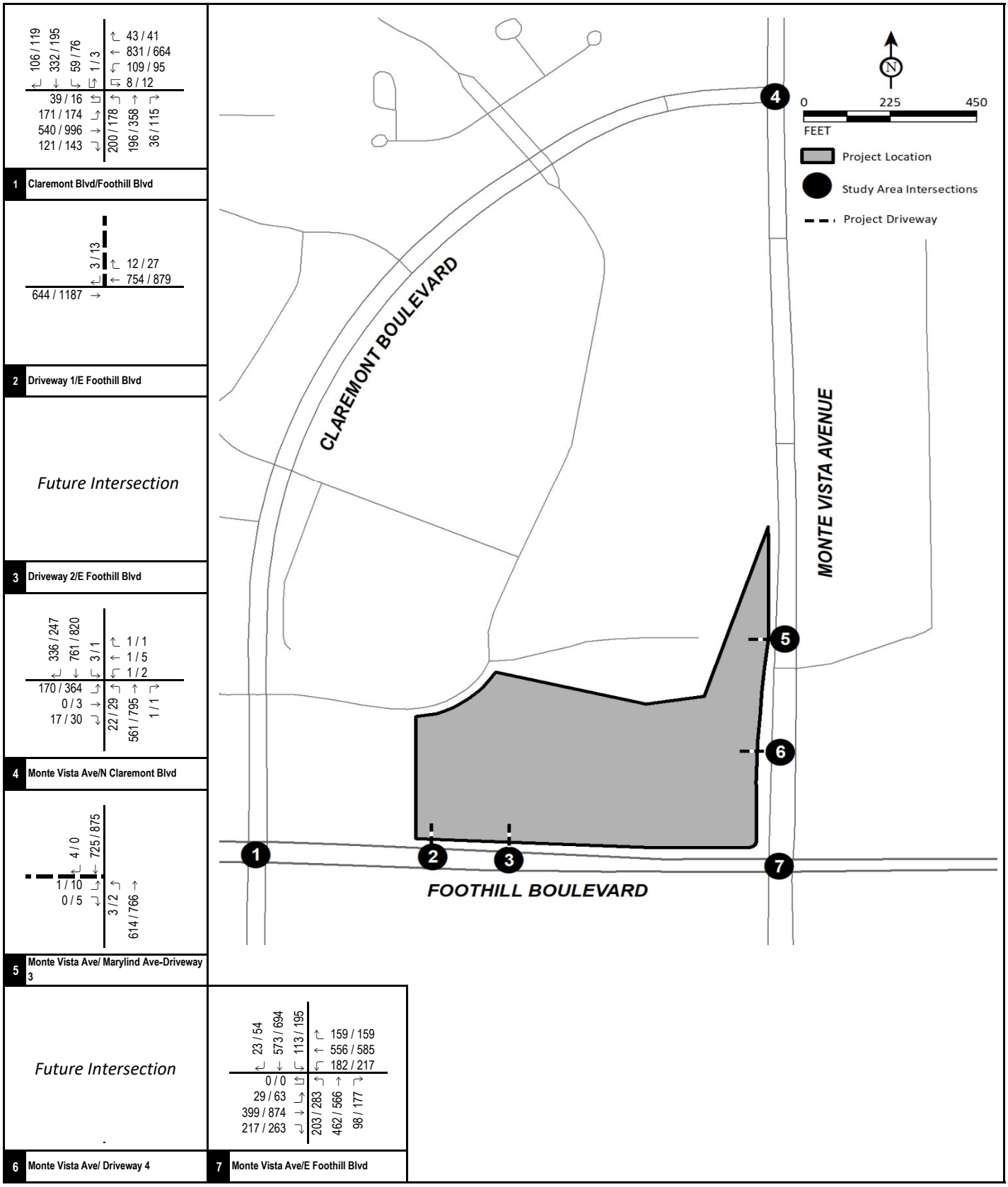


FIGURE 4-5

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Cumulative (2021) Peak Hour Traffic Volumes

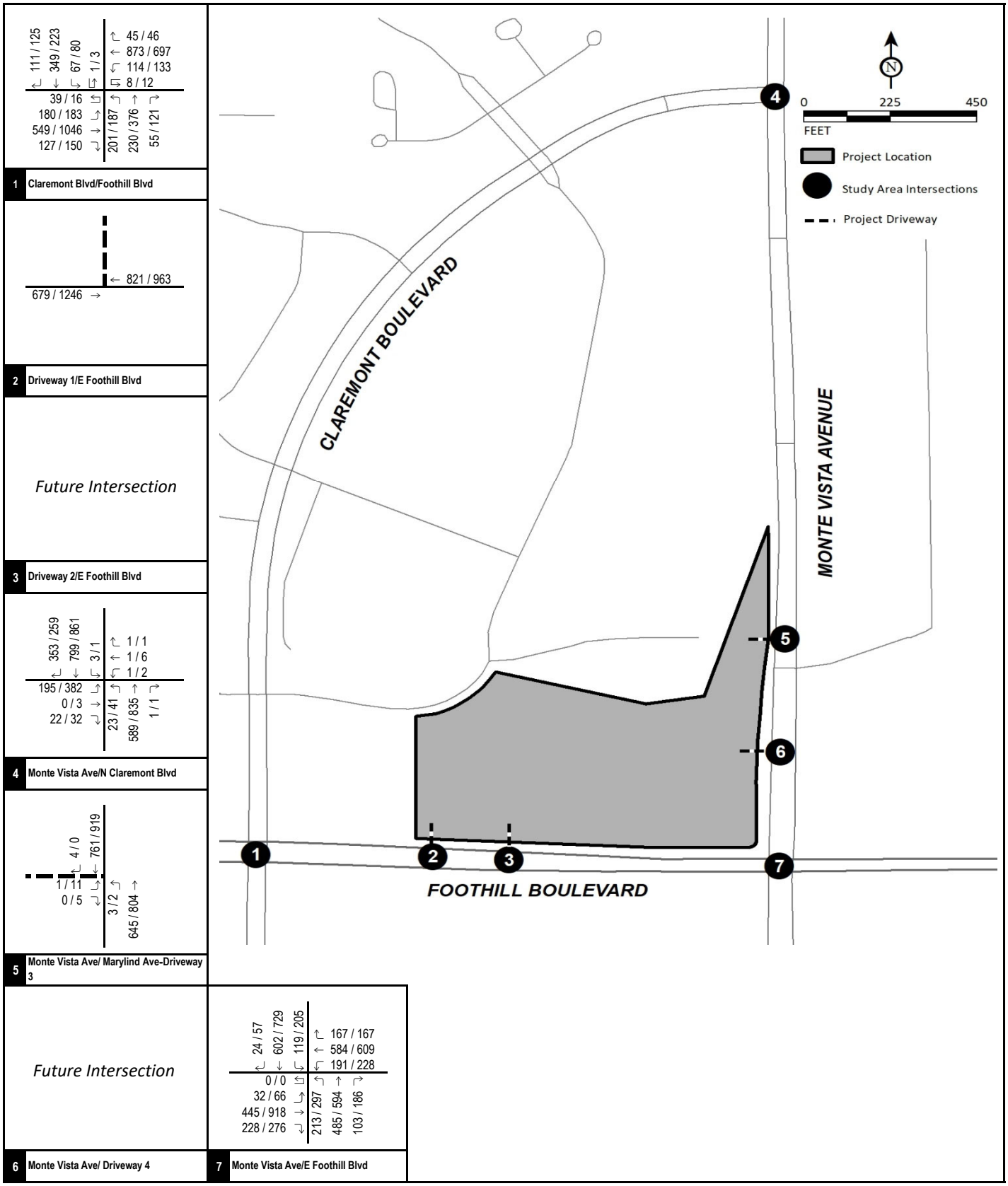


FIGURE 4-6

LSA

XXX / YYY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Future Build-out Year (2040) Peak Hour Traffic Volumes

LSA

Table 4-A - Cumulative Projects Trip Generation

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
1. Claremont Colleges East Campus (Sports Complex)	3,241 TSF							
South of Foothill Blvd. between Claremont Blvd and Monte Vista Ave., Claremont, CA								
Trip Generation[1]		12	3	15	16	171	187	464
2. Meadow Park	48 DU							
South of Base Line, East of Towne Ave., Claremont, CA								
Trips/Unit[2,3]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		5	17	22	17	10	27	348
3. Gable Crossing-TTM 68052	60 DU							
560 & 618 W. Base Line, Claremont								
Trips/Unit[2]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		7	21	28	21	13	34	439
4. TTM62814	13 DU							
365 San Jose Ave., Claremont								
Trips/Unit[2]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		1	5	6	5	3	8	95
5. Doubletree Hotel/Old School House Specific Plan	126 DU							
North of Foothill Blvd. and west of Indian Hill Blvd., Claremont								
Trips/Unit[2]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		14	44	58	44	26	70	922
6. Harvey Mudd College 2015 Master Plan Amendment	100 STU							
301 Platt Blvd, Claremont, CA 91711								
Trips/Unit[4]		0.12	0.03	0.15	0.05	0.10	0.15	1.56
Trip Generation		12	3	15	5	10	15	156
7. Pomona College 2015 Master Plan								
333 N. College Way. Claremont, CA 91711								
Students	50 STU							
Trips/Unit[4]		0.12	0.03	0.15	0.05	0.10	0.15	1.56
Trip Generation		6	2	8	3	5	8	78
Employees	60 STAFF							
Trips/Unit[4]		0.57	0.18	0.75	0.26	0.53	0.79	8.89
Trip Generation		34	11	45	16	32	48	533
	Net Trip Generation	40	13	53	19	37	56	611
8. Claremont Graduate University Master Plan	475 STU							
Bounded by Foothill Blvd., Dartmouth Ave., Seventh Street, and College Ave., Claremont								
Trips/Unit[4]		0.12	0.03	0.15	0.05	0.10	0.15	1.56
Trip Generation		57	14	71	24	48	72	741
9. Peppertree Square	5.75 TSF							
Souhwest Corer of Indian Hill Boulevard and Arrow Highway								
Trips/Unit[5]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		3	2	5	11	11	22	217
Pass-by Trips[6]		0	0	0	(4)	(4)	(8)	(74)
	Net Trip Generation	3	2	5	7	7	14	143
10. Keck Graduate Institute								
535 Watson Drive, Claremont, CA 91711								
Student Housing	292 DU							
Trip Generation[7]		30	119	149	118	63	181	1,942
Students	300 STU							
Trips/Unit[4]		0.12	0.03	0.15	0.05	0.10	0.15	1.56
Trip Generation		36	9	45	15	30	45	468
	Net Trip Generation	66	128	194	133	93	226	2,410

LSA

Table 4-A - Cumulative Projects Trip Generation

Land Use	Units		A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
11. Knight's Inn Renovation	38	RM							
701 S Indian Hill Blvd									
Trips/Unit[8]			0.21	0.17	0.38	0.17	0.26	0.43	3.35
Trip Generation			8	6	14	6	10	16	127
12. Keck Science Center Expansion	70.0	TSF							
925 N Mills Avenue									
Trips/Unit[4]			0.84	0.25	1.09	0.37	0.80	1.17	26.04
Trip Generation			59	18	77	26	56	82	1,823
13. Harvest - Arbor Square and Sunflower by Lennar	127	DU							
East of Monte Vista Ave., between Foothill Blvd. and 11th St., Upland									
Trips/Unit[9]			0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation			24	70	94	79	47	126	1,199
14. Enclave Specific Plan	350	DU							
South of Foothill Blvd., west of Monte Vista, North of 11th St., Upland									
Trips/Unit[9]			0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation			67	193	260	217	130	347	3,304
15. Arrow Vista Village	40	DU							
S. Arrow, Eastside of Monte Vista Ave., Upland									
Trips/Unit[10]			0.09	0.27	0.36	0.27	0.17	0.44	5.44
Trip Generation			4	11	15	11	7	18	218
16. 760 Mesa Court	60	DU							
760 Mesa Court, Upland									
Trips/Unit[2]			0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation			7	21	28	21	13	34	439
17. Multi-story Residential Apartments	211	DU							
Southwest corner of Arrow Hwy. and Monte Vista Ave., Montclair									
Trips/Unit[2]			0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation			23	74	97	74	44	118	1,545
18. Lazy Dog Restaurant	326	Seats							
500 N. Montclair Plaza Lane, Montclair									
Trips/Unit[12]			0.25	0.23	0.48	0.24	0.18	0.42	4.37
Trip Generation			82	75	157	78	59	137	1,425
Pass-by Trips[13]			0	0	0	(34)	(25)	(59)	(613)
		Net Trip Generation	82	75	157	44	34	78	812

LSA

Table 4-A - Cumulative Projects Trip Generation

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
19. Claremont McKenna College Master Plan	250 STU							
888 N Columbia Ave., Claremont								
Trips/Unit[4]		0.12	0.03	0.15	0.05	0.10	0.15	1.56
Trip Generation		30	8	38	13	25	38	390
20. The Magnolias by GFR Homes	37 DU							
Northeast corner of Foothill Blvd. and Madrid Way, Upland								
Trips/Unit[2]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		4	13	17	13	8	21	271
21. Arrow Station								
4974 Arrow Highway, Montclair								
Single-Family	2 DU							
Trips/Unit[9]		0.19	0.55	0.74	0.62	0.37	0.99	9.44
Trip Generation		0	1	1	1	1	2	14
Multi-Family	5 DU							
Trips/Unit[10,11]		0.09	0.27	0.36	0.27	0.17	0.44	5.44
Trip Generation		0	1	1	1	1	2	27
Net Project Trip Generation		0	2	2	2	2	4	41
22. Montclair Expansion	15.0 TSF							
5060 E. Montclair Plaza Lane								
Trips/Unit[5]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		9	5	14	27	30	57	566
Pass-by Trips[6]		0	0	0	(9)	(10)	(19)	(193)
Net Trip Generation		9	5	14	18	20	38	373
23. 5566 Arrow Hwy	95.54 TSF							
5566 Arrow Hwy., Montclair								
Trips/Unit[14]		0.62	0.08	0.70	0.08	0.55	0.63	4.96
Trip Generation		59	8	67	8	53	61	474
24. ECI Fuel Systems	156.00 TSF							
South side of 11th St., approximately 750 feet west of Benson Ave., Upland								
Trips/Unit[14]		0.62	0.08	0.70	0.08	0.55	0.63	4.96
Trip Generation		97	12	109	12	86	98	774
25. Mt San Antonio Gardens Master Plan								
Between Harrison Avenue and Bonita Avenue								
Single-Family (Senior)	19 DU							
Trips/Unit[15]		0.08	0.16	0.24	0.18	0.12	0.30	4.27
Trip Generation		2	3	5	3	2	5	81
Multi-Family (Senior)	46 DU							
Trips/Unit[16]		0.07	0.13	0.20	0.14	0.12	0.26	3.70
Trip Generation		3	6	9	6	6	12	170
Senior Care	7 BEDS							
Trips/Unit[17]		0.12	0.07	0.19	0.10	0.16	0.26	2.60
Trip Generation		1	0	1	1	1	2	18
Project Trip Generation		6	9	15	10	9	19	270

LSA

Table 4-A - Cumulative Projects Trip Generation

Land Use	Units	A.M. Peak Hour In	A.M. Peak Hour Out	A.M. Peak Hour Total	P.M. Peak Hour In	P.M. Peak Hour Out	P.M. Peak Hour Total	Daily
26. Metro Gold Line station and Parking Facility (Montclair)								
5091 Richton St, Claremont								
Trip Generation[1]		621	159	780	562	424	986	3,110
27. North Montclair Downtown Specific Plan Amendment								
Huntington ROW, Monte Vista Ave., Moreno St. and Central Ave., Montclair								
Trip Generation[18,19]		939	1,058	1,997	1,148	1,198	2,345	22,994
28. Future Warehouse	276.00 TSF							
North of Foothill Blvd, west of Benson Ave								
Total Trip Generation[20]		16	5	21	8	20	28	386
Auto Trips		10	3	13	4	12	16	232
Truck PCE Trips		16	5	21	10	21	31	388
Total PCE Trip Generation		**26**	**8**	**34**	**14**	**33**	**47**	**620**
Total Trip Generation		**2,282**	**2,000**	**4,282**	**2,569**	**2,617**	**5,185**	**45,112**

Notes:

DU=Dwelling Units; TSF= Thousand Square Feet; STU=Students; RM=Rooms

[1] Rates based on *Claremont Colleges East Campus Traffic Impact Analysis* prepared by LLG, dated October 2011

[2] Rates based on the ITE Trip Generation Manual (10th Edition) for Land Use 220 – "Multifamily Housing (Low-Rise)", Setting/Location - "General Urban/Suburban."

[3] Per the City of Claremont Cumulative List, this project is 50% occupied.

[4] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 550 – "University/College", Setting/Location - "General Urban/Suburban."

[5] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 820 – "Shopping Center", Setting/Location - "General Urban/Suburban."

[6] Pass-by rates from the ITE *Trip Generation Handbook* (3rd Edition) for Land Use 820 – "Shopping Center." A pass-by rate of 34% was used for the p.m. peak hour. No a.m. peak and daily pass-by rates are provided; therefore, the p.m. pass-by rate was used as the daily pass-by rate.

[7] Rates based on *Keck Graduate Institute Student Housing Project Plus Campus Population Growth* prepared by Kimley-Horn and Associates, dated October 2011

[8] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 320 – "Motel", Setting/Location - "General Urban/Suburban."

[9] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 210 – "Single Family Detached Housing", Setting/Location - "General Urban/Suburban."

[10] Rates based on the ITE Trip Generation Manual (10th Edition) for Land Use 221 – "Multifamily Housing (Mid-Rise)", Setting/Location - "General Urban/Suburban."

[11] Per the City of Montclair Residential Development Summary, dated March 2018, this project is 95% complete.

[12] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 932 – "High-Turnover (Sit-Down) Restaurant", Setting/Location - "General Urban/Suburban."

[13] Pass-by rates from the ITE *Trip Generation Handbook* (3rd Edition) for Land Use 932 - "High-Turnover (Sit-Down) Restaurant." A pass-by rate of 43% was used for the p.m. peak hour. No a.m. peak and daily pass-by rates are provided; therefore, the p.m. pass-by rate was used as the daily pass-by rate.

[14] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 110 – "General Light Industrial", Setting/Location - "General Urban/Suburban."

[15] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 251 – "Senior Adult Houisng - Detached", Setting/Location - "General Urban/Suburban."

[16] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 252 – "Senior Adult Houisng - Attached", Setting/Location - "General Urban/Suburban."

[17] Rates based on the ITE *Trip Generation Manual* (10th Edition) for Land Use 254 – "Assisted Living", Setting/Location - "General Urban/Suburban."

[18] Rates based on *North Montclair Downtown Specific Plan Amendment Project Traffic Impact Analysis* prepared by Dudek, dated January 2017

[19] The North Montclair Downtown Specific Plan is projected to be built-out by year 2040, therefore, trips were proportionate to 2021.

[20] The trip generation was developed based on the Institute of Transportation Engineers (ITE) Trip Generation (10th Edition) rates for Land Use 154 – "High-Cube Transload and Short-Term Storage Warehouse." The resulting trips were converted to trucks and passenger vehicles based on the South Coast Air Quality Management District (SCAQMD) requirements for warehousing projects. As such, 40 percent of project traffic will be trucks. Based on the Fontana Truck Trip Generation Study dated August 2003, the truck mix was considered as 60.34% 4-axle, 22.71% 3-axle and 16.95% 2-axle trucks. Further, all truck trips were converted to passenger car equivalents (PCEs) using a 1.5 PCE factor for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4- and more axle trucks.

5.0 PROJECT TRAFFIC

5.1 PROJECT TRIP GENERATION

Total vehicle trip generation for the project has been developed using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) for Land Use 210 – "Single-Family Detached Housing", Land Use 220 -"Multifamily Housing (Low-Rise)", and Land Use 820 - "Shopping Center".

As the project is a mixed-use development, it is estimated that a certain percentage of trips will be internal trips. These trips are made either by walking or by vehicles using internal roadways without using external streets. The internal capture rates have been calculated using the Internal Trip Capture Estimation Tool developed by the National Cooperative Highway Research Program (NCHRP 8-51) (Appendix A). The total external trips were calculated by subtracting the internal trips from the trip generation for each respective land use.

A certain percentage of external trips generated by the retail use are considered pass-by trips. A pass-by trip is a trip where an intermediate stop is made on the way from the origin to the primary destination of the trip without making a route diversion. The percentage of pass-by trips was obtained from the ITE *Trip Generation Handbook* (3rd Edition). Pass-by trips were deducted from the total external trips for the retail use only. These trips were added to the external trips for the residential use to obtain the total net external trips for the project. Figure 5-1 illustrates the total pass-by trips at the project driveways. As shown in Table 5-A, overall, the project is anticipated to generate 118 net trips in the a.m. peak hour, 88 net trips in the p.m. peak hour, and 1,089 net daily trips.

5.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of project trips was developed based on the regional roadway network and the locations of residential, employment, and commercial centers in relation to the proposed project. Because the project has two different land uses, separate trip distributions were developed for residential and retail uses. Figure 5-1 illustrates the trip distribution for the residential uses. Figure 5-2 illustrates the trip distribution for the retail use.

The trip generation for each land use was applied to the corresponding trip distribution pattern to develop the trip assignment for the land use. Figure 5-3 illustrates the project trip assignment for residential uses. Figure 5-4 illustrates the project trip assignment for retail uses. Figure 5-5 illustrates the total project trip assignment.

5.3 LIST OF CHAPTER 5.0 FIGURES AND TABLES

- Figure 5-1: Pass-by Trip Assignment
- Figure 5-2: Project Trip Distribution - Residential
- Figure 5-3: Project Trip Distribution - Retail
- Figure 5-4: Project Trip Assignment - Residential

- Figure 5-5: Project Trip Assignment - Retail
- Figure 5-6: Total Project Trip Assignment
- Table 5-A: Project Trip Generation

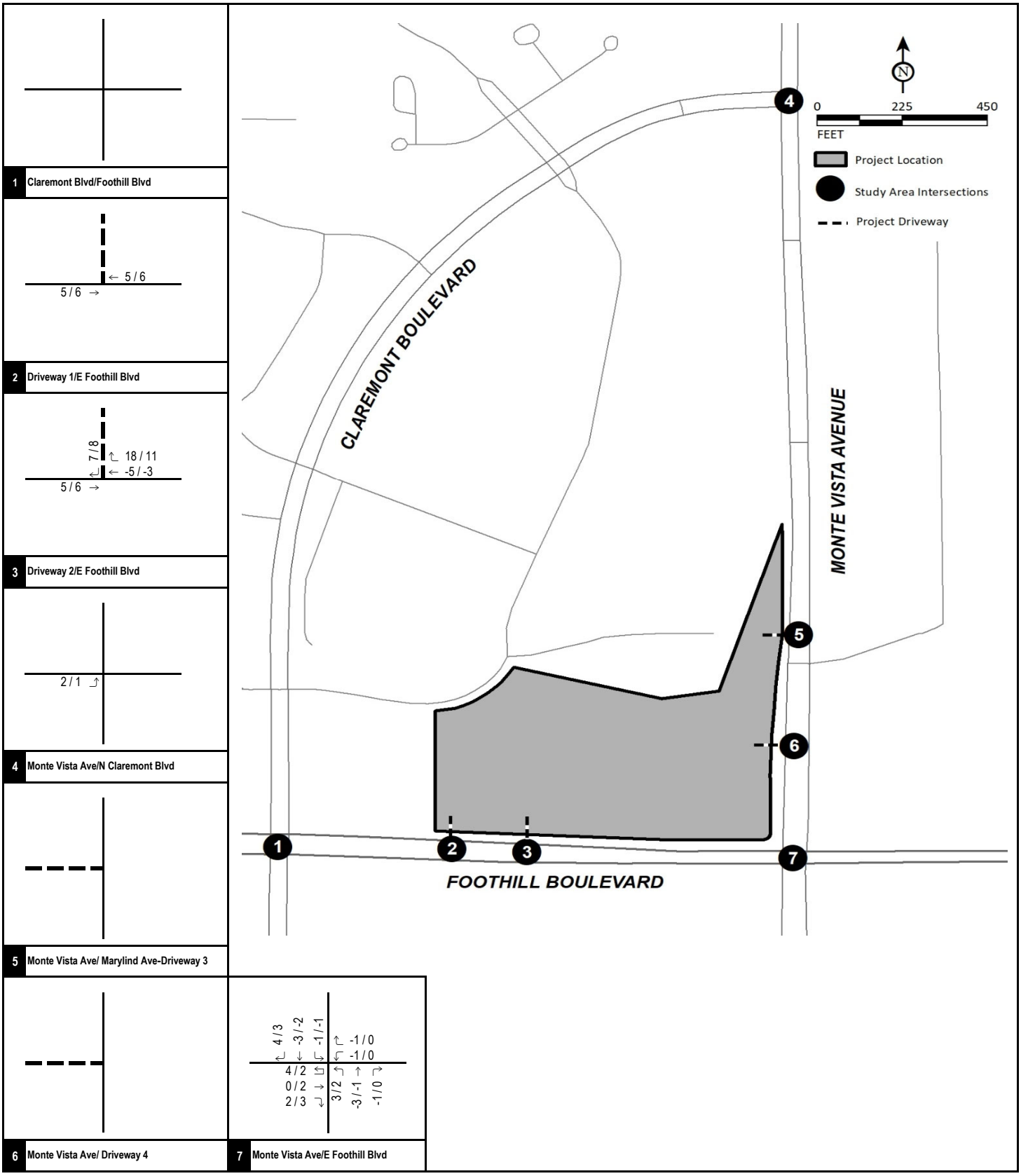


FIGURE 5-1

LSA

XX / YY
AM / PM Peak Hour PCE Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Pass-by Trip Assignment

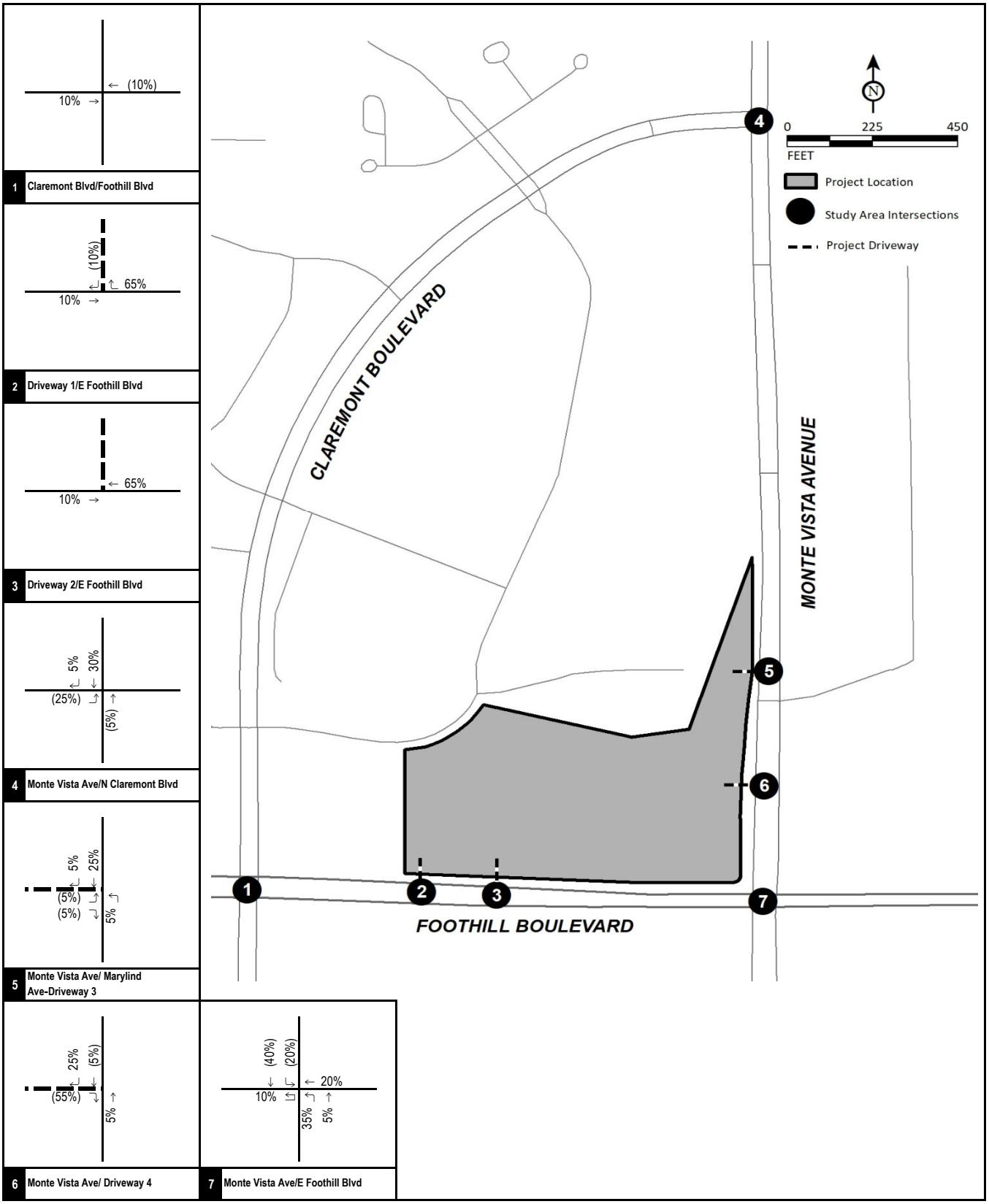


FIGURE 5-2

LSA

XX% (YY%)
Inbound (Outbound) Trip Distribution
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Distribution-Residential

R:\CCT1801\2.5 Traffic\z30_Dist-Res.xlsx\Figure (10/24/2019)

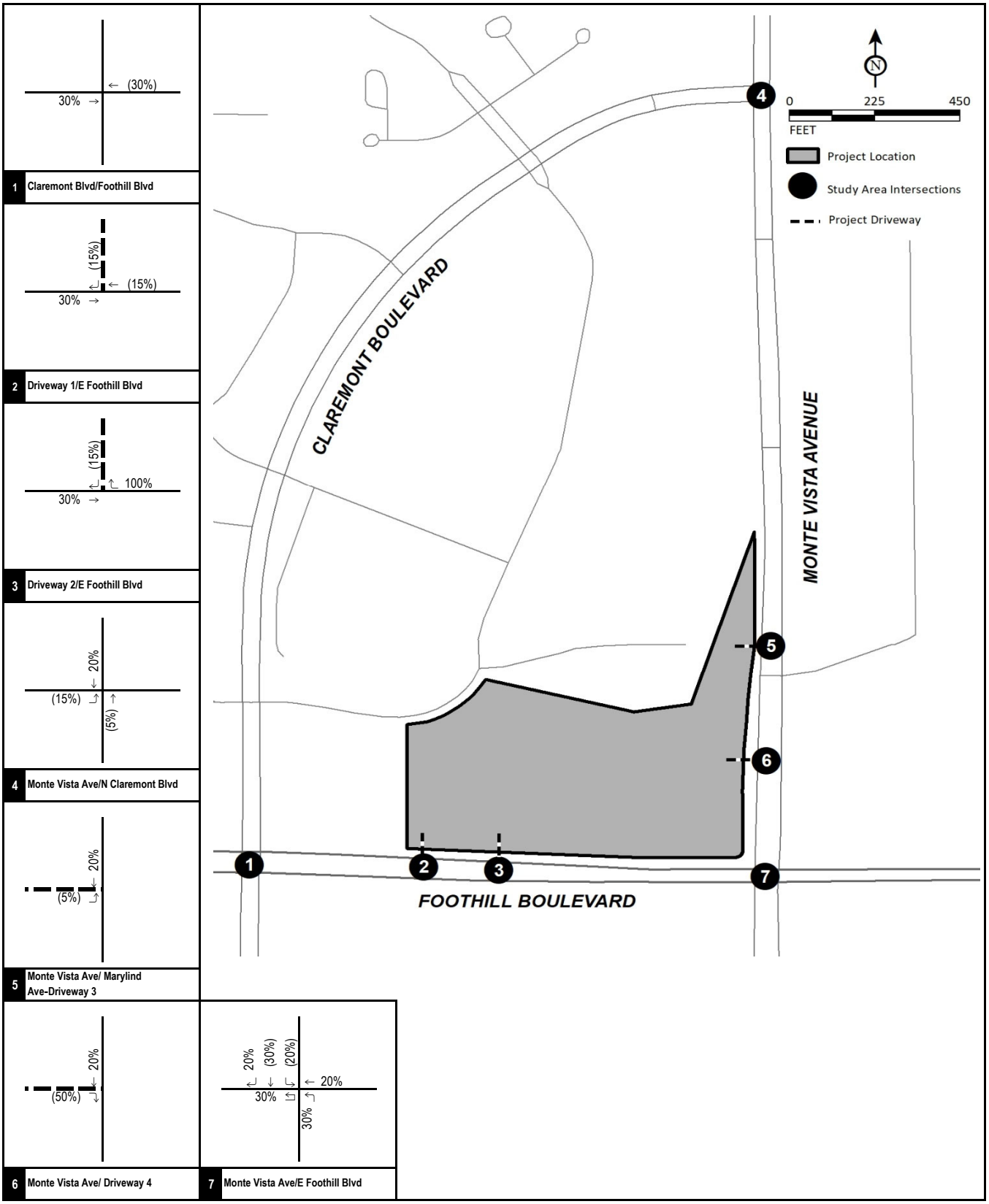


FIGURE 5-3

LSA

XX% (YY%)
Inbound (Outbound) Trip Distribution
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Distribution-Retail

R:\CCT1801\2.5 Traffic\z30_Dist-Ret.xlsx\Figure (10/24/2019)

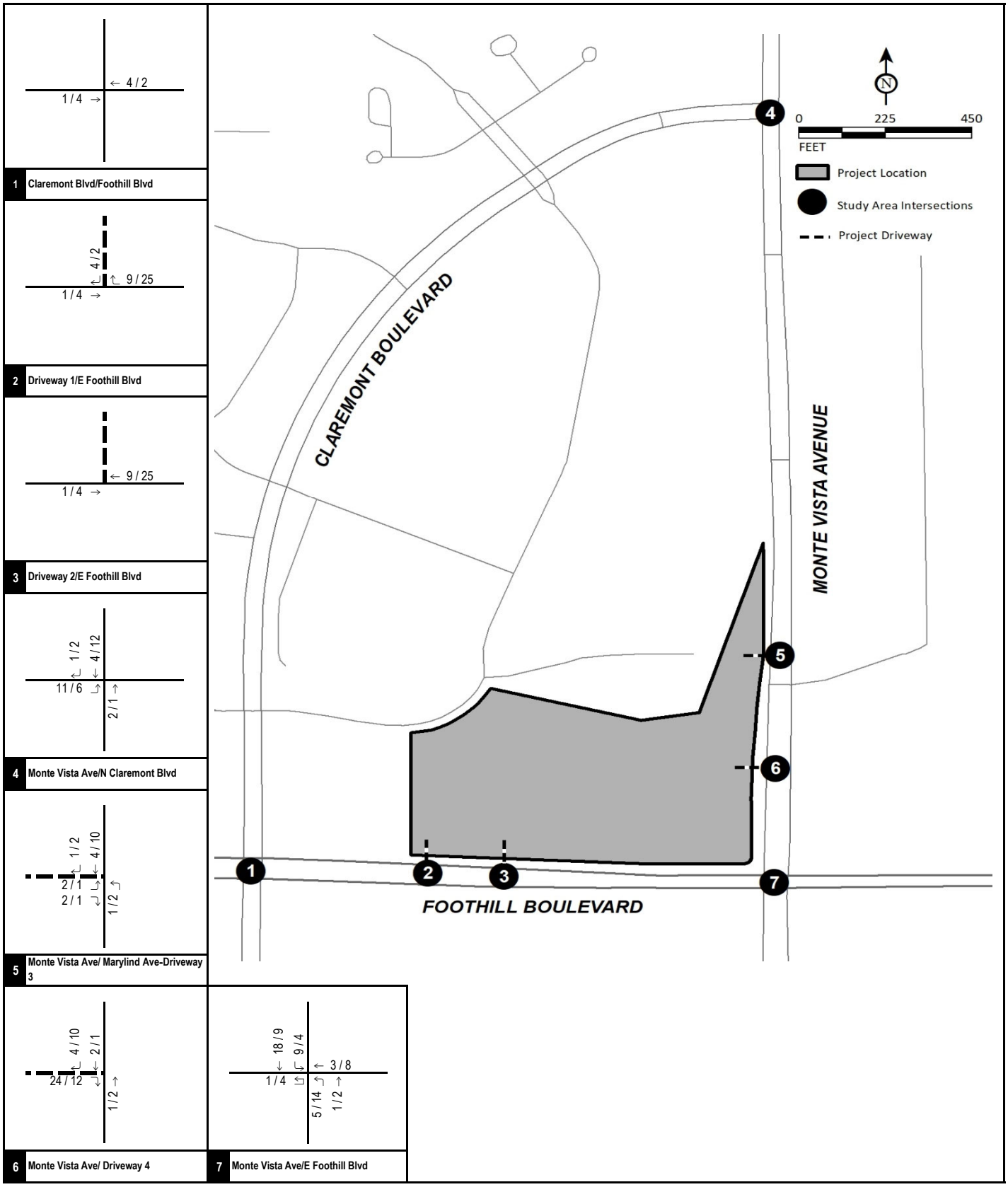


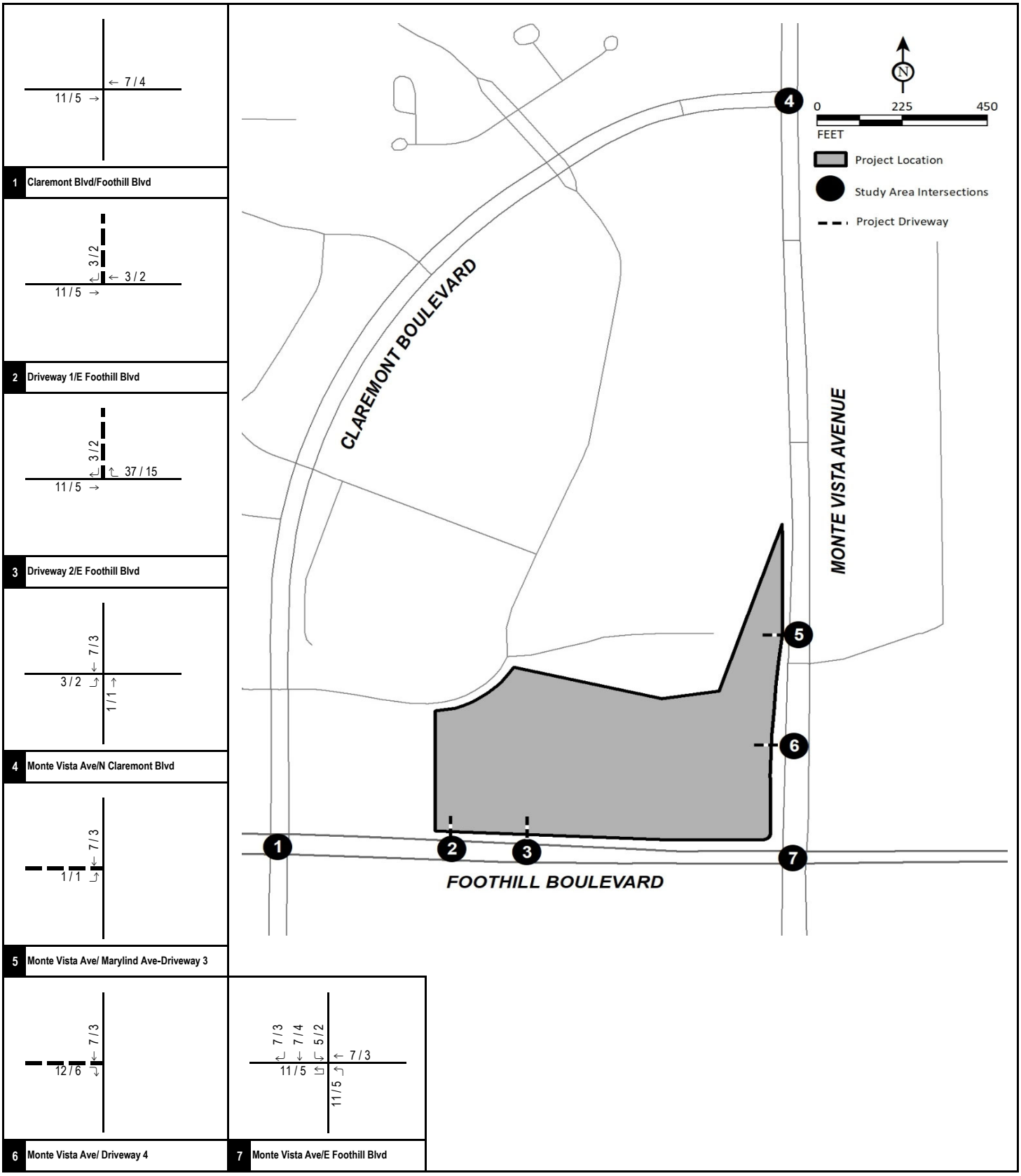
FIGURE 5-4

LSA

XX / YY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Assignment- Residential



LSA

FIGURE 5-5

XX / YY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Assignment- Retail

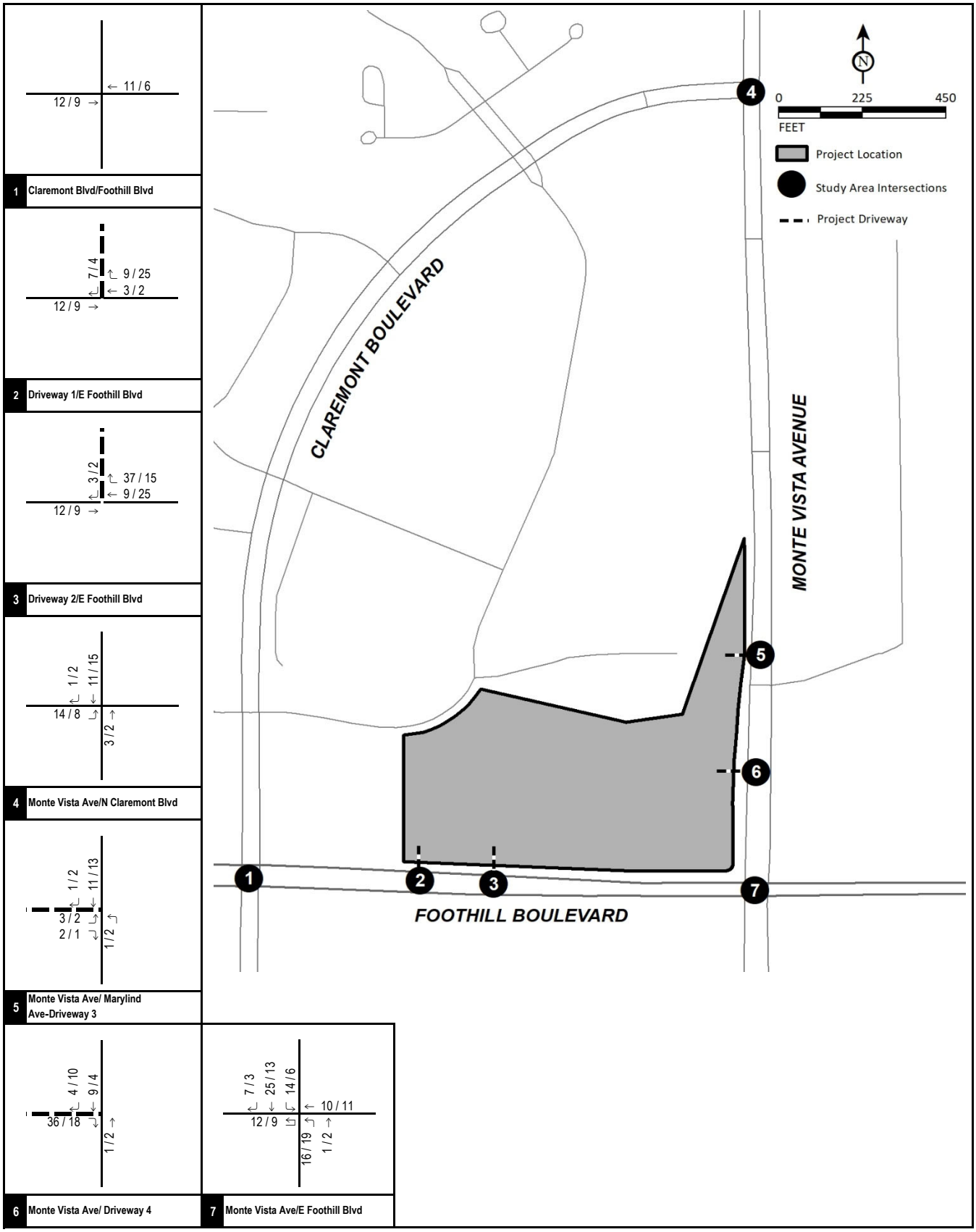


FIGURE 5-6

LSA

XX / YY
AM / PM Peak Hour PCE Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Total Project Trip Assignment

LSA

Table 5-A - Project Trip Generation

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Retail	5.00 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		56	35	91	28	31	59	784
Internal Capture[2]					(3)	(8)	(11)	(145)
Total External Trips		56	35	91	25	23	48	639
Pass-by Trips[3]		(19)	(12)	(31)	(10)	(11)	(21)	(267)
Net External Trips		37	23	60	15	12	27	372
Multi-Family Residential	83 DU							
Trips/Unit[4]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		9	29	38	29	17	46	608
Single Family Detached	27 DU							
Trips/Unit[5]		0.19	0.56	0.74	0.62	0.37	0.99	9.44
Trip Generation		5	15	20	17	10	27	255
Total Residential								
Trip Generation		14	44	58	46	27	73	863
Internal Capture[2]					(7)	(5)	(12)	(146)
Net External Trips		14	44	58	39	22	61	717
Total Trip Generation		**51**	**67**	**118**	**54**	**34**	**88**	**1,089**

Note:

TSF = Thousand Square Feet; DU = Dwelling Units

[1] Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Internal capture rates obtained using the NCHRP 8-51 Internal Trip Capture Estimation Tool.

[3] Pass-by rates from the ITE *Trip Generation Handbook*, 3rd Edition for Land Use 820 - "Shopping Center." A pass-by rate of 34% was used for the p.m. peak hour. No a.m. peak hour and daily pass-by rates are provided; therefore, the p.m. peak hour pass-by rate was used as both the a.m. peak hour and daily pass-by rates.

[4] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 220 - "Multifamily Housing (Low-Rise)", Setting/Location - "General Urban/Suburban."

[5] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 210 - "Single-Family Detached Housing", Setting/Location - "General Urban/Suburban."

6.0 TRAFFIC VOLUMES WITH PROJECT SCENARIOS

Existing, project opening year, cumulative, and build-out with project traffic volumes were developed by adding project traffic to the corresponding without project scenarios. Figure 6-1 illustrates existing with project peak hour traffic volumes at study intersections. Figure 6-2 illustrates opening year with project peak hour traffic volumes at study intersections. Figure 6-3 illustrates cumulative with project peak hour traffic volumes at study intersections. Figure 6-4 illustrates future build-out year with project peak hour traffic volumes at study intersections.

Detailed volume development worksheets are included in Appendix C.

6.1 LIST OF CHAPTER 6.0 FIGURES

- Figure 6-1: Existing with Project Peak Hour Traffic Volumes
- Figure 6-2: Project Opening Year (2021) with Project Peak Hour Traffic Volumes
- Figure 6-3: Cumulative (2021) with Project Peak Hour Traffic Volumes
- Figure 6-4: Future Build-out Year (2040) with Project Peak Hour Traffic Volumes

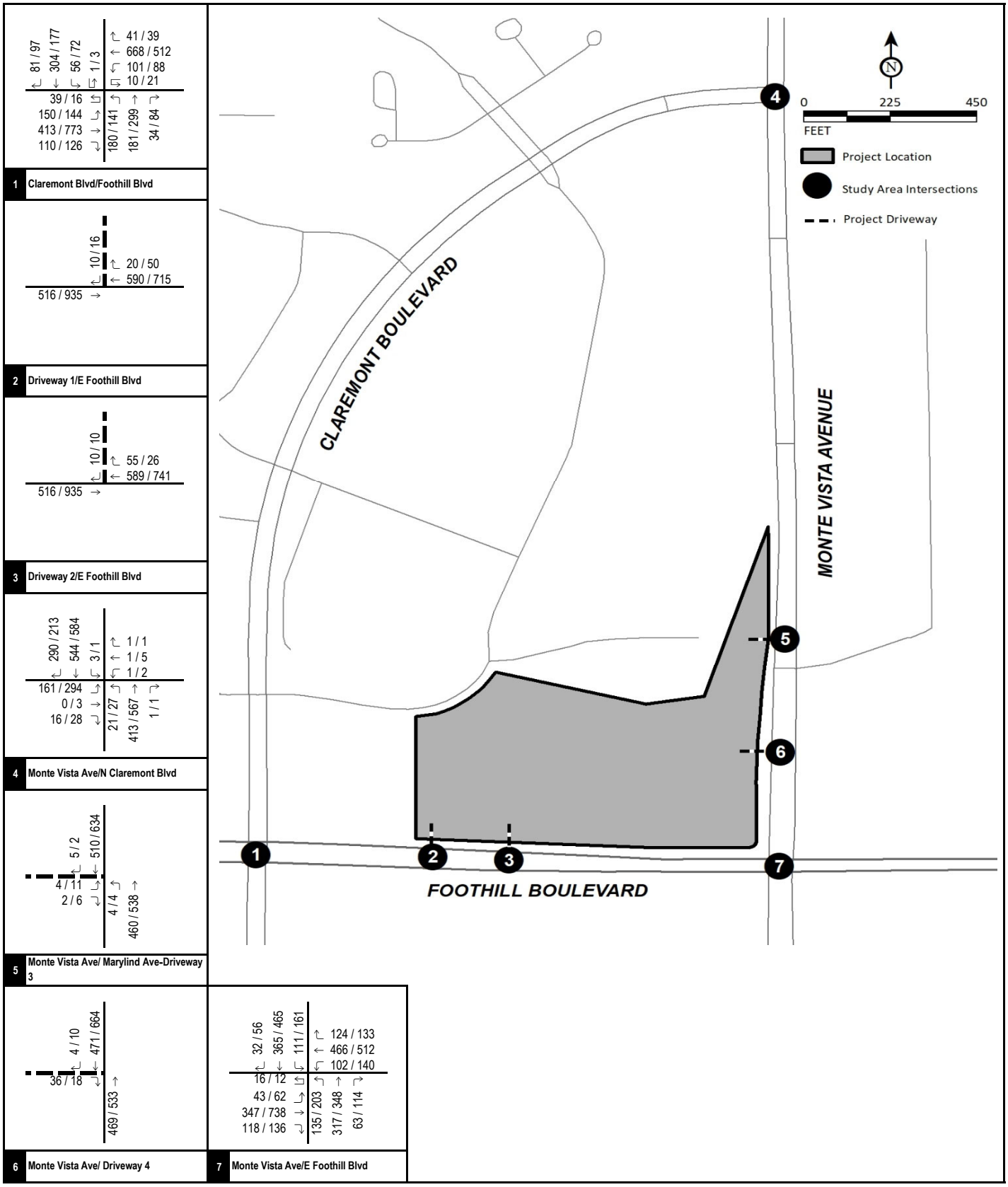


FIGURE 6-1

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Existing with Project Peak Hour Traffic Volumes

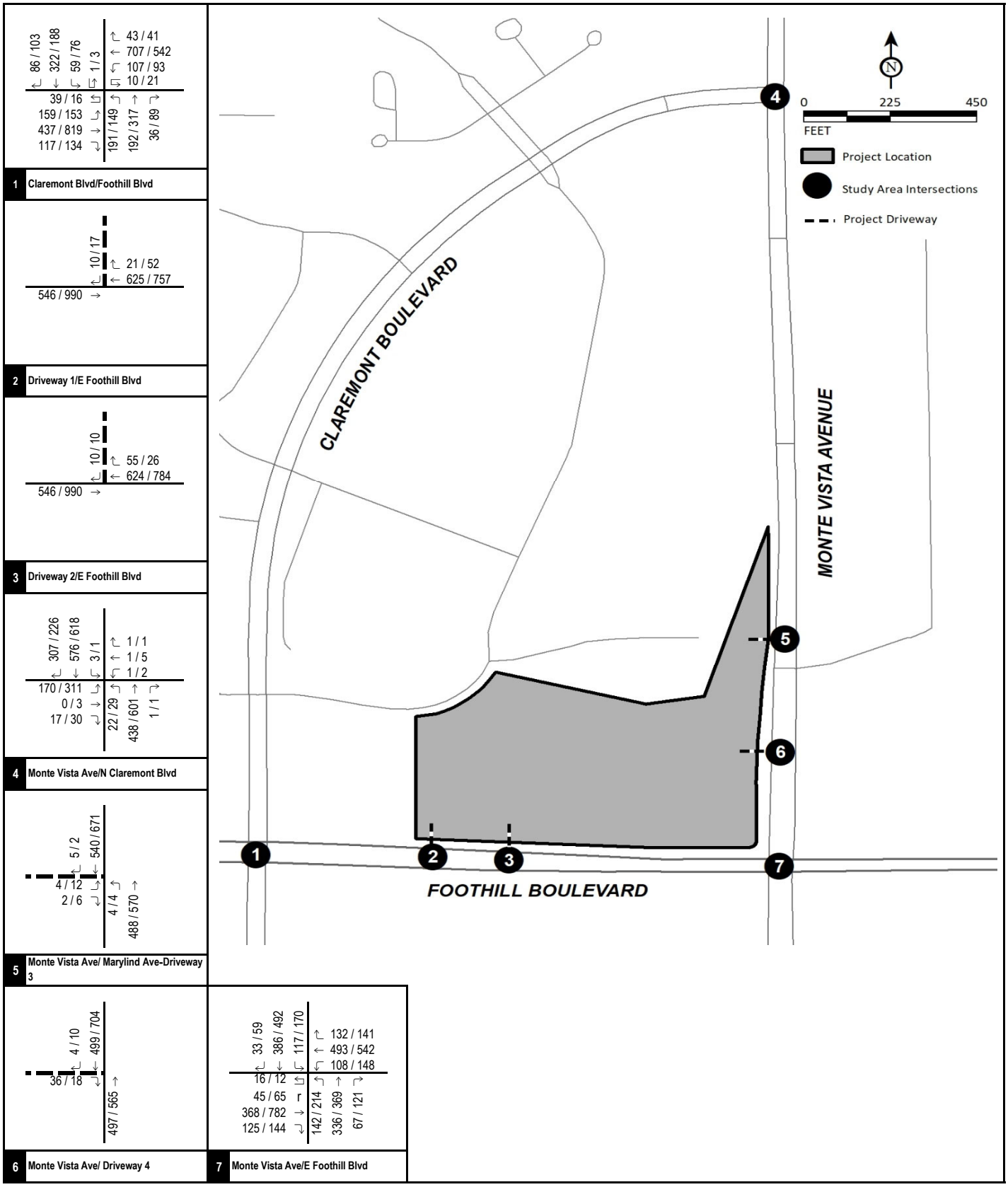


FIGURE 6-2

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Project Opening Year (2021) with Project Peak Hour Traffic Volumes

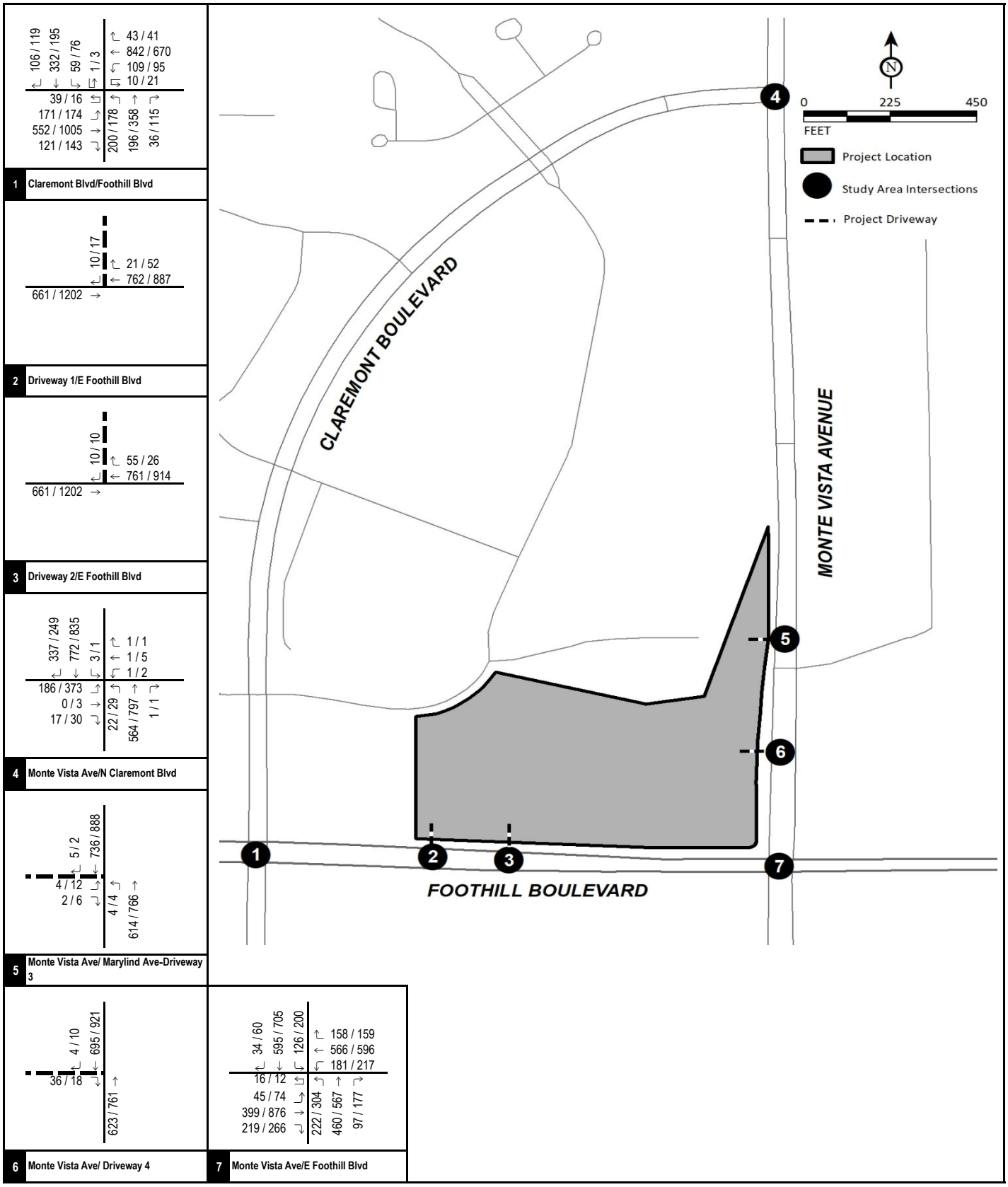


FIGURE 6-3

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Cumulative (2021) with Project Peak Hour Traffic Volumes

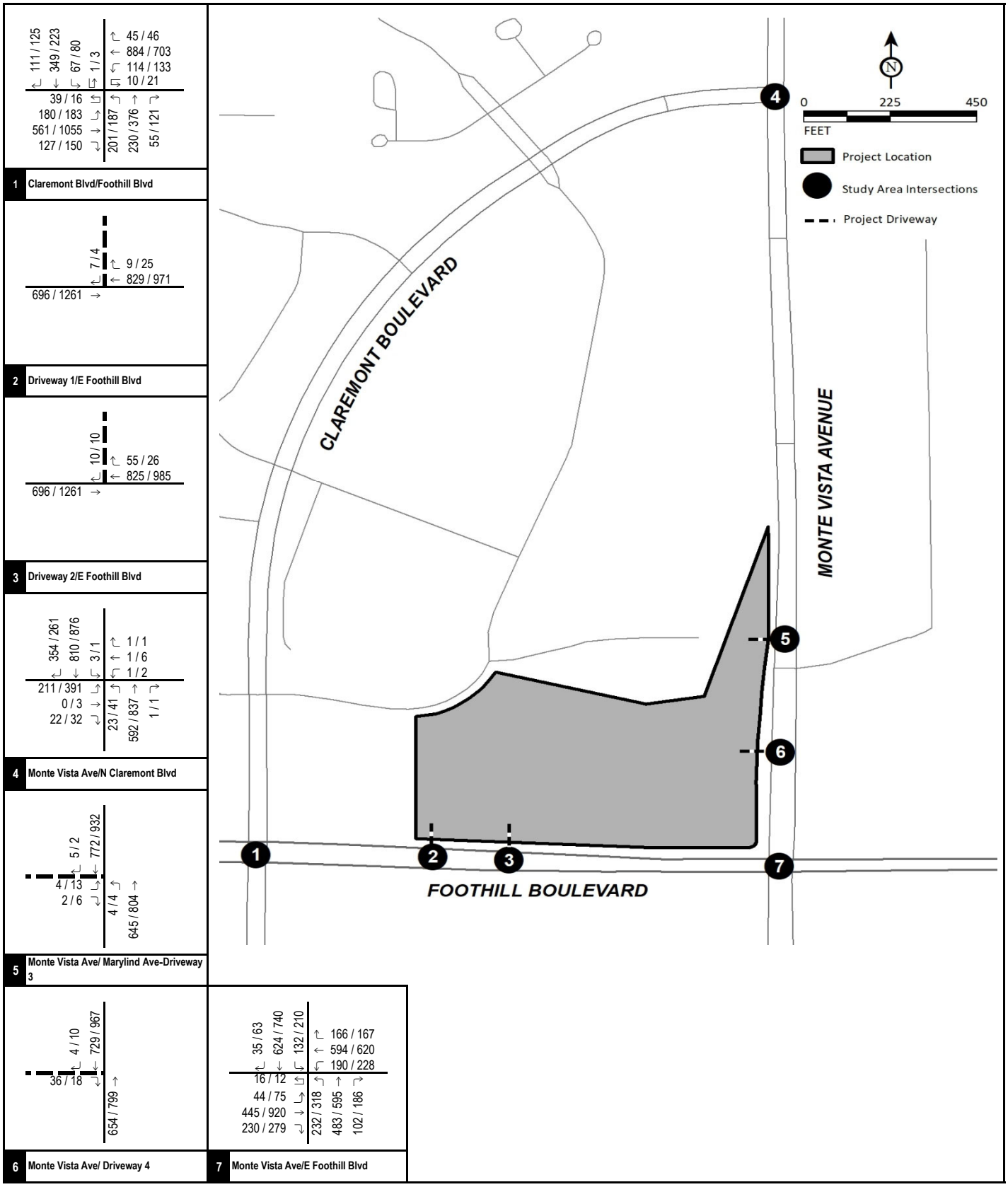


FIGURE 6-4

LSA

XXX / YYY
AM / PM Peak Hour Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Future Build-out Year (2040) with Project Peak Hour Traffic Volumes

7.0 INTERSECTION LEVELS OF SERVICE

7.1 EXISTING LEVELS OF SERVICE

Figure 3-1 illustrates existing intersection geometrics and traffic control. An intersection LOS analysis was conducted for existing conditions using the methodologies previously discussed. Table 7-A summarizes the results of this analysis and shows that all the study intersections currently operate at a satisfactory LOS under existing conditions. Detailed LOS worksheets are included in Appendix E.

7.2 EXISTING WITH PROJECT LEVELS OF SERVICE

Analysis of the existing with project scenario is provided for CEQA compliance to identify direct project impacts if the project were to be built and in operation today. This scenario does not include traffic from ambient growth or other cumulative projects.

An intersection level of service analysis was conducted for existing with project conditions to determine intersection performance. Table 7-A summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under existing with project conditions. Detailed LOS worksheets are included in Appendix E.

7.3 PROJECT OPENING YEAR (2021) WITHOUT PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for project opening year without project conditions using the previously discussed methodologies. Table 7-B summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative without project conditions. Detailed LOS worksheets are included in Appendix E.

7.4 PROJECT OPENING YEAR (2021) WITH PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for project opening year with project conditions using the previously discussed methodologies. Table 7-B summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative with project conditions. Detailed LOS worksheets are included in Appendix E.

7.5 CUMULATIVE (2021) WITHOUT PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative without project conditions using the previously discussed methodologies. Table 7-C summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative without project conditions. Detailed LOS worksheets are included in Appendix E.

7.6 CUMULATIVE (2021) WITH PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for cumulative with project conditions using the previously discussed methodologies. Table 7-C summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative with project conditions. Detailed LOS worksheets are included in Appendix E.

7.7 BUILD-OUT (2040) WITHOUT PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for future build-out year without project conditions using the previously discussed methodologies. Table 7-D summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative without project conditions. Detailed LOS worksheets are included in Appendix E.

7.8 BUILD-OUT (2040) WITH PROJECT LEVELS OF SERVICE

An intersection level of service analysis was conducted for future build-out year with project conditions using the previously discussed methodologies. Table 7-D summarizes the results of this analysis and shows that all the study intersections are forecast to operate at a satisfactory LOS under cumulative with project conditions. Detailed LOS worksheets are included in Appendix E.

7.9 LIST OF CHAPTER 7.0 TABLES

- Table 7-A: Existing Intersection Levels of Service
- Table 7-B: Project Opening Year (2021) Intersection Levels of Service
- Table 7-C: Cumulative (2021) Intersection Levels of Service
- Table 7-D: Build-out (2040) Intersection Levels of Service

LSA

Table 7-A - Existing Intersection Levels of Service

Intersection	Jurisdiction	Control	LOS Standard	Without Project				With Project				Significant Impact
				A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
				Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . Claremont Blvd/Foothill Blvd	Claremont	Signal	E	32.6	C	30.3	C	32.6	C	31.3	C	No
2 . Driveway 1/E Foothill Blvd	Claremont	OWSC[1]	E	10.2	B	10.9	B	10.4	B	11.1	B	No
3 . Driveway 2/E Foothill Blvd	Claremont	OWSC[1]	E	Does Not Exist		Does Not Exist		10.5	B	11.1	B	No
4 . Monte Vista Ave/N Claremont Blvd	Claremont	Signal	E	10.9	B	14.9	B	11.4	B	15.5	B	No
5 . Monte Vista Ave/ Marylind Ave-Driveway 3	Upland	OWSC[1]	D	15.7	C	16.2	C	14.1	B	16.6	C	No
6 . Monte Vista Ave/ Driveway 4	Upland	OWSC[1]	D	Does Not Exist		Does Not Exist		10.9	B	11.8	B	No
7 . Monte Vista Ave/E Foothill Blvd	Upland	Signal	D	28.7	C	28.6	C	28.8	C	29.5	C	No

Notes:

OWSC = One-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC intersections, reported delay is for worst-case movement).

[1] This intersection operates as a OWSC intersection under with project conditions.

LSA

Table 7-B - Project Opening Year (2021) Intersection Levels of Service

Intersection	Jurisdiction	Control	LOS Standard	Without Project				With Project				Significant Impact
				A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
				Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . Claremont Blvd/Foothill Blvd	Claremont	Signal	E	33.2	C	31.7	C	33.3	C	31.7	C	No
2 . Driveway 1/E Foothill Blvd	Claremont	OWSC[1]	E	10.4	B	11.2	B	10.5	B	11.4	B	No
3 . Driveway 2/E Foothill Blvd	Claremont	OWSC[1]	E	Does Not Exist		Does Not Exist		10.7	B	11.3	B	No
4 . Monte Vista Ave/N Claremont Blvd	Claremont	Signal	E	11.1	B	15.6	B	11.5	B	15.8	B	No
5 . Monte Vista Ave/ Marylind Ave-Driveway 3	Upland	OWSC[1]	D	16.5	C	17.3	C	14.6	B	17.8	C	No
6 . Monte Vista Ave/ Driveway 4	Upland	OWSC[1]	D	Does Not Exist		Does Not Exist		11.1	B	12.0	B	No
7 . Monte Vista Ave/E Foothill Blvd	Upland	Signal	D	28.8	C	29.6	C	28.9	C	29.9	C	No

Notes:

OWSC = One-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

[1] This intersection operates as a OWSC intersection under with project conditions.

LSA

Table 7-C - Cumulative (2021) Intersection Levels of Service

Intersection	Jurisdiction	Control	LOS Standard	Without Project				With Project				Significant Impact
				A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
				Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . Claremont Blvd/Foothill Blvd	Claremont	Signal	E	34.7	C	33.5	C	34.8	C	33.6	C	No
2 . Driveway 1/E Foothill Blvd	Claremont	OWSC[1]	E	11.0	B	11.9	B	11.2	B	12.1	B	No
3 . Driveway 2/E Foothill Blvd	Claremont	OWSC[1]	E	Does Not Exist		Does Not Exist		11.3	B	12.0	B	No
4 . Monte Vista Ave/N Claremont Blvd	Claremont	Signal	E	10.9	B	16.7	B	11.3	B	16.9	B	No
5 . Monte Vista Ave/ Marylind Ave-Driveway 3	Upland	OWSC[1]	D	22.3	C	25.0	D	19.1	C	26.3	D	No
6 . Monte Vista Ave/ Driveway 4	Upland	OWSC[1]	D	Does Not Exist		Does Not Exist		12.2	B	13.3	B	No
7 . Monte Vista Ave/E Foothill Blvd	Upland	Signal	D	29.0	C	32.2	C	29.6	C	32.8	C	No

Notes:

OWSC = One-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

[1] This intersection operates as a OWSC intersection under with project conditions.

LSA

Table 7-D - Build-out (2040) Intersection Levels of Service

Intersection	Control	LOS Standard	Without Project				With Project				Significant Impact
			A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour		
			Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	
1 . Claremont Blvd/Foothill Blvd	Signal	E	35.9	D	35.1	D	36.1	D	35.3	D	No
2 . Driveway 1/E Foothill Blvd	OWSC[1]	E	0.0	A	0.0	A	11.4	B	12.2	B	No
3 . Driveway 2/E Foothill Blvd	OWSC[1]	E	Does Not Exist		Does Not Exist		11.7	B	12.4	B	No
4 . Monte Vista Ave/N Claremont Blvd	Signal	E	11.6	B	17.4	B	12.0	B	17.6	B	No
5 . Monte Vista Ave/ Marylind Ave-Driveway 3	OWSC[1]	D	23.9	C	27.9	D	20.1	C	29.1	D	No
6 . Monte Vista Ave/ Driveway 4	OWSC[1]	D	Does Not Exist		Does Not Exist		12.4	B	13.6	B	No
7 . Monte Vista Ave/E Foothill Blvd	Signal	D	29.4	C	33.3	C	29.9	C	33.9	C	No

Notes:

OWSC = One-Way Stop Control; LOS = Level of Service

Delay = Average control delay in seconds (For OWSC and TWSC intersections, reported delay is for worst-case movement).

[1] This intersection operates as a OWSC intersection under with project conditions.

8.0 CONGESTION MANAGEMENT PROGRAM ANALYSIS

The City of Claremont is within the jurisdiction of Los Angeles County. The City of Upland is within jurisdiction of San Bernardino County. The Los Angeles County MTA CMP includes the *Guidelines for CMP Transportation Impact Analysis* (Appendix D of the CMP) to assist local agencies in evaluating impacts of development projects on the CMP system through the preparation of a regional transportation impact analysis (TIA). As per the guidelines, a TIA is required where:

- The proposed project will add 50 or more trips at CMP arterial monitoring intersections, including freeway on and off-ramp intersections during either the weekday a.m. or p.m. peak hours (of adjacent street traffic); or
- The proposed project will add 150 or more trips; in either direction, at mainline freeway monitoring locations during either the weekday a.m. or p.m. peak hours.

The project would not add 50 or more peak hour trips to any CMP arterial monitoring intersections or mainline freeway monitoring locations. As such, a CMP analysis is not required.

9.0 SUMMARY AND CONCLUSIONS

The Commons Project includes 27 single family detached homes, 73 townhomes, and 5,000 square feet of retail with 10 flats above retail. When complete, the proposed project is forecast to generate 1,089 net daily trips with 118 net trips occurring in the a.m. peak hour and 88 net trips occurring in the p.m. peak hour. The TIA included analysis of seven intersections adjacent to the project site. Eight conditions were examined in the TIS: existing, existing plus project, project opening year, project opening year plus project, cumulative, cumulative plus project, future build-out year, and future build-out year plus project. The TIA concluded that no significant transportation impacts are anticipated as a result of the project. Therefore, no mitigation measures are required.

APPENDIX A:

MEMORANDUM OF UNDERSTANDING

BERKELEY
CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

July 31, 2019

Mr. Vincent Ramos
Associate Engineer
City of Claremont
207 Harvard Avenue
Claremont, California 91711

Mr. Ponce Yambot, J.D., P.E.
Principal Engineer
City of Upland
460 N. Euclid Avenue
Upland, California 91786

Subject: Scope of Work for the Claremont Commons Specific Plan Traffic Impact Study (LSA Project No. CCT1801)

Dear Vincent/Ponce:

LSA is under contract to prepare a traffic impact study (TIS) for the proposed Claremont Commons Specific Plan (Project) to be located at undeveloped parcel 8307-003-066, in the City of Claremont, and parcels 1006-312-02, 1006-312-02-03, 1006-312-0204 , in the City of Upland. The four parcels are primarily undeveloped with the exception of an Armstrong Nursery store. The nursery will not be removed and will become the adjacent neighboring property to the west of the proposed project.

The proposed project will add approximately 27 single family detached homes, 68 townhomes, and 5,000 square feet of retail with 10 flats above retail. Figure 1 (all figures attached) illustrates the regional and project location. Figure 2 illustrates the conceptual site plan. As illustrated in Figure 2, the Project will provide three right in right out (RIRO) driveways and one full access driveway. The project can also be accessed through an existing asphalt road between the Armstrong nursery and project site. LSA anticipates that the following scope of work will be required to conduct the traffic impact study for the proposed project.

SCOPE OF WORK

Study Intersection Analysis

All study intersections will be analyzed during the a.m. and p.m. peak hours. The a.m. peak hour is defined as the one hour of highest traffic volumes occurring between 7:00 and 9:00 a.m. while the p.m. peak hour is defined as the one hour of highest traffic volumes occurring between 4:00 and 6:00 p.m. In accordance with the City of Claremont's Community Mobility Element, intersection levels of service (LOS) will be calculated using the *Highway Capacity Manual 6* (HCM 6). As the City

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of Upland does not have Traffic Study Guidelines, the study will be prepared using HCM 6 in accordance to the San *Bernardino County Congestion Management Program, 2016 Update*, prepared by the San Bernardino County Transportation Authority (SBCTA).

The TIS will examine the following intersections:

1. Claremont Blvd/Foothill Blvd
2. Driveway 1/E Foothill Blvd;
3. Driveway 2/E Foothill Blvd;
4. Monte Vista Ave/N Claremont Blvd
5. Monte Vista Ave/ Marylind Avenue-Driveway 3;
6. Monte Vista Ave/ Driveway 4;
7. Monte Vista Ave/E Foothill Blvd;

Figure 3 illustrates the study area intersections.

Trip Generation

Total vehicle trip generation for the Project has been developed using rates from the Institute of Transportation Engineers (ITE) Trip Generation (10th Edition) for Land Use 210 – "Single-Family Detached Housing", Land Use 220-"Multifamily Housing (Low-Rise)", and Land Use 820-"Shopping Center". As the Project is a mixed-use development, it is estimated that a certain percentage of trips will be internal trips, hence, not using the external street system. The internal capture rates have been calculated using the Internal Trip Capture Estimation Tool developed by the National Cooperative Highway Research Program (NCHRP) (Appendix A). The total external trips were calculated by subtracting the internal trips from the trip generation for each respective land use.

A certain percentage of external trips generated by the retail use are considered pass-by trips. A pass-by trip is a trip where an intermediate stop is made on the way from the origin to the primary destination of the trip without making a route diversion. The percentage of pass-by trips was obtained from the ITE Trip Generation Manual (10th Edition). Pass-by trips were deducted from the total external trips for the retail use only. These trips were added to the external trips for the residential use to obtain the net external trips for the project. As shown in Table A, the project is anticipated to generate 116 net trips in the a.m. peak hour, 87 net trips in the p.m. peak hour and 1,074 net daily trips.

The distribution of project trips is based on the regional roadway network and the location of residential, employment, and commercial centers in relation to the proposed project. Because the project has two different land uses, a separate trip distribution has been considered for each land use. Figures 4 and 5 illustrate the trip distributions for the retail and residential uses at the study intersections respectively. The trip generation of each land use has been applied to the corresponding trip distribution pattern to develop the trip assignment for the land use. Figures 6

and 7 illustrate the trip assignments for the retail and residential uses respectively. Figure 8 illustrates the total project trip assignment.

Analysis Scenarios

The TIS will satisfy the requirements for both cities, as well as the requirements for the disclosure of potential impacts and mitigation measures pursuant to the California Environmental Quality Act (CEQA). The project opening year is anticipated to be 2021. The TIS will examine traffic conditions and project related impacts under the following scenarios:

- Existing Traffic conditions;
- Existing with Project Traffic conditions;
- Project Opening Year (2021) Traffic conditions;
- Project Opening Year (2021) with Project Traffic conditions;
- Cumulative (2021) Traffic conditions;
- Cumulative (2021) with Project Traffic conditions;
- Future Build-out Year (2040) Traffic conditions; and
- Future Build-out Year (2040) with Project Traffic conditions.

Volume Development and Analysis Methodology

Traffic volumes for existing year traffic conditions will be based on existing count data collected at study intersections. Project opening year (2021) traffic conditions will be developed by applying a 3 percent per annum growth rate to existing traffic volumes. Cumulative (2021) traffic conditions will be developed by adding trips from other projects in the vicinity to the project opening year volumes. LSA will contact the City's Planning Department to obtain information regarding cumulative projects that needs to be included in the analysis. Future build-out (2040) volumes will be developed using the growth forecasts from the San Bernardino Transportation Analysis Model (SBTAM).

Existing, project opening year (2021), cumulative (2021), and future build-out year (2040) with project volumes will be developed by adding project traffic to the corresponding without project scenarios.

As previously stated, the TIS will analyze study intersections during the a.m. and p.m. peak hours. Intersection LOS will be calculated using HCM 6 analysis methodologies by using the Synchro 10 software.

Project Impact Assessment and Mitigation Measures

Levels of service without the project will be compared to levels of service with the project for all analysis scenarios to determine potential project impacts. Determination of significant project

impacts will be made based on the LOS standards and significance threshold criteria set forth in the City's TIS guidelines.

Mitigation measures will be recommended at locations operating at an unsatisfactory LOS or where the project causes significant impacts. Mitigation measures may include addition of intersection turn lanes, and signalization. The LOS with mitigation will be calculated and summarized along with a comparison of the LOS without mitigation.

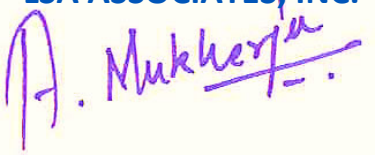
Fair Share

For improvements not included in any fee program, LSA will calculate the project's fair share percentage to total new traffic. A table with recommended mitigations will be prepared and will include mitigation measures required under future build-out (2040) conditions. The fair share will be based on project traffic as a percentage of total growth from existing to year 2040.

Should you have any questions, please do not hesitate to contact me at (951) 781-9310 or email me at Ambarish.Mukherjee@lsa.net.

Sincerely,

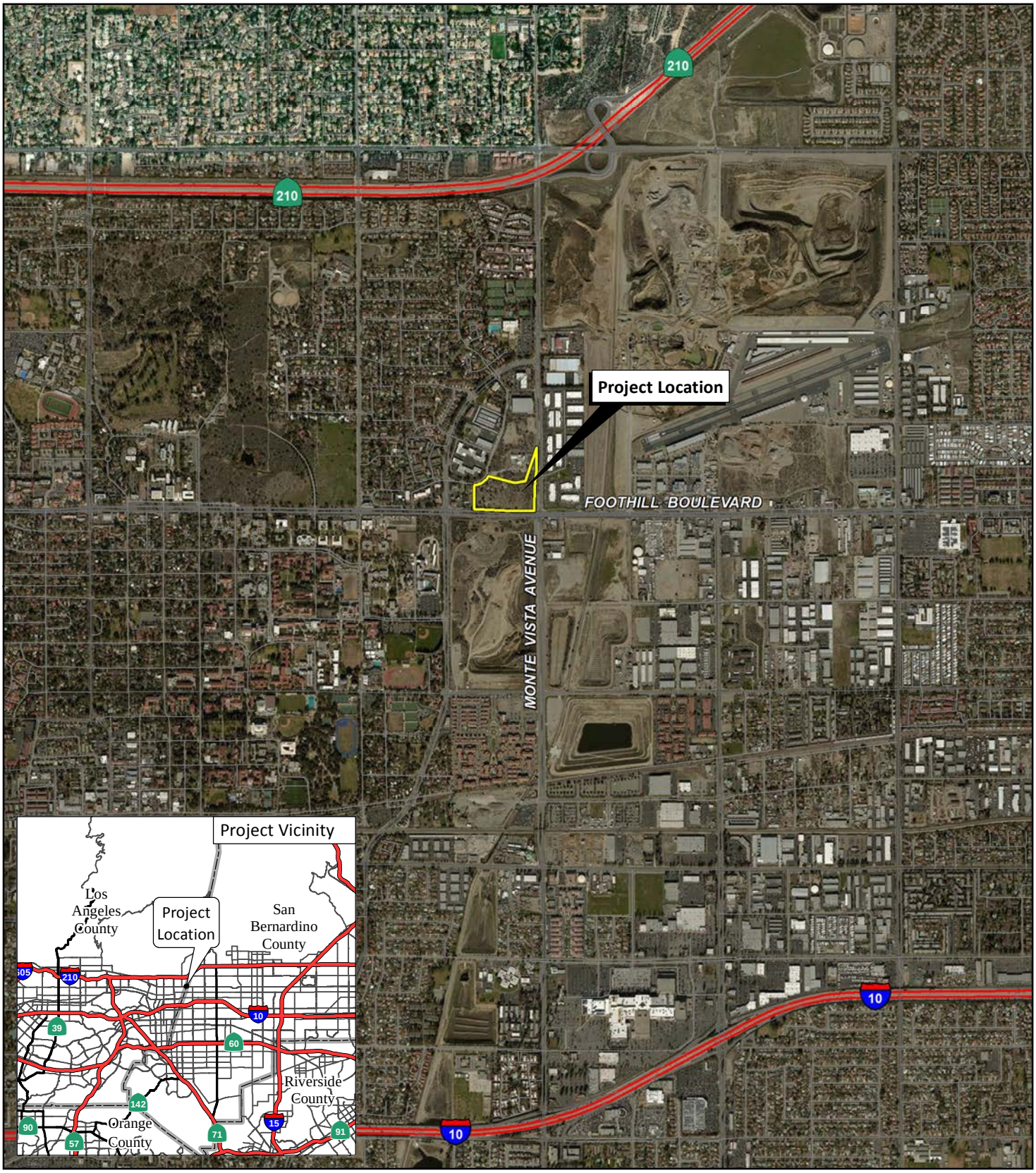
LSA ASSOCIATES, INC.



Ambarish Mukherjee, AICP, PE
Associate/Senior Transportation Planner

Attachments:

Figure 1: Regional and Project Location
Figure 2: Conceptual Site Plan
Figure 3: Study Area Intersections
Figure 4: Project Trip Distribution – Retail
Figure 5: Project Trip Distribution – Residential
Figure 6: Project Trip Assignment – Retail
Figure 7: Project Trip Assignment – Residential
Figure 8: Total Project Trip Assignment
Table A: Project Trip Generation
Appendix A: Internal Trip Capture Estimation Tool



LSA

FIGURE 1

N

0 1000 2000
FEET

Claremont Commons Specific Plan
Traffic Impact Analysis

Regional and Project Location

SOURCE: ESRI Streetmap, 2013, Bing Aerial, 2015.

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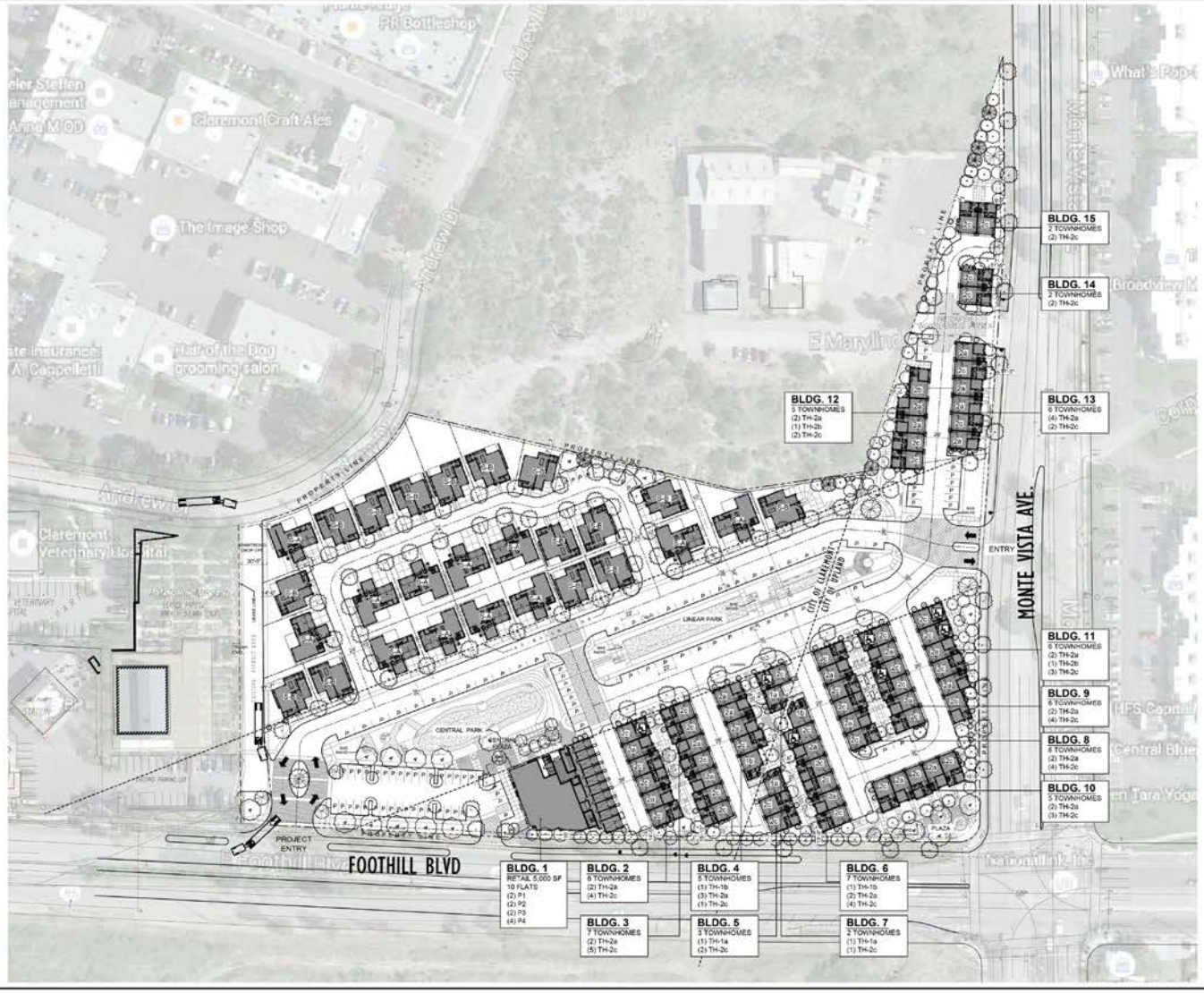

LSA

FIGURE 2

N

0 100 200

FEET

SOURCE: ktgy, April 2019

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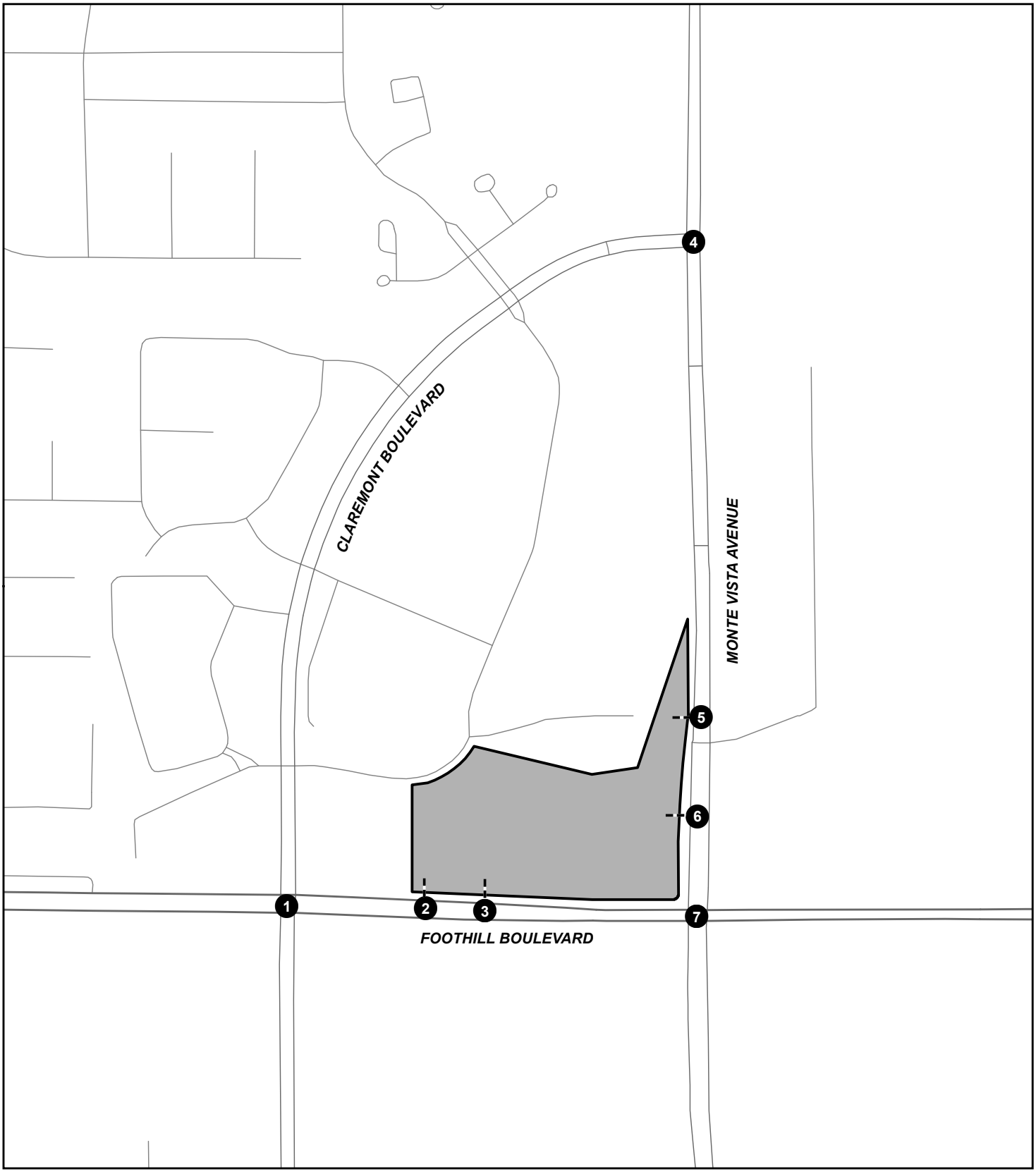
Claremont Commons Specific Plan
Traffic Impact Analysis

Conceptual Site Plan



LSA

FIGURE 3

LEGEND

Project Location

Study Area Intersections

Project Driveway

N

0 225 450

FEET

SOURCE: ESRI Streetmap, 2013.

The Commons Project
Traffic Impact Analysis

Study Area Intersections

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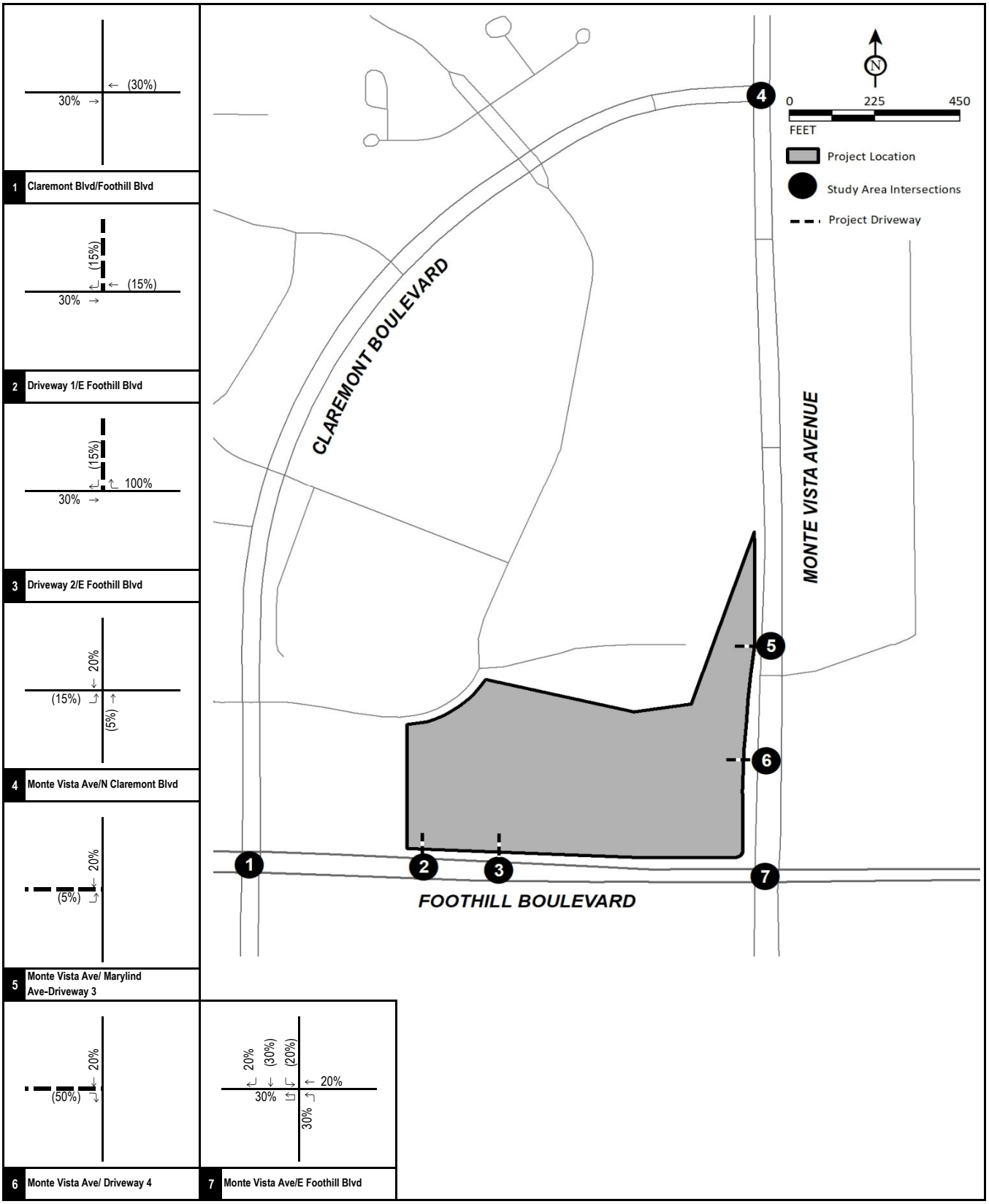

FIGURE 4

LSA

XX% (YY%)
Inbound (Outbound) Trip Distribution
---· Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Distribution-Retail

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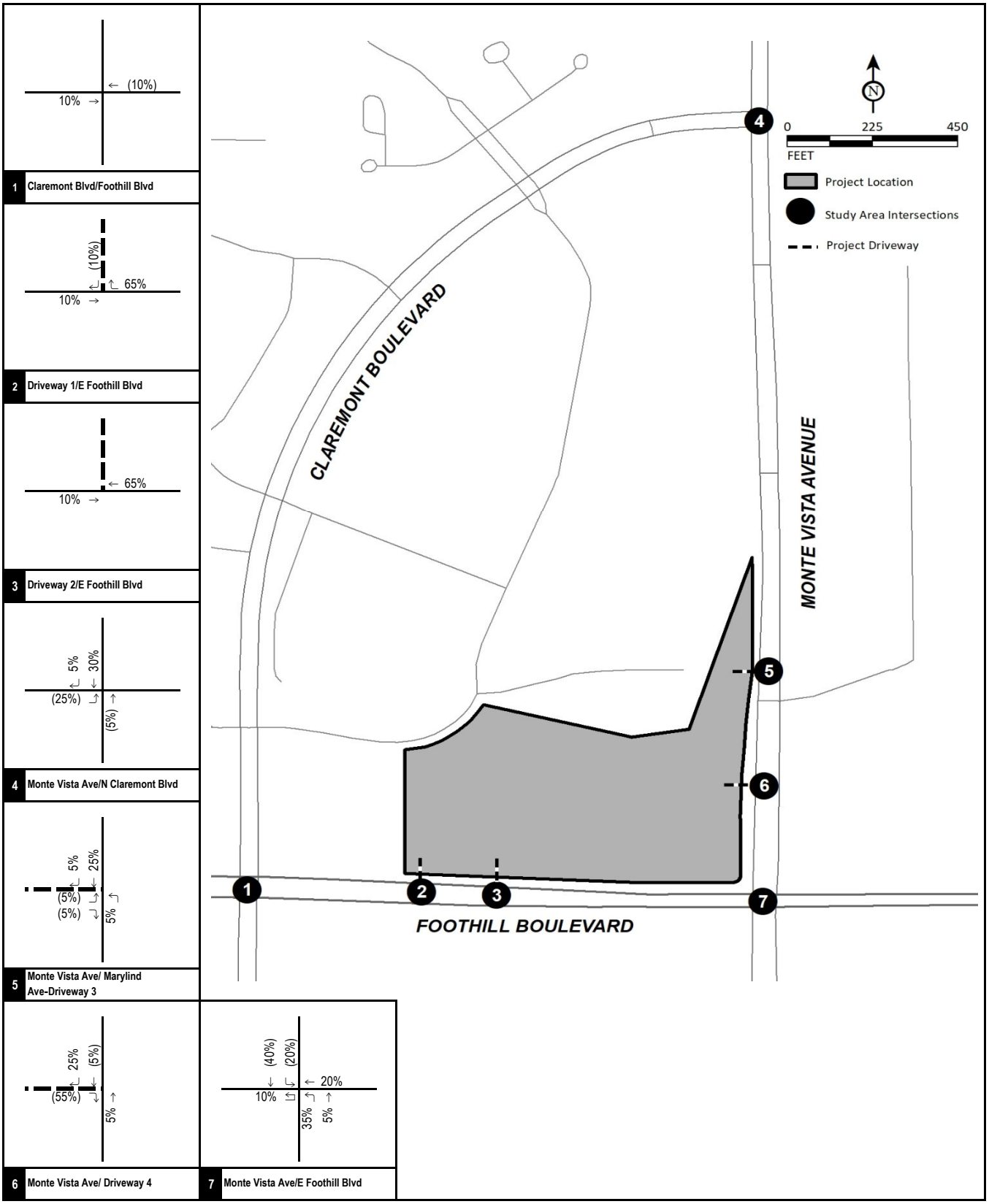

FIGURE 5

LSA

XX% (YY%)
Inbound (Outbound) Trip Distribution
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Distribution-Residential

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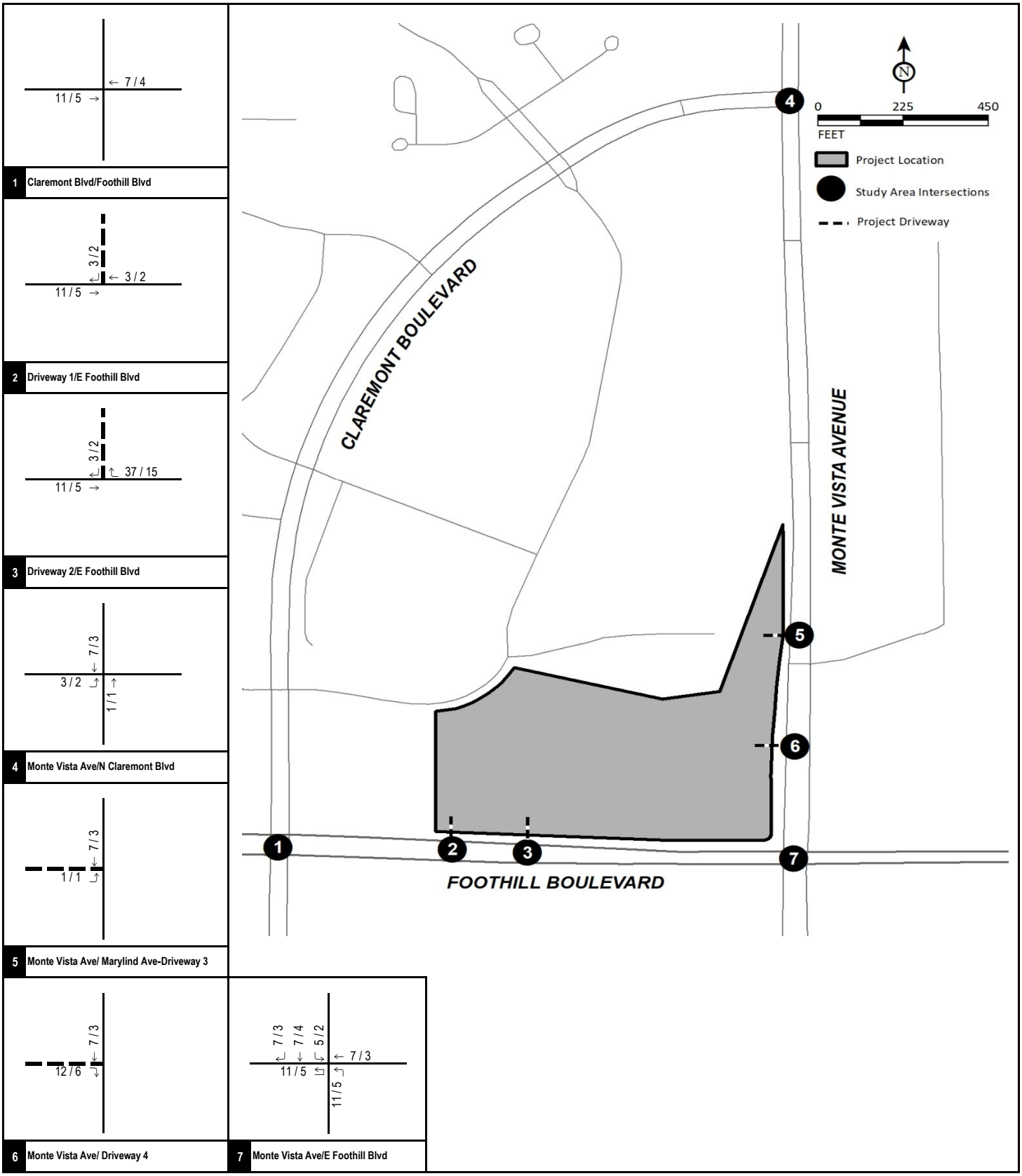


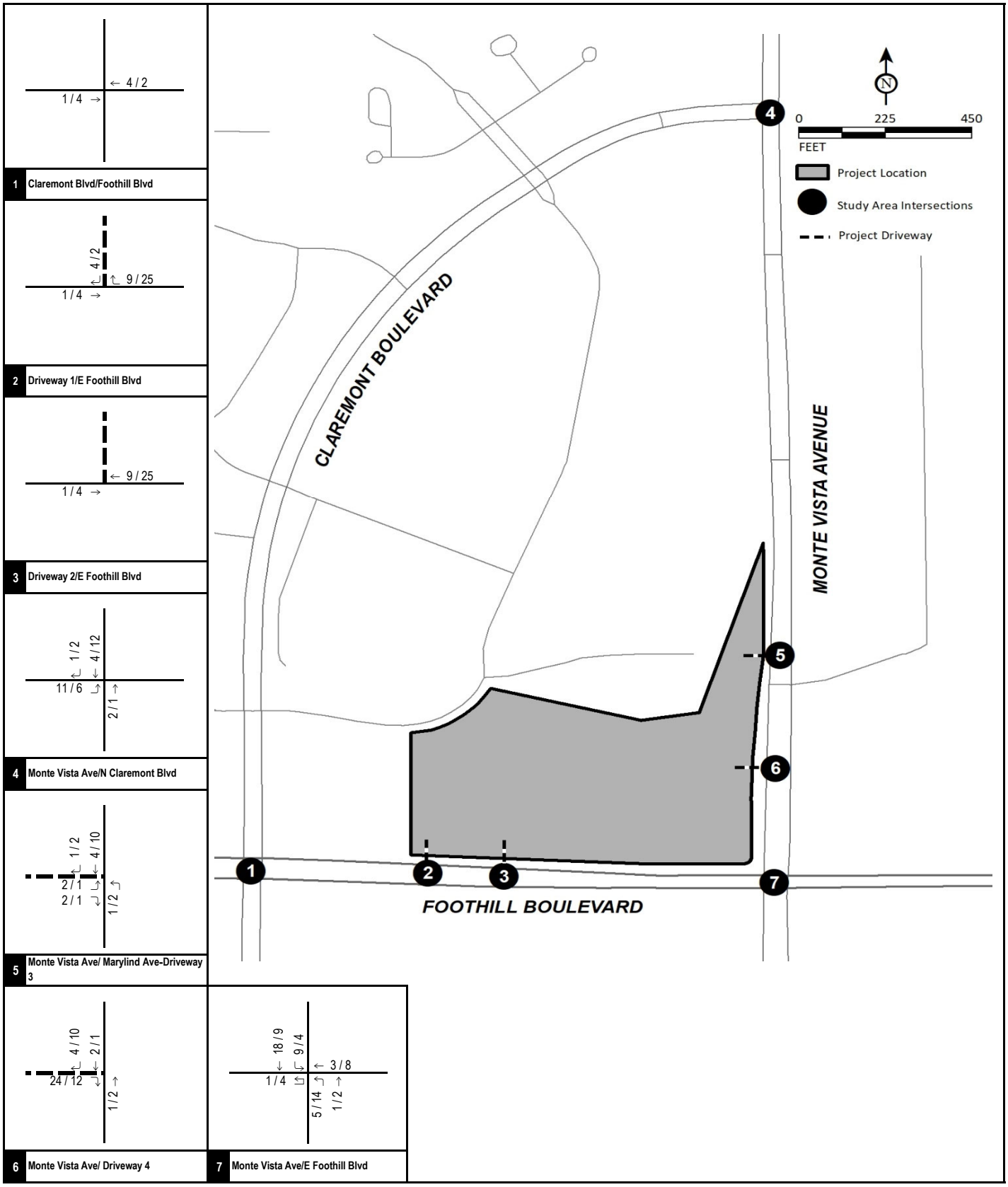
FIGURE 6

LSA

XX / YY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Assignment- Retail



LSA

FIGURE 7

XX / YY
AM / PM Peak Hour Volumes
Project Driveway

The Commons Project
Traffic Impact Analysis

Project Trip Assignment- Residential

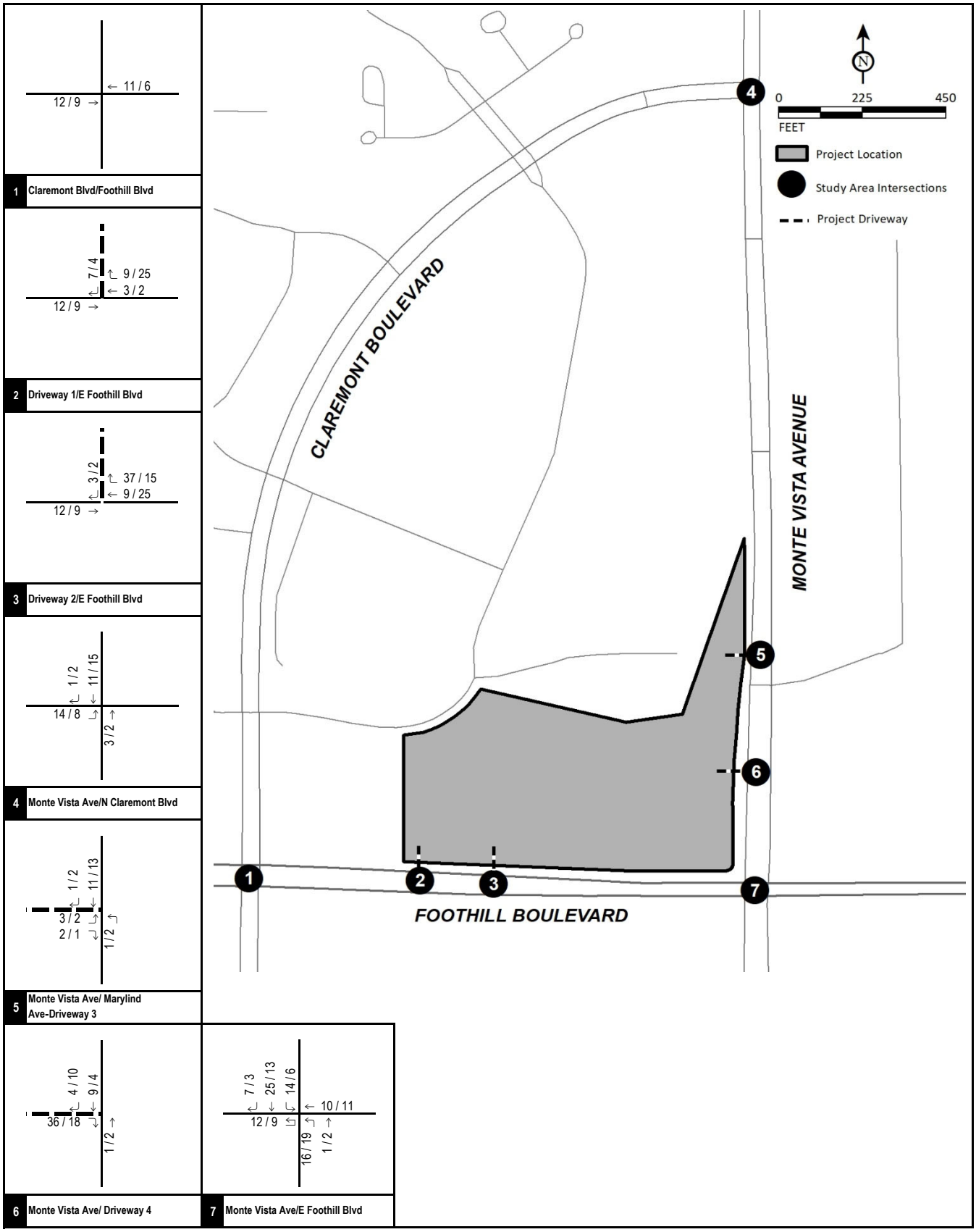


FIGURE 8

LSA

XX / YY
AM / PM Peak Hour PCE Volumes
---- Project Driveway

The Commons Project
Traffic Impact Analysis

Total Project Trip Assignment

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LSA

Table A - Project Trip Generation

Land Use	Units	A.M. Peak Hour			P.M. Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Retail	5.00 TSF							
Trips/Unit[1]		0.58	0.36	0.94	1.83	1.98	3.81	37.75
Trip Generation		56	35	91	28	31	59	784
Internal Capture[2]					(3)	(8)	(11)	(145)
Total External Trips		56	35	91	25	23	48	639
Pass-by Trips[3]		(19)	(12)	(31)	(10)	(11)	(21)	(267)
Net External Trips		37	23	60	15	12	27	372
Multi-Family Residential	83 DU							
Trips/Unit[4]		0.11	0.35	0.46	0.35	0.21	0.56	7.32
Trip Generation		9	29	38	29	17	46	608
Single Family Detached	27 DU							
Trips/Unit[5]		0.19	0.56	0.74	0.62	0.37	0.99	9.44
Trip Generation		5	15	20	17	10	27	255
Total Residential								
Trip Generation		14	44	58	46	27	73	863
Internal Capture[2]					(7)	(5)	(12)	(146)
Net External Trips		14	44	58	39	22	61	717
Total Trip Generation		**51**	**67**	**118**	**54**	**34**	**88**	**1,089**

Note:

TSF = Thousand Square Feet; DU = Dwelling Units

[1] Rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition), Land Use 820 - "Shopping Center", Setting/Location - "General Urban/Suburban."

[2] Internal capture rates obtained using the NCHRP 8-51 Internal Trip Capture Estimation Tool.

[3] Pass-by rates from the ITE *Trip Generation Handbook*, 3rd Edition for Land Use 820 - "Shopping Center." A pass-by rate of 34% was used for the p.m. peak hour. No a.m. peak hour and daily pass-by rates are provided; therefore, the p.m. peak hour pass-by rate was used as both the a.m. peak hour and daily pass-by rates.

[4] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 220 - "Multifamily Housing (Low-Rise)", Setting/Location - "General Urban/Suburban."

[5] Rates from the ITE *Trip Generation Manual* (10th Edition), Land Use 210 - "Single-Family Detached Housing", Setting/Location - "General Urban/Suburban."

APPENDIX A

INTERNAL CAPTURE ESTIMATION

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Clairemont Commons	**Organization:**	LSA
Project Location:	Claremont, CA/ Upland, CA	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	5	TSF	91	56	35
Restaurant				0		
Cinema/Entertainment				0		
Residential	220, 221	105	DU	56	13	43
Hotel				0		
All Other Land Uses[2]				0		
Total				147	69	78

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential	1.00	0%	0%	1.00	0%	0%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	147	69	78
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[3]	147	69	78
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	0%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	0%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Clairemont Commons
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	56	56	1.00	35	35
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	13	13	1.00	43	43
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	10		5	0	5	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	9	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	4		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	10	0	0		0
Hotel	0	2	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	56	56	56	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	13	13	13	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	35	35	35	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	43	43	43	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Claremont Commons	**Organization:**	LSA
Project Location:	Claremont, CA/ Upland, CA	**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	5	TSF	59	28	31
Restaurant				0		
Cinema/Entertainment				0		
Residential	220, 221	105	DU	71	45	26
Hotel				0		
All Other Land Uses[2]				0		
Total				130	73	57

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant						
Cinema/Entertainment						
Residential	1.00	0%	0%	1.00	0%	0%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	8	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	3	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	130	73	57
Internal Capture Percentage	17%	15%	19%
External Vehicle-Trips[3]	108	62	46
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	11%	26%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	18%	12%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Claremont Commons
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	28	28	1.00	31	31
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	45	45	1.00	26	26
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		9	1	8	2
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	11	5	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	0	0	2	0
Retail	0		0	0	21	0
Restaurant	0	14		0	7	0
Cinema/Entertainment	0	1	0		2	0
Residential	0	3	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	3	25	28	25	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	8	37	45	37	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	8	23	31	23	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	23	26	23	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX B:

TRAFFIC COUNT SHEETS

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Claremont
N/S: Claremont Boulevard
E/W: Foothill Boulevard
Weather: Clear

File Name : CMT_Claremont_Foothill AM
Site Code : 00319574
Start Date : 9/17/2019
Page No : 1

Groups Printed- Total Volume

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
07:00 AM	4	43	13	0	60	10	125	6	0	141	13	27	5	0	45	13	56	9	1	79	325
07:15 AM	13	70	20	0	103	21	141	10	0	172	27	31	6	0	64	9	51	13	1	74	413
07:30 AM	11	67	21	1	100	23	200	5	2	230	58	38	8	0	104	25	82	21	9	137	571
07:45 AM	11	92	22	0	125	33	204	10	1	248	60	59	11	0	130	33	97	34	9	173	676
Total	39	272	76	1	388	87	670	31	3	791	158	155	30	0	343	80	286	77	20	463	1985
08:00 AM	13	82	17	0	112	21	129	12	3	165	39	40	9	0	88	41	121	35	7	204	569
08:15 AM	21	63	21	0	105	24	124	14	2	164	23	44	6	0	73	48	101	20	14	183	525
08:30 AM	12	54	11	0	77	17	153	11	1	182	25	18	8	0	51	26	66	19	5	116	426
08:45 AM	12	75	16	0	103	24	103	6	3	136	26	47	2	0	75	29	83	15	4	131	445
Total	58	274	65	0	397	86	509	43	9	647	113	149	25	0	287	144	371	89	30	634	1965
Grand Total	97	546	141	1	785	173	1179	74	12	1438	271	304	55	0	630	224	657	166	50	1097	3950
Apprch %	12.4	69.6	18	0.1		12	82	5.1	0.8		43	48.3	8.7	0		20.4	59.9	15.1	4.6		
Total %	2.5	13.8	3.6	0	19.9	4.4	29.8	1.9	0.3	36.4	6.9	7.7	1.4	0	15.9	5.7	16.6	4.2	1.3	27.8	

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	67	21	**1**	100	23	200	5	2	230	58	38	8	0	104	25	82	21	9	137	571
07:45 AM	11	**92**	**22**	0	**125**	**33**	**204**	10	1	**248**	**60**	**59**	**11**	0	**130**	33	97	34	9	173	**676**
08:00 AM	13	82	17	0	112	21	129	12	**3**	165	39	40	9	0	88	41	**121**	**35**	7	**204**	569
08:15 AM	**21**	63	21	0	105	24	124	**14**	2	164	23	44	6	0	73	**48**	101	20	**14**	183	525
Total Volume	56	304	81	1	442	101	657	41	8	807	180	181	34	0	395	147	401	110	39	697	2341
% App. Total	12.7	68.8	18.3	0.2		12.5	81.4	5.1	1		45.6	45.8	8.6	0		21.1	57.5	15.8	5.6		
PHF	.667	.826	.920	.250	.884	.765	.805	.732	.667	.814	.750	.767	.773	.000	.760	.766	.829	.786	.696	.854	.866

Counts Unlimited
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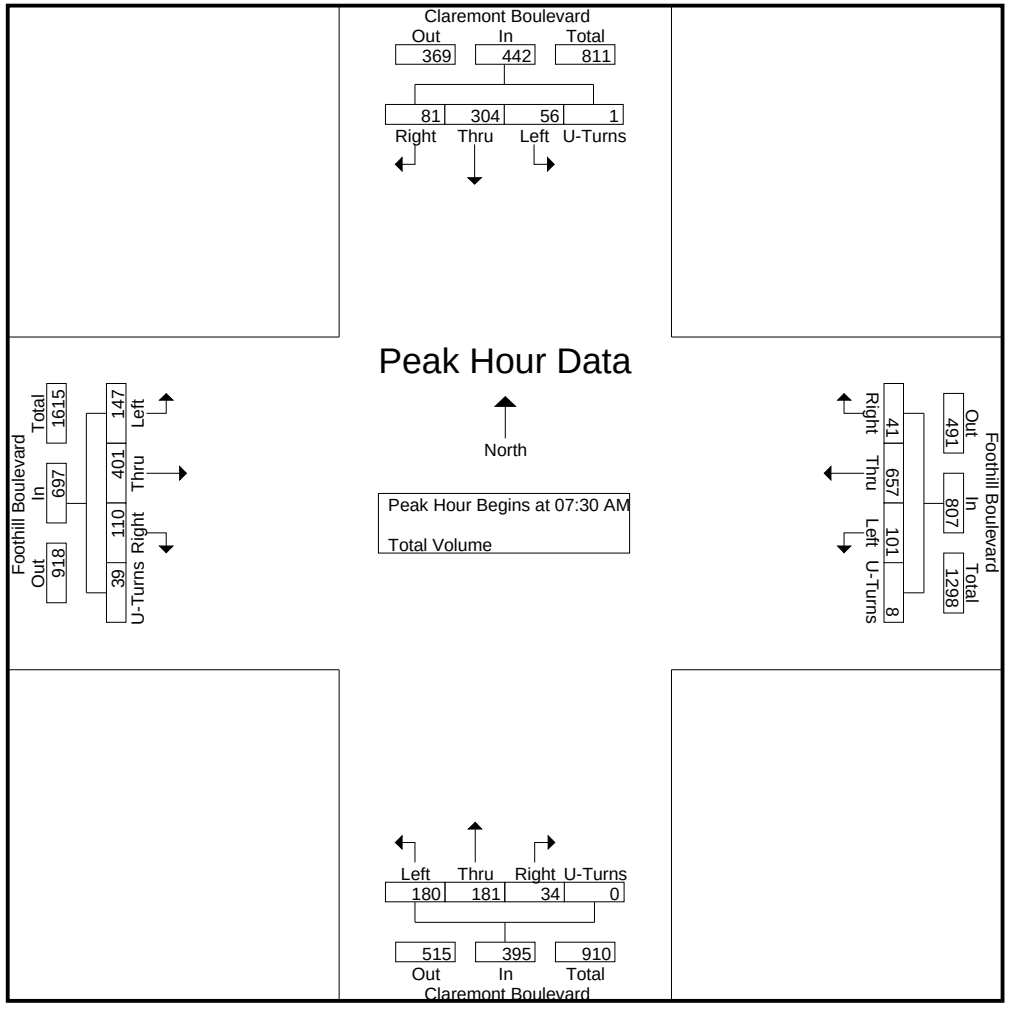
City of Claremont
N/S: Claremont Boulevard
E/W: Foothill Boulevard
Weather: Clear

File Name : CMT_Claremont_Foothill AM
Site Code : 00319574
Start Date : 9/17/2019
Page No : 2



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Page No : 3

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:30 AM					07:15 AM					07:30 AM					07:30 AM					
+0 mins.	11	67	21	**1**	100	21	141	10	0	172	58	38	8	0	104	25	82	21	9	137	
+15 mins.	11	**92**	**22**	0	**125**	23	200	5	2	230	**60**	**59**	**11**	0	**130**	33	97	34	9	173	
+30 mins.	13	82	17	0	112	**33**	**204**	10	1	**248**	39	40	9	0	88	41	**121**	**35**	7	**204**	
+45 mins.	**21**	63	21	0	105	21	129	**12**	**3**	165	23	44	6	0	73	**48**	101	20	**14**	183	
Total Volume	56	304	81	1	442	98	674	37	6	815	180	181	34	0	395	147	401	110	39	697	
% App. Total	12.7	68.8	18.3	0.2		12	82.7	4.5	0.7		45.6	45.8	8.6	0		21.1	57.5	15.8	5.6		
PHF	.667	.826	.920	.250	.884	.742	.826	.771	.500	.822	.750	.767	.773	.000	.760	.766	.829	.786	.696	.854	

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E/W: Foothill Boulevard
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Site Code : 00319574
Start Date : 9/17/2019
Page No : 1

Groups Printed- Total Volume

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
04:00 PM	13	48	25	1	87	13	131	14	2	160	30	48	16	0	94	29	149	25	2	205	546
04:15 PM	22	43	13	1	79	21	117	9	4	151	33	51	14	0	98	32	136	28	6	202	530
04:30 PM	12	48	17	0	77	13	127	10	1	151	21	72	16	0	109	26	173	35	6	240	577
04:45 PM	14	46	23	0	83	20	135	17	4	176	34	69	20	0	123	43	175	35	7	260	642
Total	61	185	78	2	326	67	510	50	11	638	118	240	66	0	424	130	633	123	21	907	2295
05:00 PM	15	40	30	1	86	23	129	7	2	161	42	80	26	0	148	37	226	41	5	309	704
05:15 PM	22	56	24	1	103	14	129	13	3	159	31	76	19	0	126	33	166	30	6	235	623
05:30 PM	14	44	17	1	76	18	118	6	3	145	35	76	14	0	125	42	169	29	1	241	587
05:45 PM	20	37	26	0	83	33	130	13	4	180	33	67	24	0	124	32	194	26	4	256	643
Total	71	177	97	3	348	88	506	39	12	645	141	299	83	0	523	144	755	126	16	1041	2557
Grand Total	132	362	175	5	674	155	1016	89	23	1283	259	539	149	0	947	274	1388	249	37	1948	4852
Apprch %	19.6	53.7	26	0.7		12.1	79.2	6.9	1.8		27.3	56.9	15.7	0		14.1	71.3	12.8	1.9		
Total %	2.7	7.5	3.6	0.1	13.9	3.2	20.9	1.8	0.5	26.4	5.3	11.1	3.1	0	19.5	5.6	28.6	5.1	0.8	40.1	

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	15	40	**30**	**1**	86	23	129	7	2	161	**42**	**80**	**26**	0	**148**	37	**226**	**41**	5	**309**	**704**
05:15 PM	**22**	**56**	24	1	**103**	14	129	**13**	3	159	31	76	19	0	126	33	166	30	**6**	235	623
05:30 PM	14	44	17	1	76	18	118	6	3	145	35	76	14	0	125	**42**	169	29	1	241	587
05:45 PM	20	37	26	0	83	**33**	**130**	13	**4**	**180**	33	67	24	0	124	32	194	26	4	256	643
Total Volume	71	177	97	3	348	88	506	39	12	645	141	299	83	0	523	144	755	126	16	1041	2557
% App. Total	20.4	50.9	27.9	0.9		13.6	78.4	6	1.9		27	57.2	15.9	0		13.8	72.5	12.1	1.5		
PHF	.807	.790	.808	.750	.845	.667	.973	.750	.750	.896	.839	.934	.798	.000	.883	.857	.835	.768	.667	.842	.908

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Site Code : 00319574
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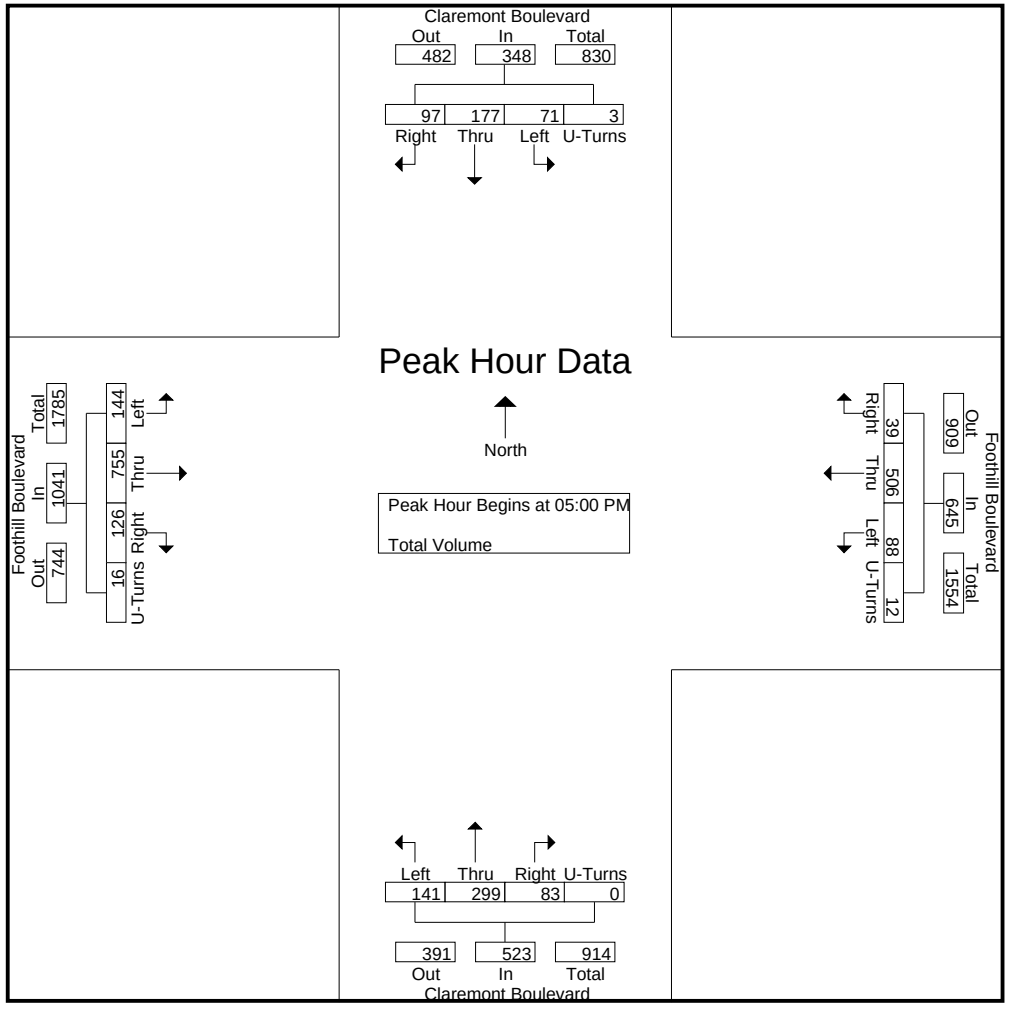
Page No : 2



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City of Claremont
N/S: Claremont Boulevard
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Page No : 3

	Claremont Boulevard Southbound					Foothill Boulevard Westbound					Claremont Boulevard Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Left	Thru	Right	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:30 PM					04:30 PM					05:00 PM					04:45 PM					
+0 mins.	12	48	17	0	77	13	127	10	1	151	**42**	**80**	**26**	0	**148**	**43**	175	35	**7**	260	
+15 mins.	14	46	23	0	83	20	**135**	**17**	**4**	**176**	31	76	19	0	126	37	**226**	**41**	5	**309**	
+30 mins.	15	40	**30**	**1**	86	**23**	129	7	2	161	35	76	14	0	125	33	166	30	6	235	
+45 mins.	**22**	**56**	24	1	**103**	14	129	13	3	159	33	67	24	0	124	42	169	29	1	241	
Total Volume	63	190	94	2	349	70	520	47	10	647	141	299	83	0	523	155	736	135	19	1045	
% App. Total	18.1	54.4	26.9	0.6		10.8	80.4	7.3	1.5		27	57.2	15.9	0		14.8	70.4	12.9	1.8		
PHF	.716	.848	.783	.500	.847	.761	.963	.691	.625	.919	.839	.934	.798	.000	.883	.901	.814	.823	.679	.845	

Location: Claremont
N/S: Claremont Boulevard
E/W: Foothill Boulevard

Date: 9/17/2019
Day: Tuesday

PEDESTRIANS

	North Leg Claremont Boulevard	East Leg Foothill Boulevard	South Leg Claremont Boulevard	West Leg Foothill Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	1	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	1	1
8:15 AM	0	1	0	1	2
8:30 AM	2	0	0	1	3
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	1	0	4	8

	North Leg Claremont Boulevard	East Leg Foothill Boulevard	South Leg Claremont Boulevard	West Leg Foothill Boulevard	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	3	4
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	2	2
5:30 PM	2	0	3	1	6
5:45 PM	3	2	3	0	8
TOTAL VOLUMES:	6	2	6	6	20

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Location: Claremont
N/S: Claremont Boulevard
E/W: Foothill Boulevard

Date: 9/17/2019
Day: Tuesday

BICYCLES

	Southbound Claremont Boulevard			Westbound Foothill Boulevard			Northbound Claremont Boulevard			Eastbound Foothill Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	1	0	0	0	0	0	0	0	0	0	1	0	2
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	1	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	1	0	0	0	0	0	2	1	5
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	2
TOTAL VOLUMES:	1	0	1	0	2	2	2	0	0	0	3	2	13

	Southbound Claremont Boulevard			Westbound Foothill Boulevard			Northbound Claremont Boulevard			Eastbound Foothill Boulevard			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	1	1	0	0	1	1	3	0	8
TOTAL VOLUMES:	0	2	0	0	3	2	0	0	1	1	6	0	15

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City of Claremont
N/S: Driveway 1
E/W: Foothill Boulevard
Weather: Clear

File Name : 01_CMT_Driveway 1_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Total Volume

	Driveway 1 Southbound			Foothill Boulevard Westbound			Foothill Boulevard Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	90	4	94	0	43	43	137
07:15 AM	0	0	0	121	4	125	0	87	87	212
07:30 AM	0	0	0	148	5	153	0	80	80	233
07:45 AM	0	1	1	178	2	180	0	126	126	307
Total	0	1	1	537	15	552	0	336	336	889
08:00 AM	0	0	0	125	0	125	0	130	130	255
08:15 AM	0	2	2	131	4	135	0	106	106	243
08:30 AM	0	0	0	126	5	131	0	83	83	214
08:45 AM	0	0	0	146	3	149	0	106	106	255
Total	0	2	2	528	12	540	0	425	425	967
Grand Total	0	3	3	1065	27	1092	0	761	761	1856
Apprch %	0	100		97.5	2.5		0	100		
Total %	0	0.2	0.2	57.4	1.5	58.8	0	41	41	

	Driveway 1 Southbound			Foothill Boulevard Westbound			Foothill Boulevard Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	0	0	148	**5**	153	0	80	80	233
07:45 AM	0	1	1	**178**	2	**180**	0	126	126	**307**
08:00 AM	0	0	0	125	0	125	0	**130**	**130**	255
08:15 AM	0	**2**	**2**	131	4	135	0	106	106	243
Total Volume	0	3	3	582	11	593	0	442	442	1038
% App. Total	0	100		98.1	1.9		0	100		
PHF	.000	.375	.375	.817	.550	.824	.000	.850	.850	.845

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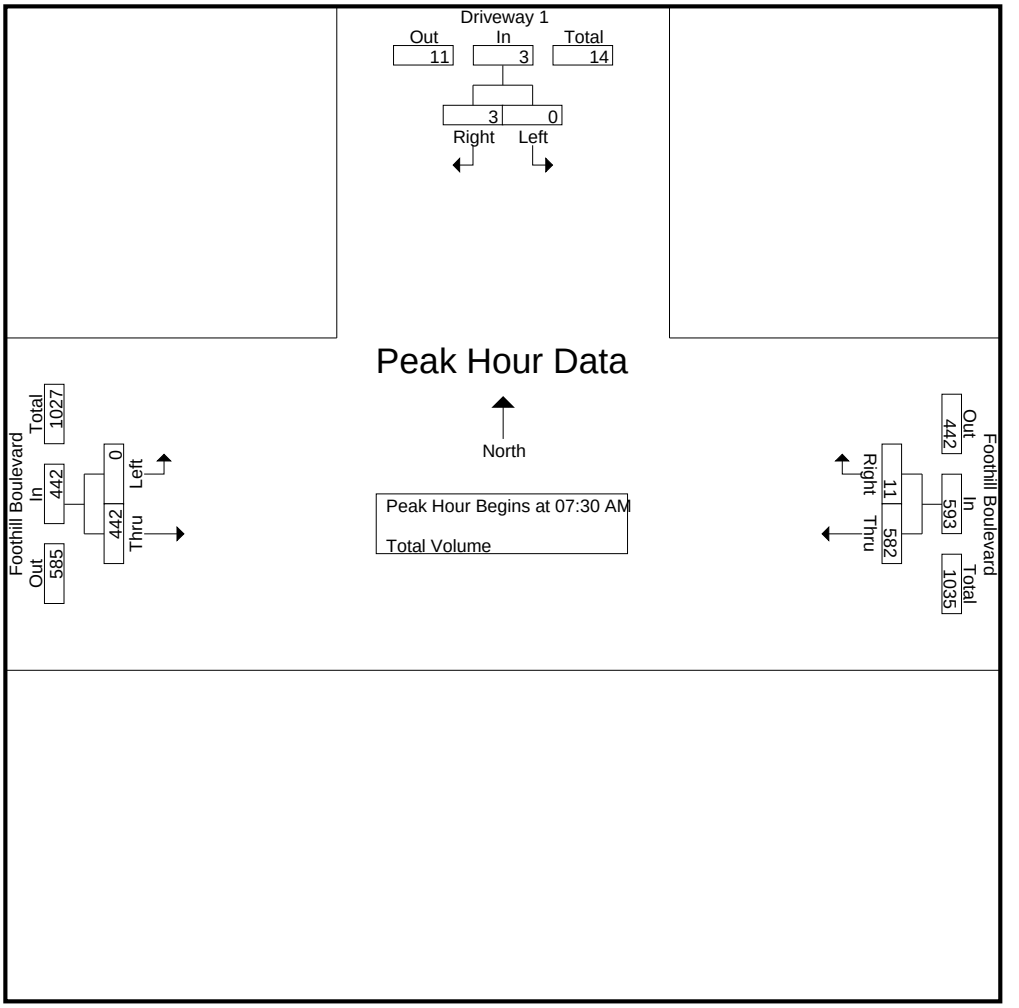
City of Claremont
N/S: Driveway 1
E/W: Foothill Boulevard
Weather: Clear

File Name : 01_CMT_Driveway 1_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			07:45 AM		
+0 mins.	0	0	0	148	**5**	153	0	126	126
+15 mins.	0	1	1	**178**	2	**180**	0	**130**	**130**
+30 mins.	0	0	0	125	0	125	0	106	106
+45 mins.	0	**2**	**2**	131	4	135	0	83	83
Total Volume	0	3	3	582	11	593	0	445	445
% App. Total	0	100		98.1	1.9		0	100	
PHF	.000	.375	.375	.817	.550	.824	.000	.856	.856

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City of Claremont
N/S: Driveway 1
E/W: Foothill Boulevard
Weather: Clear

File Name : 01_CMT_Driveway 1_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Total Volume

	Driveway 1 Southbound			Foothill Boulevard Westbound			Foothill Boulevard Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	1	4	5	170	5	175	0	203	203	383
04:15 PM	1	4	5	129	3	132	0	174	174	311
04:30 PM	0	0	0	163	4	167	0	177	177	344
04:45 PM	0	1	1	197	9	206	0	226	226	433
Total	2	9	11	659	21	680	0	780	780	1471
05:00 PM	1	5	6	205	8	213	0	242	242	461
05:15 PM	0	3	3	159	4	163	0	256	256	422
05:30 PM	0	2	2	146	4	150	0	196	196	348
05:45 PM	0	4	4	134	4	138	0	181	181	323
Total	1	14	15	644	20	664	0	875	875	1554
Grand Total	3	23	26	1303	41	1344	0	1655	1655	3025
Apprch %	11.5	88.5		96.9	3.1		0	100		
Total %	0.1	0.8	0.9	43.1	1.4	44.4	0	54.7	54.7	

	Driveway 1 Southbound			Foothill Boulevard Westbound			Foothill Boulevard Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	1	1	197	**9**	206	0	226	226	433
05:00 PM	**1**	**5**	**6**	**205**	8	**213**	0	242	242	**461**
05:15 PM	0	3	3	159	4	163	0	**256**	**256**	422
05:30 PM	0	2	2	146	4	150	0	196	196	348
Total Volume	1	11	12	707	25	732	0	920	920	1664
% App. Total	8.3	91.7		96.6	3.4		0	100		
PHF	.250	.550	.500	.862	.694	.859	.000	.898	.898	.902

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City of Claremont
N/S: Driveway 1
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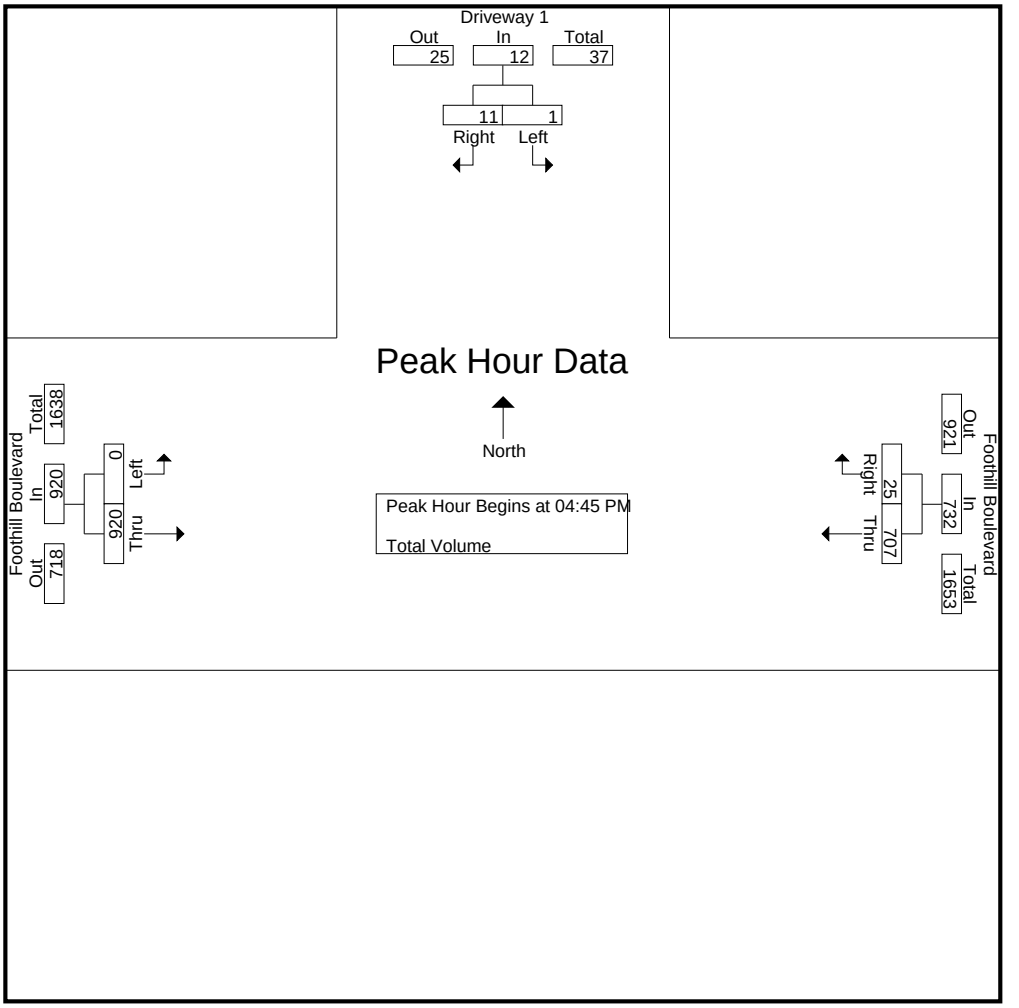
Weather: Clear

File Name : 01_CMT_Driveway 1_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:30 PM			04:45 PM		
+0 mins.	**1**	**5**	**6**	163	4	167	0	226	226
+15 mins.	0	3	3	197	**9**	206	0	242	242
+30 mins.	0	2	2	**205**	8	**213**	0	**256**	**256**
+45 mins.	0	4	4	159	4	163	0	196	196
Total Volume	1	14	15	724	25	749	0	920	920
% App. Total	6.7	93.3		96.7	3.3		0	100	
PHF	.250	.700	.625	.883	.694	.879	.000	.898	.898

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City of Claremont
N/S: Monte Vista Avenue
E/W: Claremont Boulevard
Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00 AM	0	117	44	0	161	0	0	1	0	1	1	60	3	0	64	21	0	3	0	24	250
07:15 AM	1	93	57	0	151	0	0	0	0	0	1	73	0	0	74	29	1	2	0	32	257
07:30 AM	0	130	56	0	186	0	0	0	0	0	6	117	1	0	124	43	0	2	0	45	355
07:45 AM	0	151	81	0	232	0	0	1	0	1	3	113	0	0	116	35	0	5	0	40	389
Total	1	491	238	0	730	0	0	2	0	2	11	363	4	0	378	128	1	12	0	141	1251
08:00 AM	0	125	78	0	203	0	0	0	0	0	4	108	0	1	113	44	0	4	0	48	364
08:15 AM	1	127	74	1	203	1	1	0	0	2	4	72	0	1	77	23	0	5	0	28	310
08:30 AM	0	130	94	0	224	2	2	0	0	4	6	66	0	0	72	26	1	7	0	34	334
08:45 AM	1	135	89	0	225	0	0	0	0	0	7	61	0	0	68	32	0	8	0	40	333
Total	2	517	335	1	855	3	3	0	0	6	21	307	0	2	330	125	1	24	0	150	1341
Grand Total	3	1008	573	1	1585	3	3	2	0	8	32	670	4	2	708	253	2	36	0	291	2592
Apprch %	0.2	63.6	36.2	0.1		37.5	37.5	25	0		4.5	94.6	0.6	0.3		86.9	0.7	12.4	0		
Total %	0.1	38.9	22.1	0	61.1	0.1	0.1	0.1	0	0.3	1.2	25.8	0.2	0.1	27.3	9.8	0.1	1.4	0	11.2	
Passenger Vehicles		1007																			
% Passenger Vehicles	100	99.9	100	100	99.9	100	33.3	100	0	75	100	100	100	100	100	99.6	50	100	0	99.3	99.8
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0.3	0.1
3 Axle Vehicles	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% 3 Axle Vehicles	0	0	0	0	0	0	66.7	0	0	25	0	0	0	0	0	0	50	0	0	0.3	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks																					

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	130	56	0	186	0	0	0	0	0	6	117	1	0	124	43	0	2	0	45	355
07:45 AM	0	151	81	0	232	0	0	1	0	1	3	113	0	0	116	35	0	5	0	40	389
08:00 AM	0	125	78	0	203	0	0	0	0	0	4	108	0	1	113	44	0	4	0	48	364
08:15 AM	1	127	74	1	203	1	1	0	0	2	4	72	0	1	77	23	0	5	0	28	310
Total Volume	1	533	289	1	824	1	1	1	0	3	17	410	1	2	430	145	0	16	0	161	1418
% App. Total	0.1	64.7	35.1	0.1		33.3	33.3	33.3	0		4	95.3	0.2	0.5		90.1	0	9.9	0		
PHF	.250	.882	.892	.250	.888	.250	.250	.250	.000	.375	.708	.876	.250	.500	.867	.824	.000	.800	.000	.839	.911

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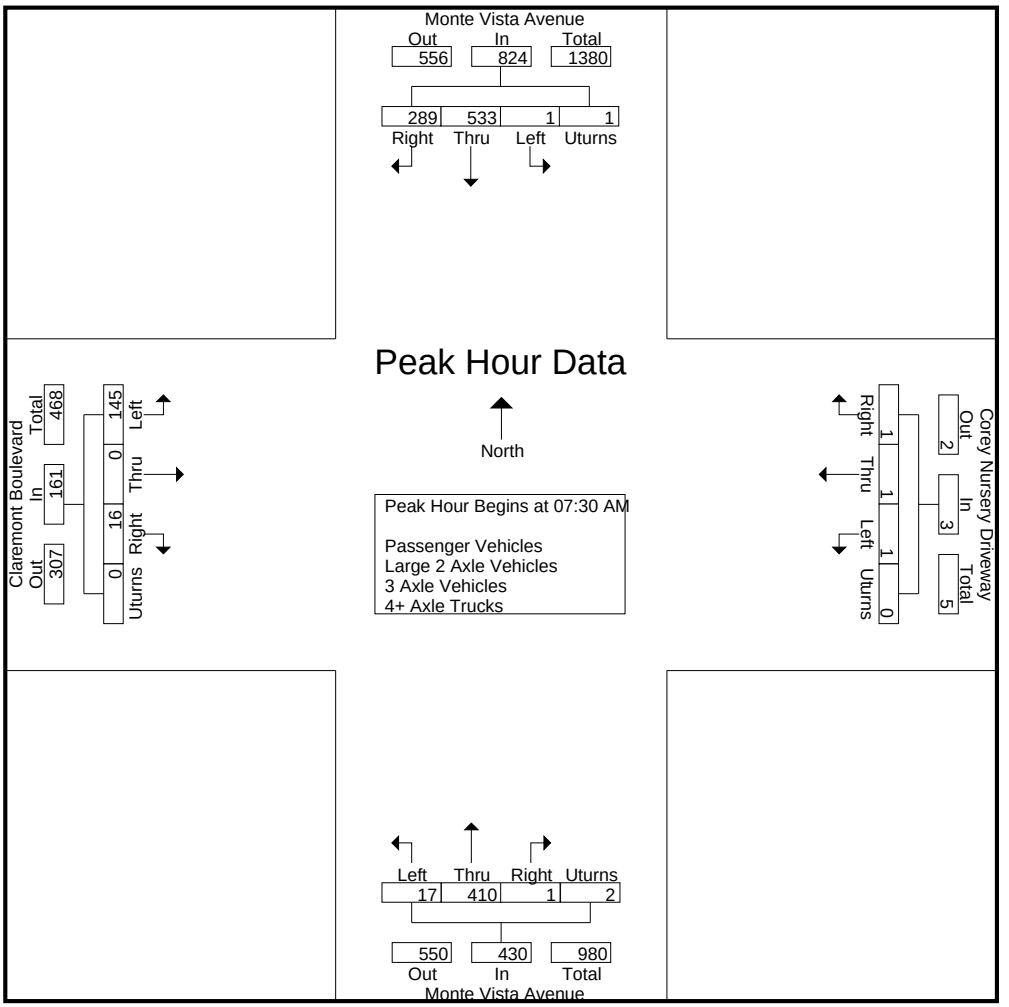
City of Claremont
N/S: Monte Vista Avenue
E/W: Claremont Boulevard
Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd AM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:30 AM					07:15 AM				
+0 mins.	0	151	81	0	232	0	0	1	0	1	6	117	1	0	124	29	1	2	0	32
+15 mins.	0	125	78	0	203	0	0	0	0	0	3	113	0	0	116	43	0	2	0	45
+30 mins.	1	127	74	1	203	1	1	0	0	2	4	108	0	1	113	35	0	5	0	40
+45 mins.	0	130	94	0	224	2	2	0	0	4	4	72	0	1	77	44	0	4	0	48
Total Volume	1	533	327	1	862	3	3	1	0	7	17	410	1	2	430	151	1	13	0	165
% App. Total	0.1	61.8	37.9	0.1		42.9	42.9	14.3	0		4	95.3	0.2	0.5		91.5	0.6	7.9	0	
PHF	.250	.882	.870	.250	.929	.375	.375	.250	.000	.438	.708	.876	.250	.500	.867	.858	.250	.650	.000	.859

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City of Claremont
N/S: Monte Vista Avenue
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Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00 AM	0	117	44	0	161	0	0	1	0	1	1	60	3	0	64	21	0	3	0	24	250
07:15 AM	1	93	57	0	151	0	0	0	0	0	1	73	0	0	74	29	1	2	0	32	257
07:30 AM	0	130	56	0	186	0	0	0	0	0	6	117	1	0	124	43	0	2	0	45	355
07:45 AM	0	151	81	0	232	0	0	1	0	1	3	113	0	0	116	35	0	5	0	40	389
Total	1	491	238	0	730	0	0	2	0	2	11	363	4	0	378	128	1	12	0	141	1251
08:00 AM	0	125	78	0	203	0	0	0	0	0	4	108	0	1	113	43	0	4	0	47	363
08:15 AM	1	127	74	1	203	1	1	0	0	2	4	72	0	1	77	23	0	5	0	28	310
08:30 AM	0	129	94	0	223	2	0	0	0	2	6	66	0	0	72	26	0	7	0	33	330
08:45 AM	1	135	89	0	225	0	0	0	0	0	7	61	0	0	68	32	0	8	0	40	333
Total	2	516	335	1	854	3	1	0	0	4	21	307	0	2	330	124	0	24	0	148	1336
Grand Total	3	1007	573	1	1584	3	1	2	0	6	32	670	4	2	708	252	1	36	0	289	2587
Apprch %	0.2	63.6	36.2	0.1		50	16.7	33.3	0		4.5	94.6	0.6	0.3		87.2	0.3	12.5	0		
Total %	0.1	38.9	22.1	0	61.2	0.1	0	0.1	0	0.2	1.2	25.9	0.2	0.1	27.4	9.7	0	1.4	0	11.2	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	130	56	0	186	0	0	0	0	0	6	117	1	0	124	43	0	2	0	45	355
07:45 AM	0	151	81	0	232	0	0	1	0	1	3	113	0	0	116	35	0	5	0	40	389
08:00 AM	0	125	78	0	203	0	0	0	0	0	4	108	0	1	113	43	0	4	0	47	363
08:15 AM	1	127	74	1	203	1	1	0	0	2	4	72	0	1	77	23	0	5	0	28	310
Total Volume	1	533	289	1	824	1	1	1	0	3	17	410	1	2	430	144	0	16	0	160	1417
% App. Total	0.1	64.7	35.1	0.1		33.3	33.3	33.3	0		4	95.3	0.2	0.5		90	0	10	0		
PHF	.250	.882	.892	.250	.888	.250	.250	.250	.000	.375	.708	.876	.250	.500	.867	.837	.000	.800	.000	.851	.911

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City of Claremont
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File Name : 03_CMT_Monte Vista_Claremont Blvd AM
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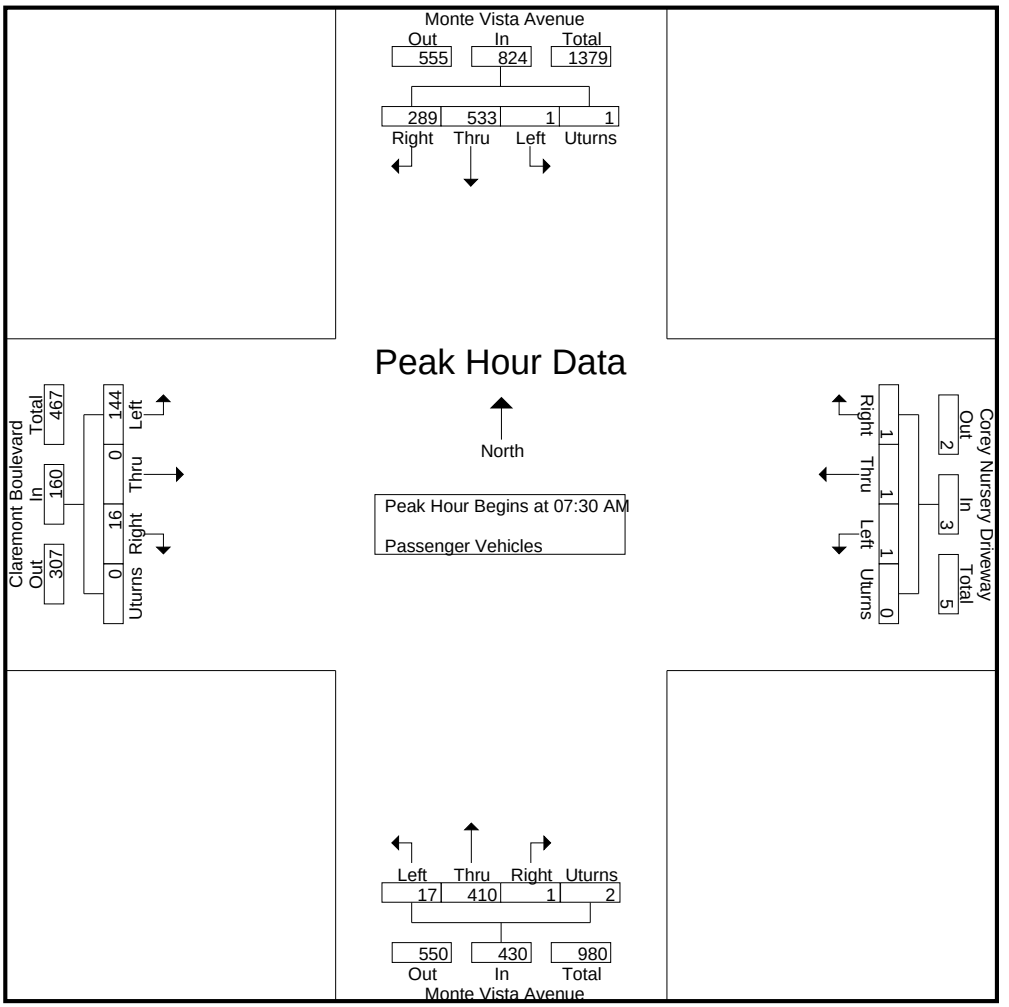

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	130	56	0	186	0	0	0	0	0	6	117	1	0	124	43	0	2	0	45
+15 mins.	0	151	81	0	232	0	0	1	0	1	3	113	0	0	116	35	0	5	0	40
+30 mins.	0	125	78	0	203	0	0	0	0	0	4	108	0	1	113	43	0	4	0	47
+45 mins.	1	127	74	1	203	1	1	0	0	2	4	72	0	1	77	23	0	5	0	28
Total Volume	1	533	289	1	824	1	1	1	0	3	17	410	1	2	430	144	0	16	0	160
% App. Total	0.1	64.7	35.1	0.1		33.3	33.3	33.3	0		4	95.3	0.2	0.5		90	0	10	0	
PHF	.250	.882	.892	.250	.888	.250	.250	.250	.000	.375	.708	.876	.250	.500	.867	.837	.000	.800	.000	.851

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City of Claremont
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Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Grand Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Apprch %	0	100	0	0		0	0	0	0		0	0	0	0		100	0	0	0		
Total %	0	50	0	0	50	0	0	0	0	0	0	0	0	0	0	50	0	0	0	50	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		100	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250

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Site Code : 00319387
Start Date : 5/9/2019
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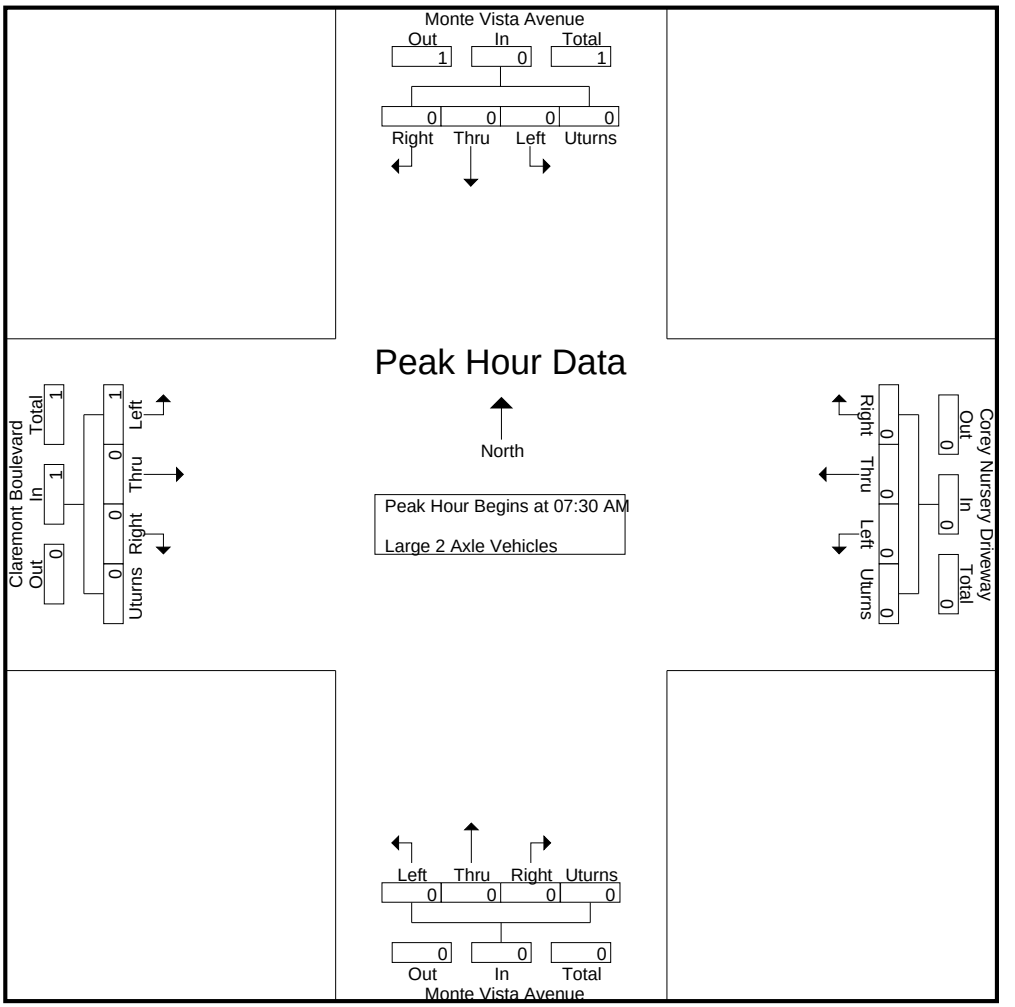

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		100	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250

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Page No : 1

Groups Printed- 3 Axle Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	66.7	0	0	66.7	0	0	0	0	0	0	33.3	0	0	33.3	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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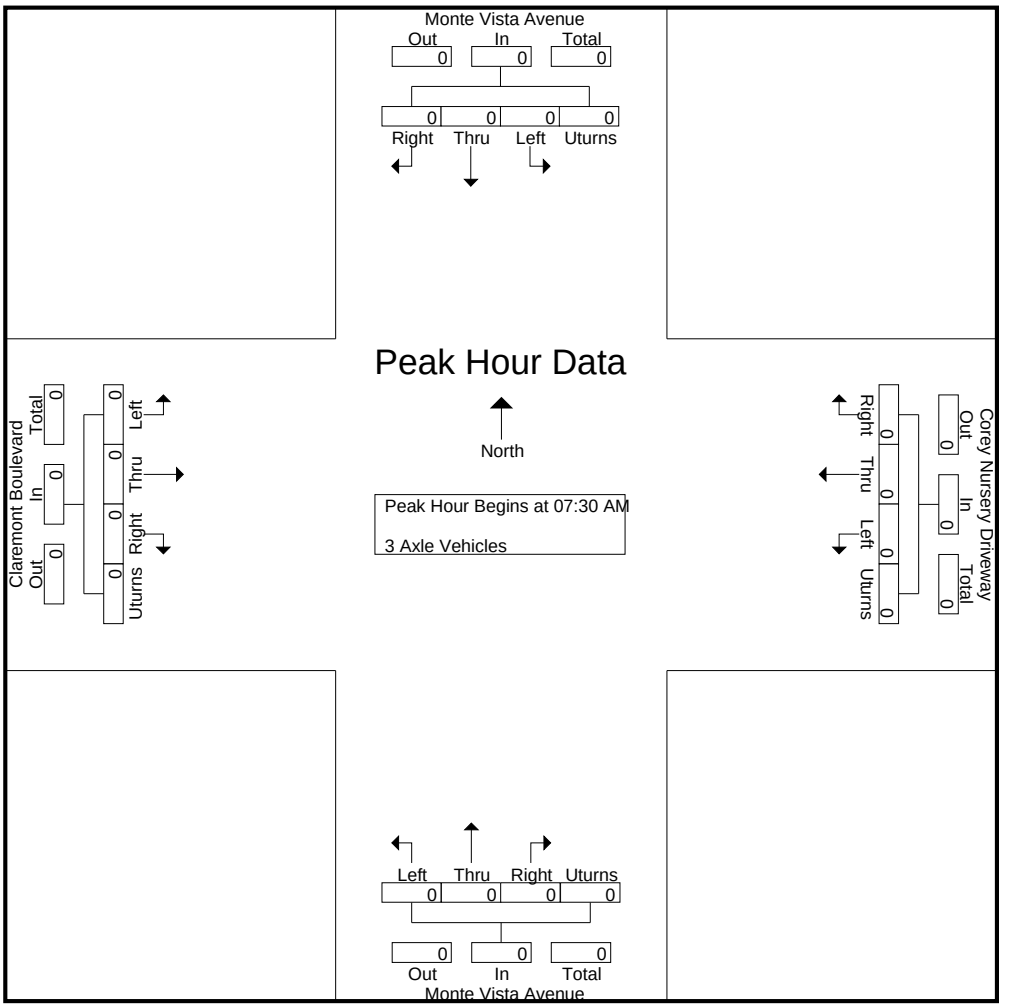

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Groups Printed- 4+ Axle Trucks

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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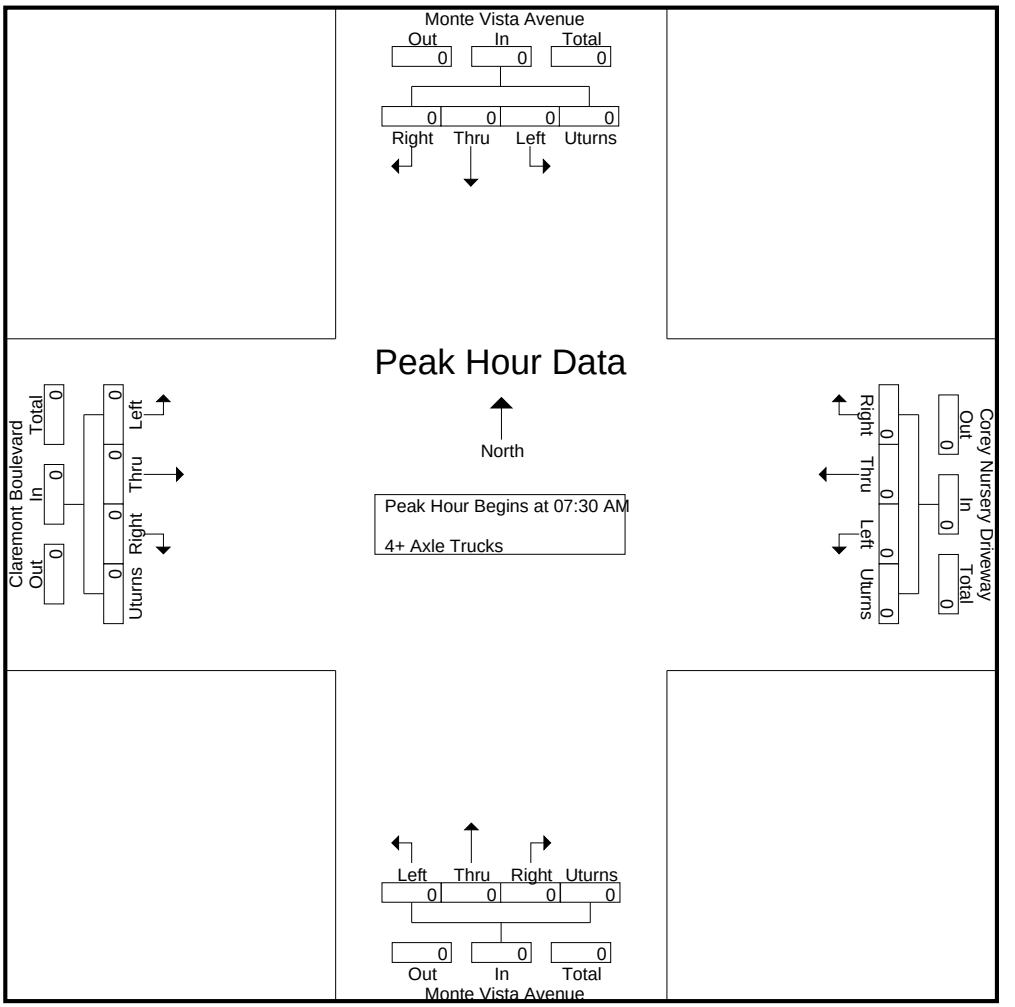

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Site Code : 00319387
Start Date : 5/9/2019

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
04:00 PM	0	144	54	0	198	1	1	0	0	2	7	152	1	1	161	77	0	7	0	84	445
04:15 PM	1	131	56	0	188	0	0	0	0	0	5	124	1	0	130	48	0	5	0	53	371
04:30 PM	0	129	48	0	177	2	3	1	0	6	6	125	2	1	134	56	2	9	0	67	384
04:45 PM	0	140	58	0	198	1	0	2	0	3	5	119	3	0	127	64	0	6	0	70	398
Total	1	544	216	0	761	4	4	3	0	11	23	520	7	2	552	245	2	27	0	274	1598
05:00 PM	1	131	67	0	199	2	3	1	0	6	6	169	1	0	176	94	0	5	0	99	480
05:15 PM	0	150	51	0	201	0	1	0	0	1	5	124	0	1	130	85	1	4	0	90	422
05:30 PM	0	139	45	0	184	0	0	0	0	0	7	143	0	0	150	51	2	7	0	60	394
05:45 PM	0	149	48	0	197	0	1	0	0	1	7	129	0	0	136	55	0	12	0	67	401
Total	1	569	211	0	781	2	5	1	0	8	25	565	1	1	592	285	3	28	0	316	1697
Grand Total	2	1113	427	0	1542	6	9	4	0	19	48	1085	8	3	1144	530	5	55	0	590	3295
Apprch %	0.1	72.2	27.7	0		31.6	47.4	21.1	0		4.2	94.8	0.7	0.3		89.8	0.8	9.3	0		
Total %	0.1	33.8	13	0	46.8	0.2	0.3	0.1	0	0.6	1.5	32.9	0.2	0.1	34.7	16.1	0.2	1.7	0	17.9	
Passenger Vehicles		1113										1085									
% Passenger Vehicles	100	100	99.8	0	99.9	100	88.9	100	0	94.7	100	100	100	100	100	99.6	40	100	0	99.2	99.8
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	0	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0.3	0.1
3 Axle Vehicles	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
% 3 Axle Vehicles	0	0	0	0	0	0	11.1	0	0	5.3	0	0	0	0	0	0	60	0	0	0.5	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks																					

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	131	67	0	199	2	3	1	0	6	6	169	1	0	176	94	0	5	0	99	480
05:15 PM	0	150	51	0	201	0	1	0	0	1	5	124	0	1	130	85	1	4	0	90	422
05:30 PM	0	139	45	0	184	0	0	0	0	0	7	143	0	0	150	51	2	7	0	60	394
05:45 PM	0	149	48	0	197	0	1	0	0	1	7	129	0	0	136	55	0	12	0	67	401
Total Volume	1	569	211	0	781	2	5	1	0	8	25	565	1	1	592	285	3	28	0	316	1697
% App. Total	0.1	72.9	27	0		25	62.5	12.5	0		4.2	95.4	0.2	0.2		90.2	0.9	8.9	0		
PHF	.250	.948	.787	.000	.971	.250	.417	.250	.000	.333	.893	.836	.250	.250	.841	.758	.375	.583	.000	.798	.884

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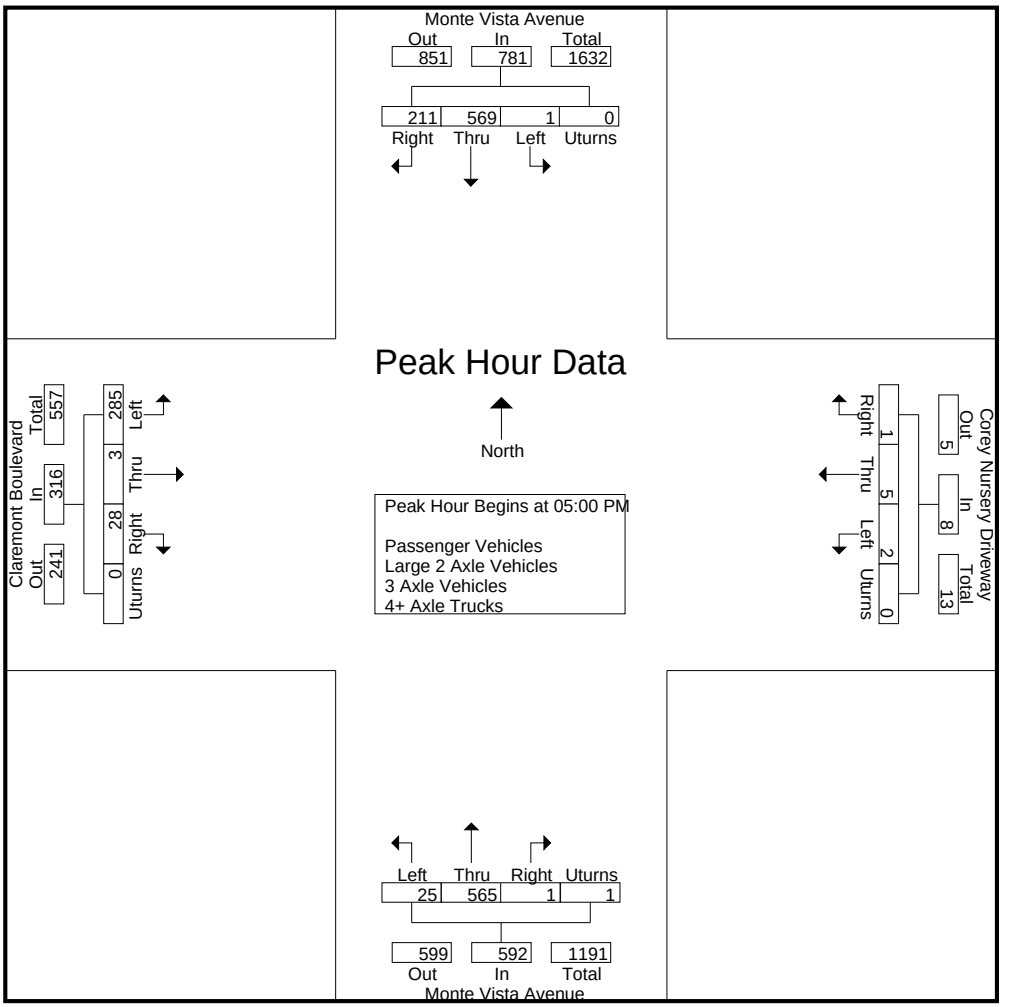

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM					04:30 PM					05:00 PM					04:30 PM				
+0 mins.	0	140	58	0	198	2	3	1	0	6	6	169	1	0	176	56	2	9	0	67
+15 mins.	1	131	67	0	199	1	0	2	0	3	5	124	0	1	130	64	0	6	0	70
+30 mins.	0	150	51	0	201	2	3	1	0	6	7	143	0	0	150	94	0	5	0	99
+45 mins.	0	139	45	0	184	0	1	0	0	1	7	129	0	0	136	85	1	4	0	90
Total Volume	1	560	221	0	782	5	7	4	0	16	25	565	1	1	592	299	3	24	0	326
% App. Total	0.1	71.6	28.3	0		31.2	43.8	25	0		4.2	95.4	0.2	0.2		91.7	0.9	7.4	0	
PHF	.250	.933	.825	.000	.973	.625	.583	.500	.000	.667	.893	.836	.250	.250	.841	.795	.375	.667	.000	.823

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City of Claremont
N/S: Monte Vista Avenue
E/W: Claremont Boulevard
Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
04:00 PM	0	144	54	0	198	1	1	0	0	2	7	152	1	1	161	76	0	7	0	83	444
04:15 PM	1	131	56	0	188	0	0	0	0	0	5	124	1	0	130	48	0	5	0	53	371
04:30 PM	0	129	48	0	177	2	3	1	0	6	6	125	2	1	134	56	2	9	0	67	384
04:45 PM	0	140	58	0	198	1	0	2	0	3	5	119	3	0	127	64	0	6	0	70	398
Total	1	544	216	0	761	4	4	3	0	11	23	520	7	2	552	244	2	27	0	273	1597
05:00 PM	1	131	67	0	199	2	2	1	0	5	6	169	1	0	176	93	0	5	0	98	478
05:15 PM	0	150	50	0	200	0	1	0	0	1	5	124	0	1	130	85	0	4	0	89	420
05:30 PM	0	139	45	0	184	0	0	0	0	0	7	143	0	0	150	51	0	7	0	58	392
05:45 PM	0	149	48	0	197	0	1	0	0	1	7	129	0	0	136	55	0	12	0	67	401
Total	1	569	210	0	780	2	4	1	0	7	25	565	1	1	592	284	0	28	0	312	1691
Grand Total	2	1113	426	0	1541	6	8	4	0	18	48	1085	8	3	1144	528	2	55	0	585	3288
Apprch %	0.1	72.2	27.6	0		33.3	44.4	22.2	0		4.2	94.8	0.7	0.3		90.3	0.3	9.4	0		
Total %	0.1	33.9	13	0	46.9	0.2	0.2	0.1	0	0.5	1.5	33	0.2	0.1	34.8	16.1	0.1	1.7	0	17.8	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	131	67	0	199	2	2	1	0	5	6	169	1	0	176	93	0	5	0	98	478
05:15 PM	0	150	50	0	200	0	1	0	0	1	5	124	0	1	130	85	0	4	0	89	420
05:30 PM	0	139	45	0	184	0	0	0	0	0	7	143	0	0	150	51	0	7	0	58	392
05:45 PM	0	149	48	0	197	0	1	0	0	1	7	129	0	0	136	55	0	12	0	67	401
Total Volume	1	569	210	0	780	2	4	1	0	7	25	565	1	1	592	284	0	28	0	312	1691
% App. Total	0.1	72.9	26.9	0		28.6	57.1	14.3	0		4.2	95.4	0.2	0.2		91	0	9	0		
PHF	.250	.948	.784	.000	.975	.250	.500	.250	.000	.350	.893	.836	.250	.250	.841	.763	.000	.583	.000	.796	.884

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City of Claremont
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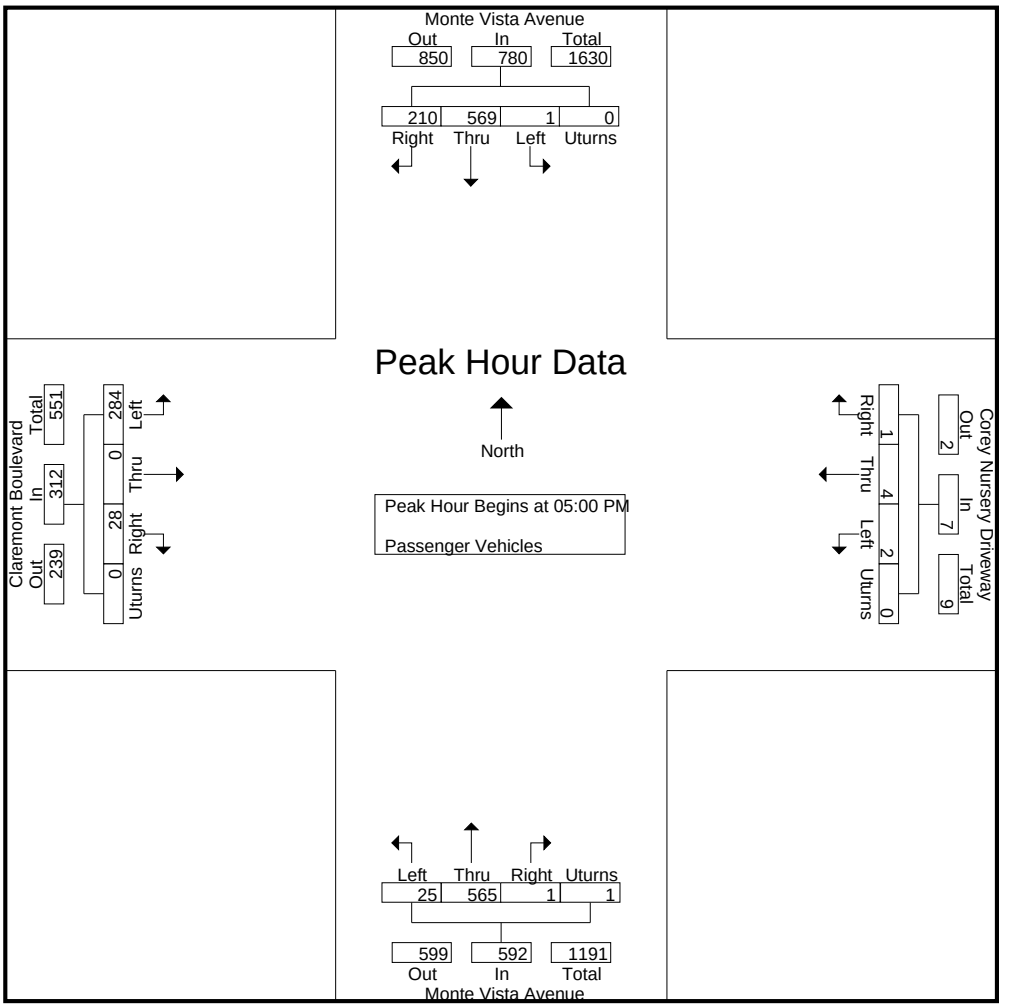
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	1	131	67	0	199	2	2	1	0	5	6	169	1	0	176	93	0	5	0	98
+15 mins.	0	150	50	0	200	0	1	0	0	1	5	124	0	1	130	85	0	4	0	89
+30 mins.	0	139	45	0	184	0	0	0	0	0	7	143	0	0	150	51	0	7	0	58
+45 mins.	0	149	48	0	197	0	1	0	0	1	7	129	0	0	136	55	0	12	0	67
Total Volume	1	569	210	0	780	2	4	1	0	7	25	565	1	1	592	284	0	28	0	312
% App. Total	0.1	72.9	26.9	0		28.6	57.1	14.3	0		4.2	95.4	0.2	0.2		91	0	9	0	
PHF	.250	.948	.784	.000	.975	.250	.500	.250	.000	.350	.893	.836	.250	.250	.841	.763	.000	.583	.000	.796

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Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Grand Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3
Apprch %	0	0	100	0		0	0	0	0		0	0	0	0		100	0	0	0		
Total %	0	0	33.3	0	33.3	0	0	0	0	0	0	0	0	0	0	66.7	0	0	0	66.7	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total		Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
% App. Total	0	0	100	0		0	0	0	0		0	0	0	0		100	0	0	0		
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.500

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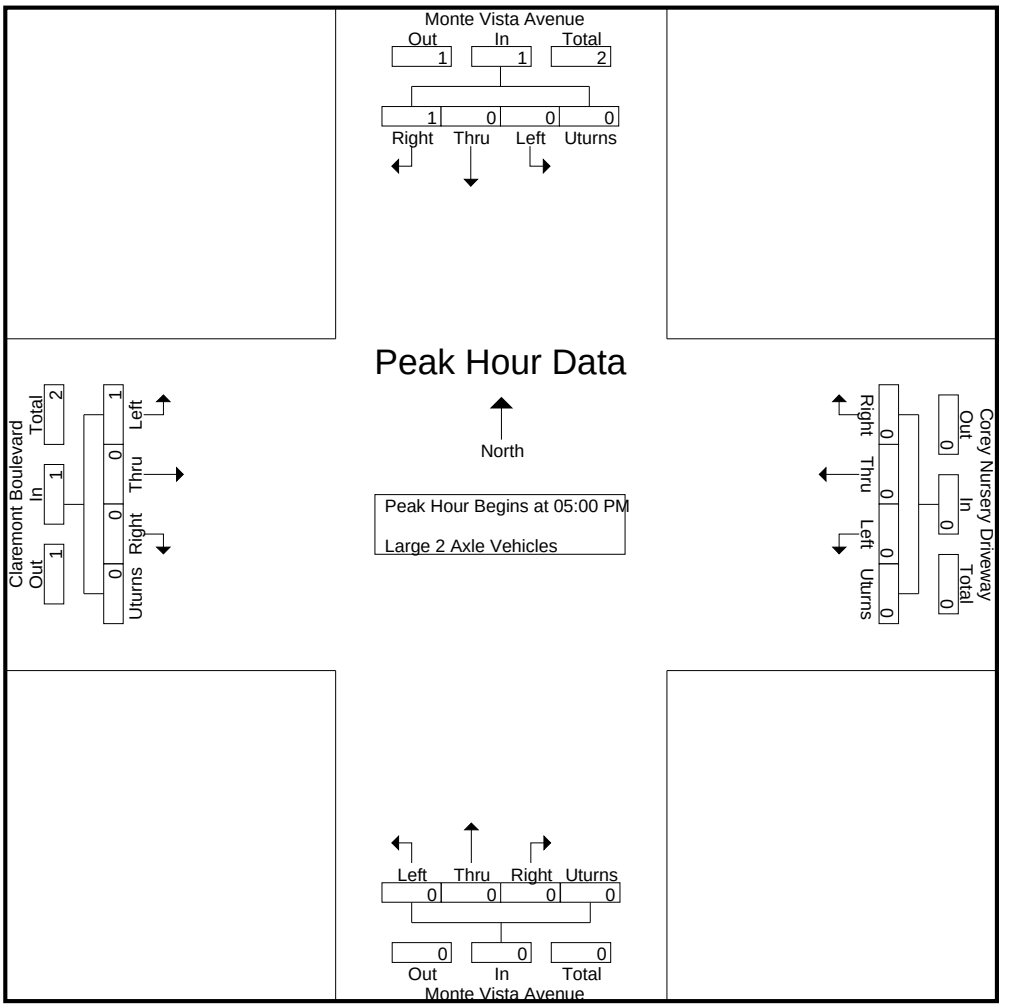
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
+15 mins.	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	100	0		0	0	0	0		0	0	0	0		100	0	0	0	
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250

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File Name : 03_CMT_Monte Vista_Claremont Blvd PM
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Page No : 1

Groups Printed- 3 Axle Vehicles

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	25	0	0	25	0	0	0	0	0	0	75	0	0	75	

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.500

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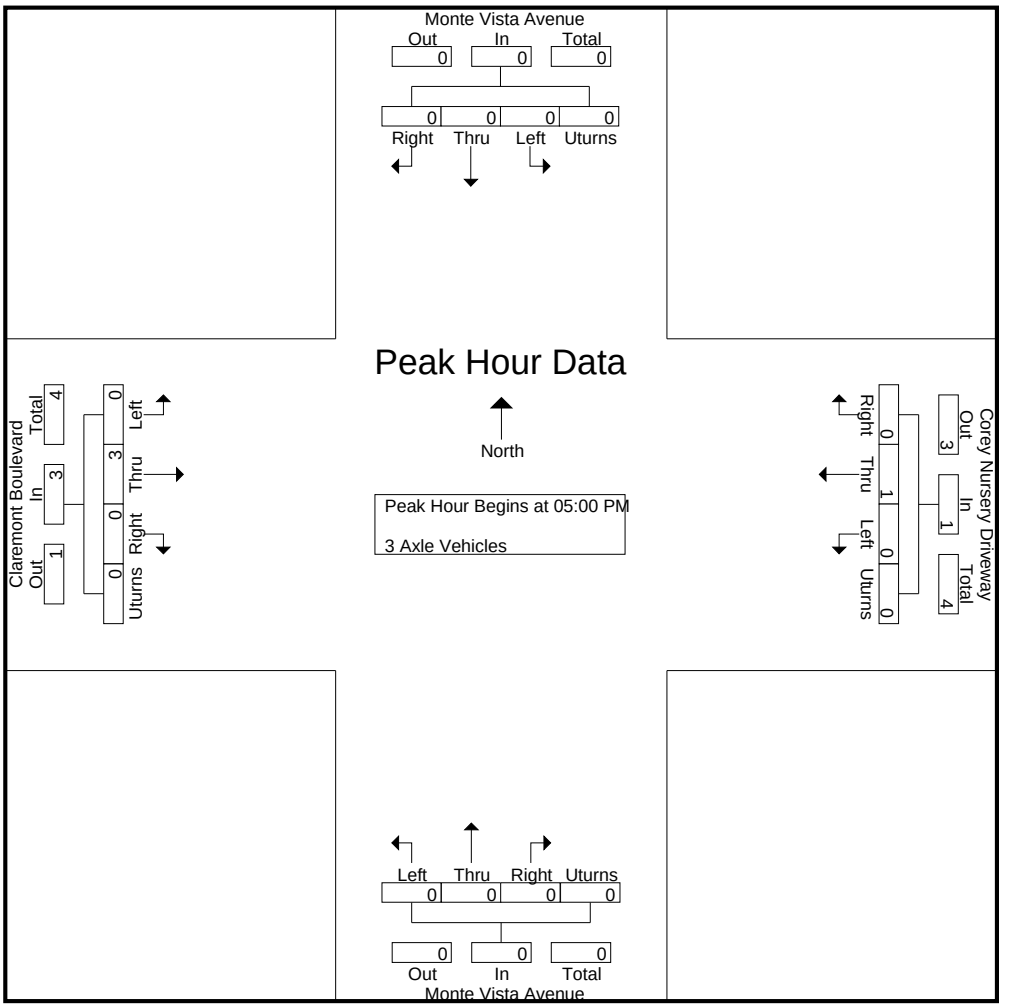
Site Code : 00319387
Start Date : 5/9/2019
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375

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Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Monte Vista Avenue Southbound					Corey Nursery Driveway Westbound					Monte Vista Avenue Northbound					Claremont Boulevard Eastbound					
Start Time	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Left	Thru	Right	Uturns	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Weather: Clear

File Name : 03_CMT_Monte Vista_Claremont Blvd PM
Site Code : 00319387
Start Date : 5/9/2019
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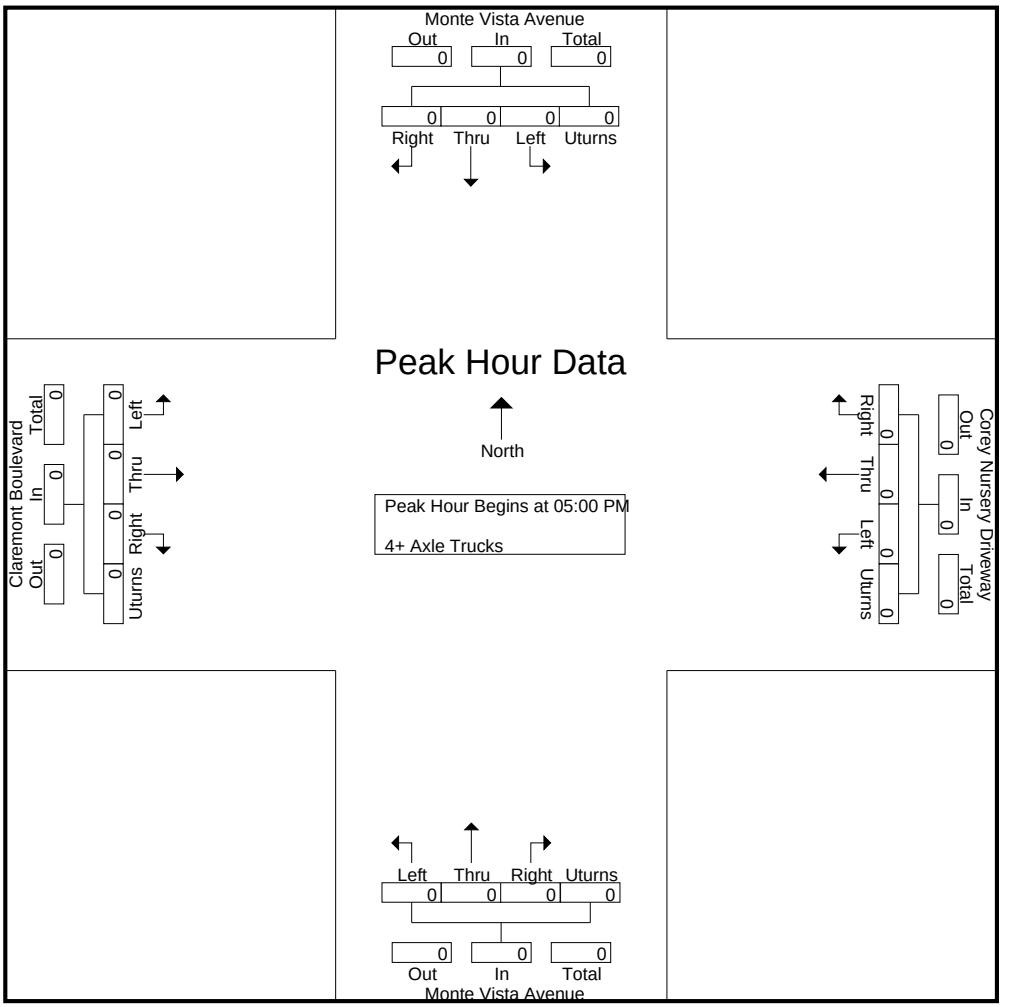

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Claremont
N/S: Monte Vista Avenue
E/W: Marylind Avenue
Weather: Clear

File Name : 04_CMT_Monte Vista_Marylind AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Total Volume

	Monte Vista Avenue Southbound			Monte Vista Avenue Northbound			Marylind Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:00 AM	102	0	102	2	60	62	0	0	0	164
07:15 AM	99	0	99	0	79	79	0	0	0	178
07:30 AM	121	2	123	1	121	122	0	0	0	245
07:45 AM	144	0	144	1	130	131	0	0	0	275
Total	466	2	468	4	390	394	0	0	0	862
08:00 AM	114	0	114	0	122	122	1	0	1	237
08:15 AM	120	2	122	1	87	88	0	0	0	210
08:30 AM	118	4	122	2	83	85	0	1	1	208
08:45 AM	129	0	129	0	68	68	0	1	1	198
Total	481	6	487	3	360	363	1	2	3	853
Grand Total	947	8	955	7	750	757	1	2	3	1715
Apprch %	99.2	0.8		0.9	99.1		33.3	66.7		
Total %	55.2	0.5	55.7	0.4	43.7	44.1	0.1	0.1	0.2	

	Monte Vista Avenue Southbound			Monte Vista Avenue Northbound			Marylind Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	121	**2**	123	**1**	121	122	0	0	0	245
07:45 AM	**144**	0	**144**	1	**130**	**131**	0	0	0	**275**
08:00 AM	114	0	114	0	122	122	**1**	0	**1**	237
08:15 AM	120	2	122	1	87	88	0	0	0	210
Total Volume	499	4	503	3	460	463	1	0	1	967
% App. Total	99.2	0.8		0.6	99.4		100	0		
PHF	.866	.500	.873	.750	.885	.884	.250	.000	.250	.879

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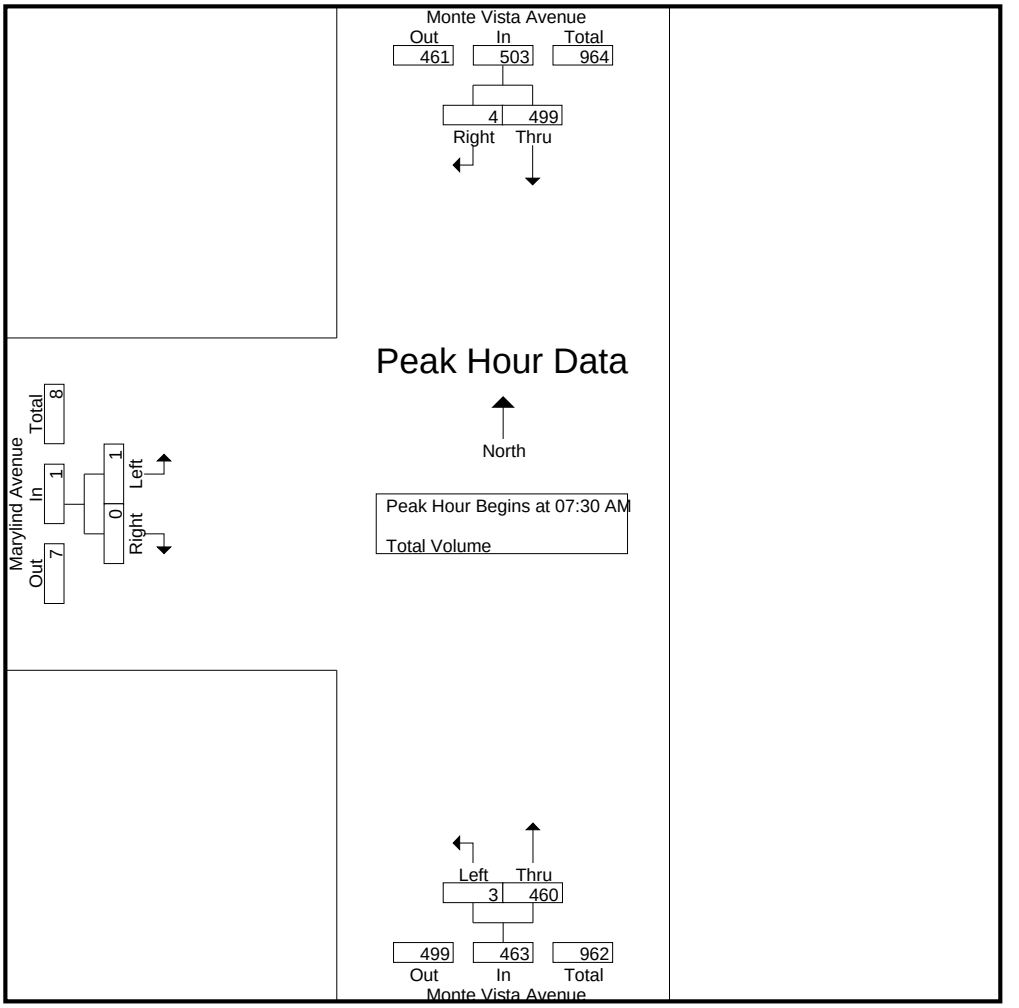

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			07:30 AM			08:00 AM		
+0 mins.	121	**2**	123	**1**	121	122	**1**	0	**1**
+15 mins.	**144**	0	**144**	1	**130**	**131**	0	0	0
+30 mins.	114	0	114	0	122	122	0	**1**	1
+45 mins.	120	2	122	1	87	88	0	1	1
Total Volume	499	4	503	3	460	463	1	2	3
% App. Total	99.2	0.8		0.6	99.4		33.3	66.7	
PHF	.866	.500	.873	.750	.885	.884	.250	.500	.750

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Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Total Volume

	Monte Vista Avenue Southbound			Monte Vista Avenue Northbound			Marylind Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
04:00 PM	155	2	157	1	144	145	1	1	2	304
04:15 PM	131	0	131	0	116	116	0	0	0	247
04:30 PM	161	0	161	0	117	117	1	5	6	284
04:45 PM	147	2	149	0	119	119	0	0	0	268
Total	594	4	598	1	496	497	2	6	8	1103
05:00 PM	161	0	161	1	142	143	9	5	14	318
05:15 PM	163	0	163	1	127	128	0	0	0	291
05:30 PM	164	0	164	0	133	133	0	0	0	297
05:45 PM	133	0	133	0	136	136	0	0	0	269
Total	621	0	621	2	538	540	9	5	14	1175
Grand Total	1215	4	1219	3	1034	1037	11	11	22	2278
Apprch %	99.7	0.3		0.3	99.7		50	50		
Total %	53.3	0.2	53.5	0.1	45.4	45.5	0.5	0.5	1	

	Monte Vista Avenue Southbound			Monte Vista Avenue Northbound			Marylind Avenue Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	161	0	161	**1**	**142**	**143**	**9**	**5**	**14**	**318**
05:15 PM	163	0	163	1	127	128	0	0	0	291
05:30 PM	**164**	0	**164**	0	133	133	0	0	0	297
05:45 PM	133	0	133	0	136	136	0	0	0	269
Total Volume	621	0	621	2	538	540	9	5	14	1175
% App. Total	100	0		0.4	99.6		64.3	35.7		
PHF	.947	.000	.947	.500	.947	.944	.250	.250	.250	.924

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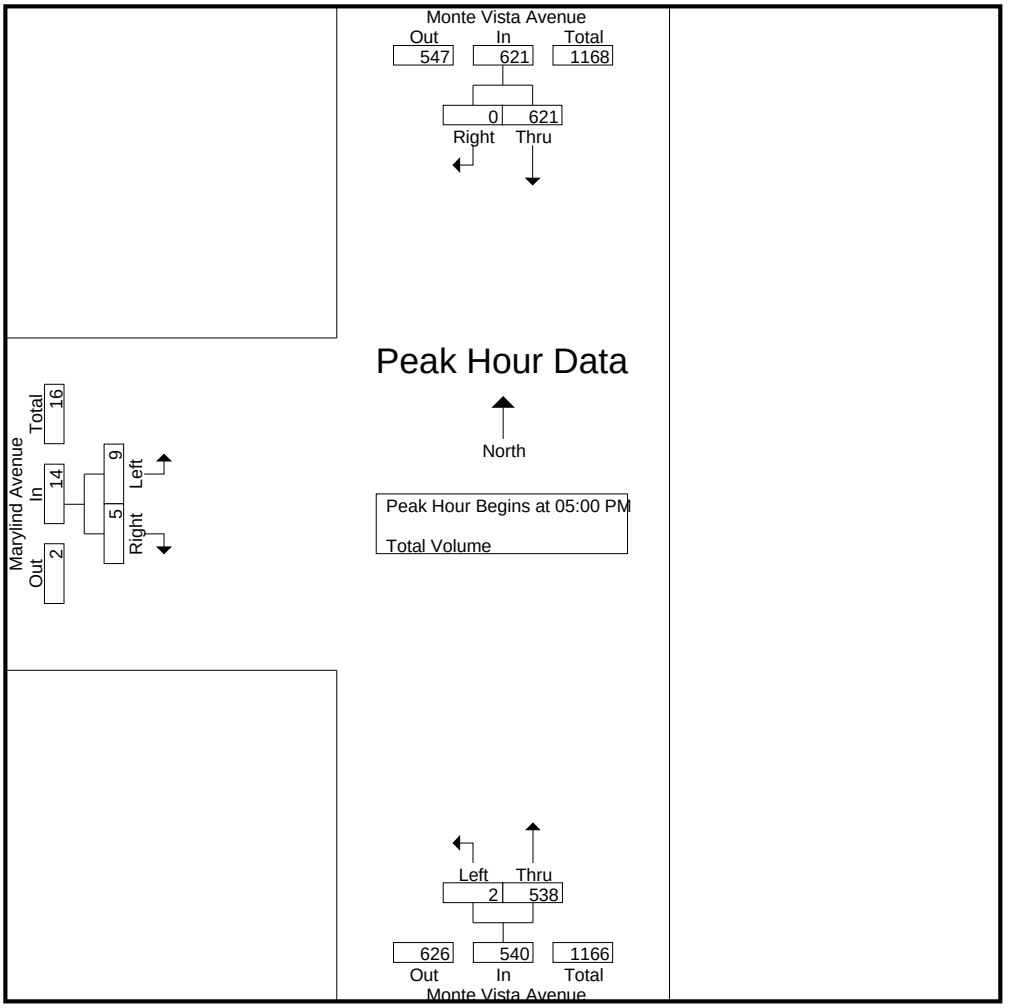

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			05:00 PM			04:15 PM		
+0 mins.	147	**2**	149	**1**	**142**	**143**	0	0	0
+15 mins.	161	0	161	1	127	128	1	**5**	6
+30 mins.	163	0	163	0	133	133	0	0	0
+45 mins.	**164**	0	**164**	0	136	136	**9**	5	**14**
Total Volume	635	2	637	2	538	540	10	10	20
% App. Total	99.7	0.3		0.4	99.6		50	50	
PHF	.968	.250	.971	.500	.947	.944	.278	.500	.357

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City of Claremont
N/S: Monte Vista Avenue
E/W: Foothill Boulevard (US Route 66)
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
07:00 AM	13	87	6	0	106	14	75	14	1	104	19	51	16	0	86	2	32	13	0	47	343
07:15 AM	11	82	6	0	99	30	80	17	0	127	22	60	19	0	101	6	58	20	0	84	411
07:30 AM	27	89	5	0	121	25	106	32	1	164	39	88	13	0	140	5	45	25	0	75	500
07:45 AM	22	93	9	0	124	27	141	46	0	214	31	80	16	0	127	6	89	32	0	127	592
Total	73	351	26	0	450	96	402	109	2	609	111	279	64	0	454	19	224	90	0	333	1846
08:00 AM	27	85	4	0	116	26	107	26	1	160	22	87	18	0	127	8	95	30	0	133	536
08:15 AM	22	76	3	0	101	21	101	21	0	143	24	64	17	0	105	5	76	15	0	96	445
08:30 AM	25	91	13	0	129	20	94	24	0	138	25	59	14	0	98	7	57	15	1	80	445
08:45 AM	24	84	11	0	119	17	103	16	1	137	29	55	9	0	93	5	80	20	0	105	454
Total	98	336	31	0	465	84	405	87	2	578	100	265	58	0	423	25	308	80	1	414	1880
Grand Total	171	687	57	0	915	180	807	196	4	1187	211	544	122	0	877	44	532	170	1	747	3726
Apprch %	18.7	75.1	6.2	0		15.2	68	16.5	0.3		24.1	62	13.9	0		5.9	71.2	22.8	0.1		
Total %	4.6	18.4	1.5	0	24.6	4.8	21.7	5.3	0.1	31.9	5.7	14.6	3.3	0	23.5	1.2	14.3	4.6	0	20	
Passenger Vehicles																					
% Passenger Vehicles	100	99	100	0	99.2	100	99.8	100	100	99.8	99.5	100	100	0	99.9	100	99.6	100	100	99.7	99.7
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.1	0	0	0.1	0.5	0	0	0	0.1	0	0	0	0	0	0.1
3 Axle Vehicles	0	7	0	0	7	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	8
% 3 Axle Vehicles	0	1	0	0	0.8	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.2
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% 4+ Axle Trucks																					

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	27	89	5	0	121	25	106	32	1	164	39	88	13	0	140	5	45	25	0	75	500
07:45 AM	22	93	9	0	124	27	141	46	0	214	31	80	16	0	127	6	89	32	0	127	592
08:00 AM	27	85	4	0	116	26	107	26	1	160	22	87	18	0	127	8	95	30	0	133	536
08:15 AM	22	76	3	0	101	21	101	21	0	143	24	64	17	0	105	5	76	15	0	96	445
Total Volume	98	343	21	0	462	99	455	125	2	681	116	319	64	0	499	24	305	102	0	431	2073
% App. Total	21.2	74.2	4.5	0		14.5	66.8	18.4	0.3		23.2	63.9	12.8	0		5.6	70.8	23.7	0		
PHF	.907	.922	.583	.000	.931	.917	.807	.679	.500	.796	.744	.906	.889	.000	.891	.750	.803	.797	.000	.810	.875

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City of Claremont
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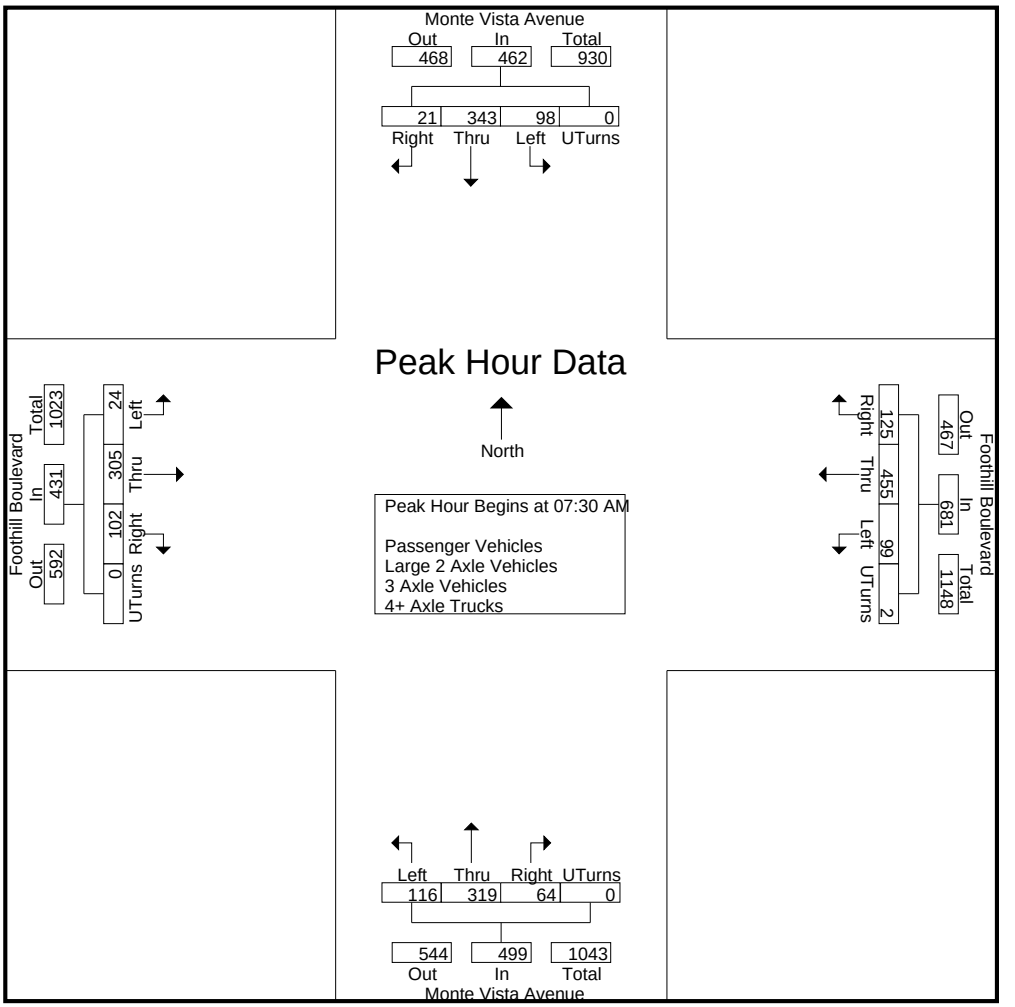
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					07:30 AM					07:45 AM				
+0 mins.	22	93	9	0	124	25	106	32	1	164	39	88	13	0	140	6	89	32	0	127
+15 mins.	27	85	4	0	116	27	141	46	0	214	31	80	16	0	127	8	95	30	0	133
+30 mins.	22	76	3	0	101	26	107	26	1	160	22	87	18	0	127	5	76	15	0	96
+45 mins.	25	91	13	0	129	21	101	21	0	143	24	64	17	0	105	7	57	15	1	80
Total Volume	96	345	29	0	470	99	455	125	2	681	116	319	64	0	499	26	317	92	1	436
% App. Total	20.4	73.4	6.2	0		14.5	66.8	18.4	0.3		23.2	63.9	12.8	0		6	72.7	21.1	0.2	
PHF	.889	.927	.558	.000	.911	.917	.807	.679	.500	.796	.744	.906	.889	.000	.891	.813	.834	.719	.250	.820

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File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
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Groups Printed- Passenger Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
07:00 AM	13	84	6	0	103	14	74	14	1	103	18	51	16	0	85	2	31	13	0	46	337
07:15 AM	11	82	6	0	99	30	80	17	0	127	22	60	19	0	101	6	58	20	0	84	411
07:30 AM	27	89	5	0	121	25	106	32	1	164	39	88	13	0	140	5	45	25	0	75	500
07:45 AM	22	92	9	0	123	27	140	46	0	213	31	80	16	0	127	6	89	32	0	127	590
Total	73	347	26	0	446	96	400	109	2	607	110	279	64	0	453	19	223	90	0	332	1838
08:00 AM	27	85	4	0	116	26	107	26	1	160	22	87	18	0	127	8	95	30	0	133	536
08:15 AM	22	76	3	0	101	21	101	21	0	143	24	64	17	0	105	5	76	15	0	96	445
08:30 AM	25	88	13	0	126	20	94	24	0	138	25	59	14	0	98	7	56	15	1	79	441
08:45 AM	24	84	11	0	119	17	103	16	1	137	29	55	9	0	93	5	80	20	0	105	454
Total	98	333	31	0	462	84	405	87	2	578	100	265	58	0	423	25	307	80	1	413	1876
Grand Total	171	680	57	0	908	180	805	196	4	1185	210	544	122	0	876	44	530	170	1	745	3714
Apprch %	18.8	74.9	6.3	0		15.2	67.9	16.5	0.3		24	62.1	13.9	0		5.9	71.1	22.8	0.1		
Total %	4.6	18.3	1.5	0	24.4	4.8	21.7	5.3	0.1	31.9	5.7	14.6	3.3	0	23.6	1.2	14.3	4.6	0	20.1	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	27	89	5	0	121	25	106	32	1	164	39	88	13	0	140	5	45	25	0	75	500
07:45 AM	22	92	9	0	123	27	140	46	0	213	31	80	16	0	127	6	89	32	0	127	590
08:00 AM	27	85	4	0	116	26	107	26	1	160	22	87	18	0	127	8	95	30	0	133	536
08:15 AM	22	76	3	0	101	21	101	21	0	143	24	64	17	0	105	5	76	15	0	96	445
Total Volume	98	342	21	0	461	99	454	125	2	680	116	319	64	0	499	24	305	102	0	431	2071
% App. Total	21.3	74.2	4.6	0		14.6	66.8	18.4	0.3		23.2	63.9	12.8	0		5.6	70.8	23.7	0		
PHF	.907	.929	.583	.000	.937	.917	.811	.679	.500	.798	.744	.906	.889	.000	.891	.750	.803	.797	.000	.810	.878

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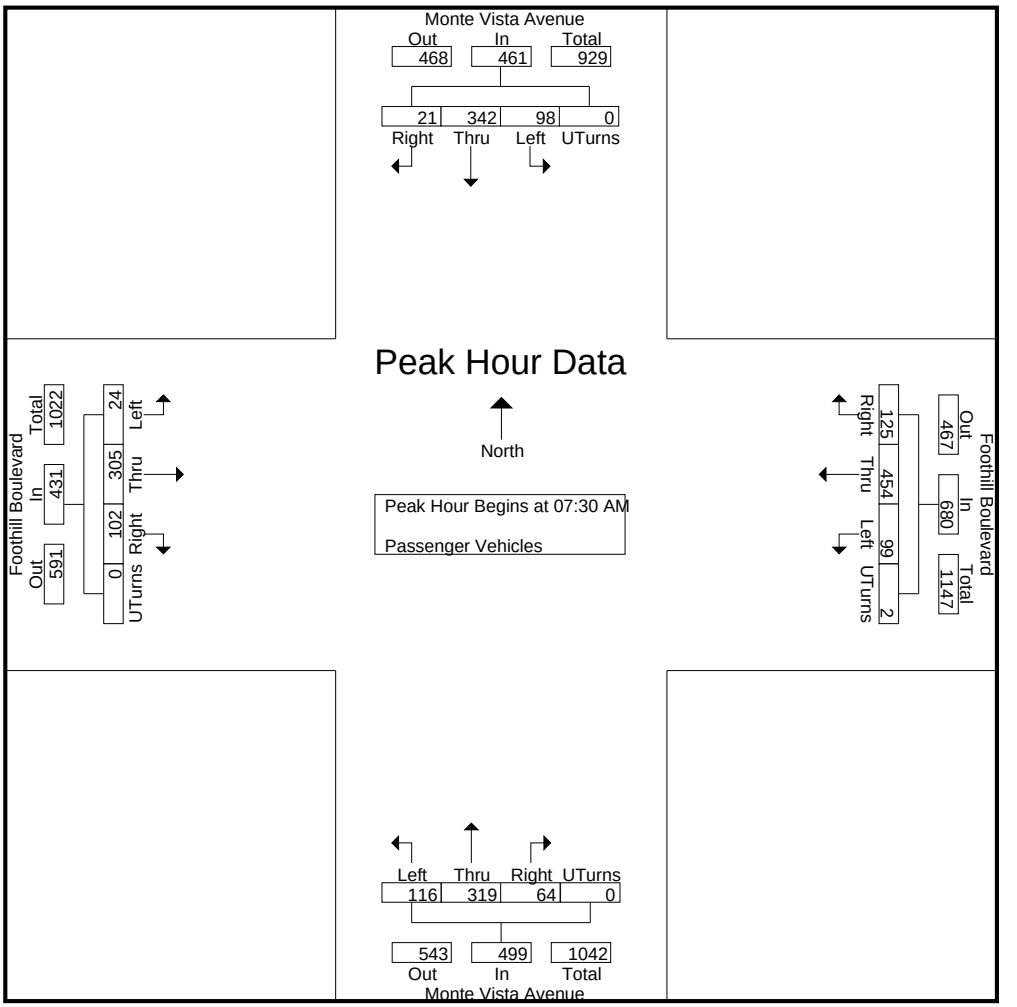

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	27	89	5	0	121	25	106	32	1	164	39	88	13	0	140	5	45	25	0	75
+15 mins.	22	92	9	0	123	27	140	46	0	213	31	80	16	0	127	6	89	32	0	127
+30 mins.	27	85	4	0	116	26	107	26	1	160	22	87	18	0	127	8	95	30	0	133
+45 mins.	22	76	3	0	101	21	101	21	0	143	24	64	17	0	105	5	76	15	0	96
Total Volume	98	342	21	0	461	99	454	125	2	680	116	319	64	0	499	24	305	102	0	431
% App. Total	21.3	74.2	4.6	0		14.6	66.8	18.4	0.3		23.2	63.9	12.8	0		5.6	70.8	23.7	0	
PHF	.907	.929	.583	.000	.937	.917	.811	.679	.500	.798	.744	.906	.889	.000	.891	.750	.803	.797	.000	.810

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File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Apprch %	0	0	0	0		0	100	0	0		100	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	50	0	0	50	50	0	0	0	50	0	0	0	0	0	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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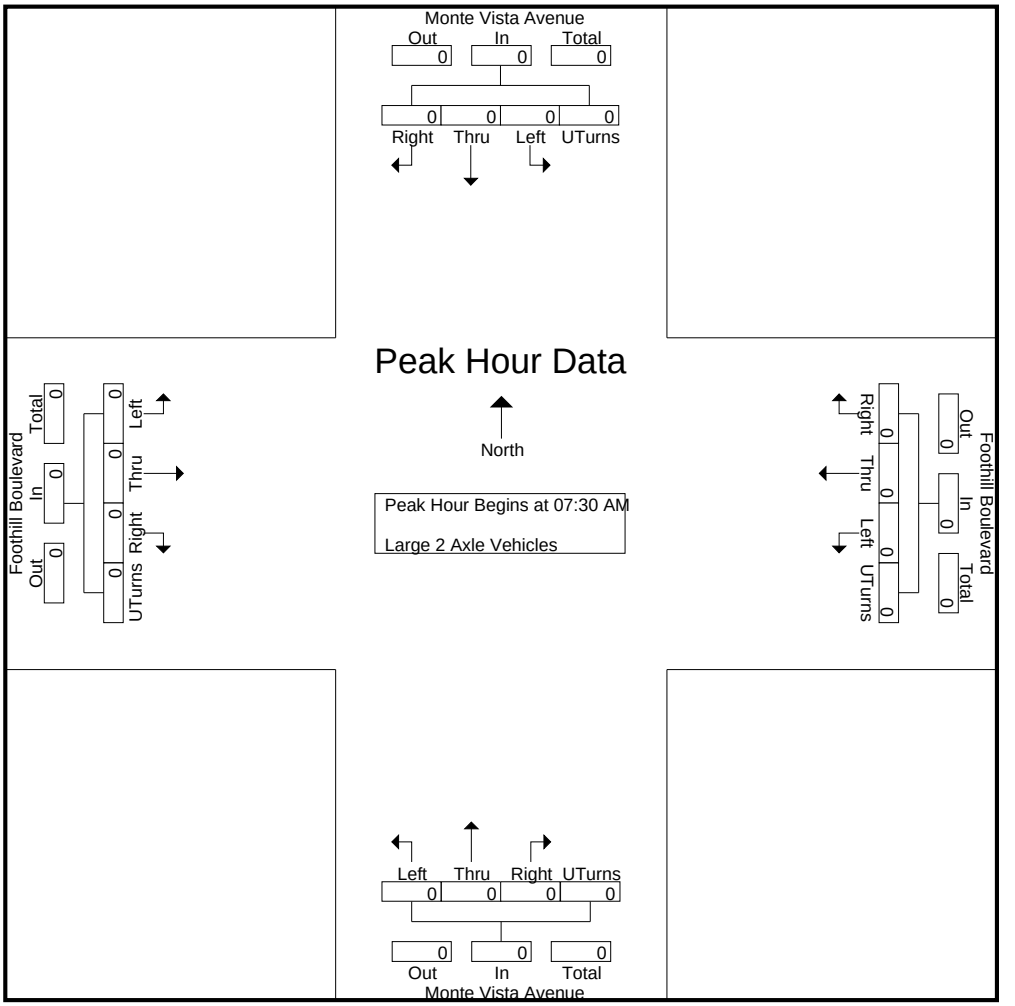
City of Claremont
N/S: Monte Vista Avenue
E/W: Foothill Boulevard (US Route 66)
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Claremont
N/S: Monte Vista Avenue
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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
07:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	7	0	0	7	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	8
Apprch %	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
Total %	0	87.5	0	0	87.5	0	12.5	0	0	12.5	0	0	0	0	0	0	0	0	0	0	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Claremont
N/S: Monte Vista Avenue
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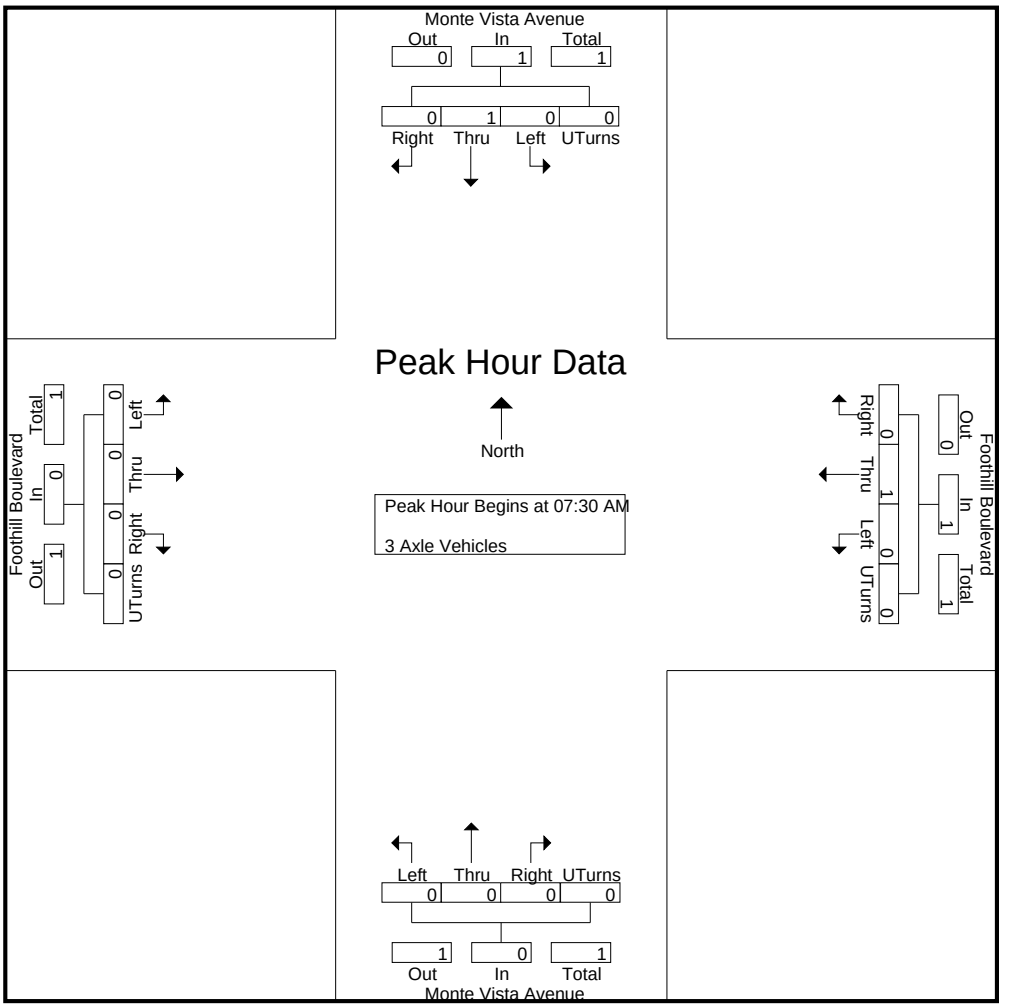
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Claremont
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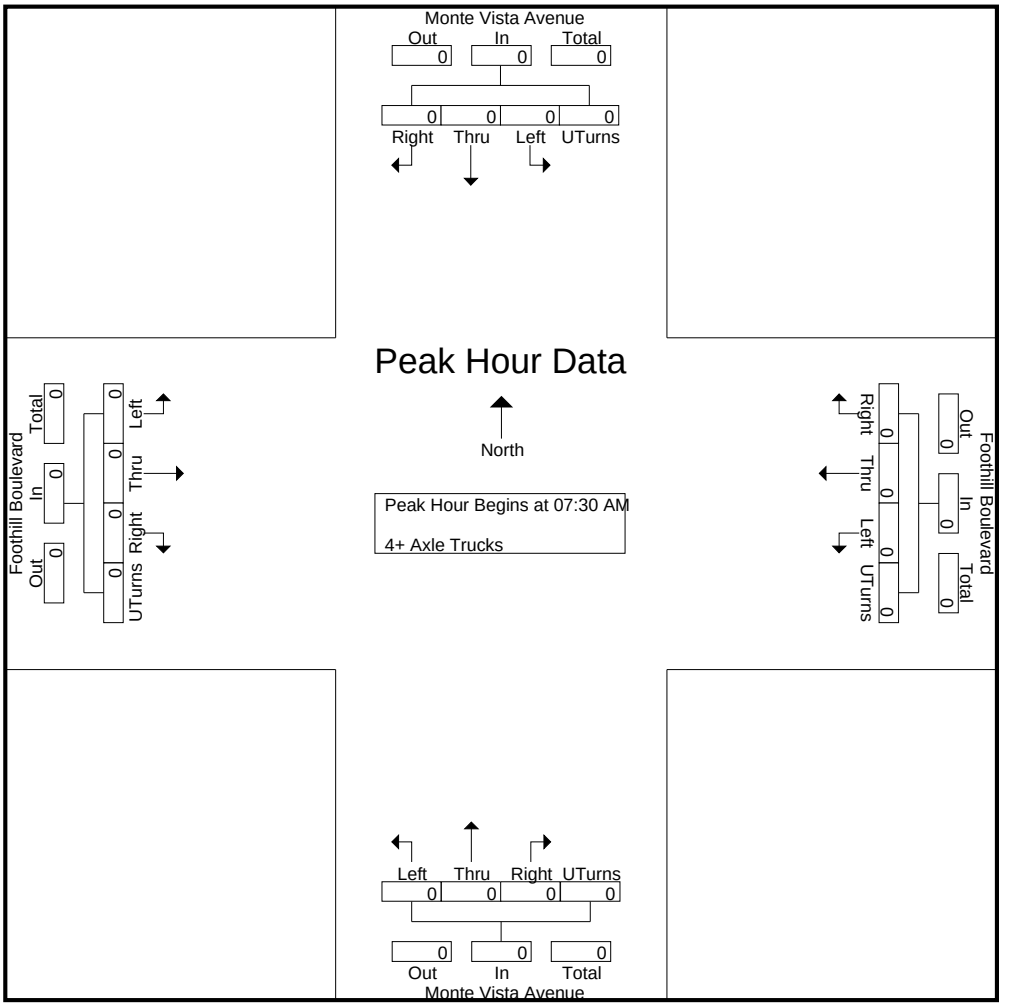
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill AM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Claremont
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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
04:00 PM	35	116	5	2	158	40	138	45	6	229	25	80	29	1	135	12	157	38	0	207	729
04:15 PM	37	97	8	0	142	17	89	25	3	134	38	102	25	0	165	5	159	27	0	191	632
04:30 PM	37	123	12	0	172	34	104	33	3	174	32	75	26	0	133	12	124	39	0	175	654
04:45 PM	32	105	14	0	151	25	126	29	1	181	66	83	27	2	178	11	182	34	0	227	737
Total	141	441	39	2	623	116	457	132	13	718	161	340	107	3	611	40	622	138	0	800	2752
05:00 PM	45	128	16	0	189	34	157	46	4	241	32	86	34	1	153	14	185	39	0	238	821
05:15 PM	40	113	10	0	163	34	124	22	2	182	36	91	31	0	158	18	196	34	0	248	751
05:30 PM	39	108	10	0	157	31	95	36	1	163	41	87	22	0	150	8	167	25	0	200	670
05:45 PM	31	103	12	0	146	26	104	32	0	162	20	96	27	0	143	9	125	27	0	161	612
Total	155	452	48	0	655	125	480	136	7	748	129	360	114	1	604	49	673	125	0	847	2854
Grand Total	296	893	87	2	1278	241	937	268	20	1466	290	700	221	4	1215	89	1295	263	0	1647	5606
Apprch %	23.2	69.9	6.8	0.2		16.4	63.9	18.3	1.4		23.9	57.6	18.2	0.3		5.4	78.6	16	0		
Total %	5.3	15.9	1.6	0	22.8	4.3	16.7	4.8	0.4	26.2	5.2	12.5	3.9	0.1	21.7	1.6	23.1	4.7	0	29.4	
Passenger Vehicles																	1287				
% Passenger Vehicles	100	99.7	100	100	99.8	100	99.4	99.6	100	99.5	99.7	99.6	100	100	99.7	100	99.4	99.2	0	99.4	99.6
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	0	0	0	0	0	0.3	0	0	0.2	0.3	0.1	0	0	0.2	0	0.5	0.4	0	0.4	0.2
3 Axle Vehicles	0	3	0	0	3	0	3	1	0	4	0	2	0	0	2	0	2	1	0	3	12
% 3 Axle Vehicles	0	0.3	0	0	0.2	0	0.3	0.4	0	0.3	0	0.3	0	0	0.2	0	0.2	0.4	0	0.2	0.2
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks																					

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	32	105	14	0	151	25	126	29	1	181	66	83	27	2	178	11	182	34	0	227	737
05:00 PM	45	128	16	0	189	34	157	46	4	241	32	86	34	1	153	14	185	39	0	238	821
05:15 PM	40	113	10	0	163	34	124	22	2	182	36	91	31	0	158	18	196	34	0	248	751
05:30 PM	39	108	10	0	157	31	95	36	1	163	41	87	22	0	150	8	167	25	0	200	670
Total Volume	156	454	50	0	660	124	502	133	8	767	175	347	114	3	639	51	730	132	0	913	2979
% App. Total	23.6	68.8	7.6	0		16.2	65.4	17.3	1		27.4	54.3	17.8	0.5		5.6	80	14.5	0		
PHF	.867	.887	.781	.000	.873	.912	.799	.723	.500	.796	.663	.953	.838	.375	.897	.708	.931	.846	.000	.920	.907

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City of Claremont
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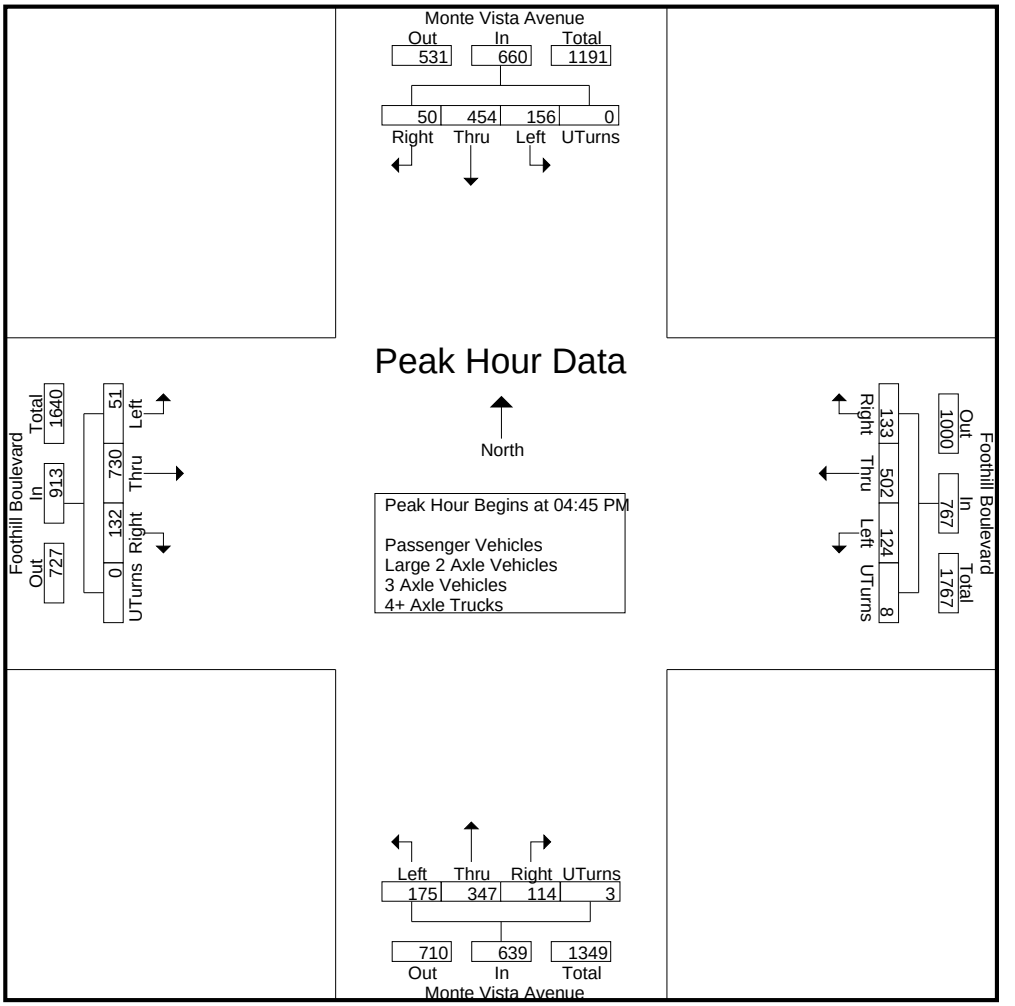
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:45 PM					04:45 PM				
+0 mins.	37	123	12	0	172	34	104	33	3	174	66	83	27	2	178	11	182	34	0	227
+15 mins.	32	105	14	0	151	25	126	29	1	181	32	86	34	1	153	14	185	39	0	238
+30 mins.	45	128	16	0	189	34	157	46	4	241	36	91	31	0	158	18	196	34	0	248
+45 mins.	40	113	10	0	163	34	124	22	2	182	41	87	22	0	150	8	167	25	0	200
Total Volume	154	469	52	0	675	127	511	130	10	778	175	347	114	3	639	51	730	132	0	913
% App. Total	22.8	69.5	7.7	0		16.3	65.7	16.7	1.3		27.4	54.3	17.8	0.5		5.6	80	14.5	0	
PHF	.856	.916	.813	.000	.893	.934	.814	.707	.625	.807	.663	.953	.838	.375	.897	.708	.931	.846	.000	.920

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City of Claremont
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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
04:00 PM	35	115	5	2	157	40	137	44	6	227	25	78	29	1	133	12	155	37	0	204	721
04:15 PM	37	97	8	0	142	17	89	25	3	134	38	101	25	0	164	5	156	26	0	187	627
04:30 PM	37	122	12	0	171	34	103	33	3	173	32	75	26	0	133	12	124	39	0	175	652
04:45 PM	32	105	14	0	151	25	124	29	1	179	65	83	27	2	177	11	182	34	0	227	734
Total	141	439	39	2	621	116	453	131	13	713	160	337	107	3	607	40	617	136	0	793	2734
05:00 PM	45	128	16	0	189	34	157	46	4	241	32	86	34	1	153	14	183	39	0	236	819
05:15 PM	40	113	10	0	163	34	124	22	2	182	36	91	31	0	158	18	196	34	0	248	751
05:30 PM	39	107	10	0	156	31	93	36	1	161	41	87	22	0	150	8	166	25	0	199	666
05:45 PM	31	103	12	0	146	26	104	32	0	162	20	96	27	0	143	9	125	27	0	161	612
Total	155	451	48	0	654	125	478	136	7	746	129	360	114	1	604	49	670	125	0	844	2848
Grand Total	296	890	87	2	1275	241	931	267	20	1459	289	697	221	4	1211	89	1287	261	0	1637	5582
Apprch %	23.2	69.8	6.8	0.2		16.5	63.8	18.3	1.4		23.9	57.6	18.2	0.3		5.4	78.6	15.9	0		
Total %	5.3	15.9	1.6	0	22.8	4.3	16.7	4.8	0.4	26.1	5.2	12.5	4	0.1	21.7	1.6	23.1	4.7	0	29.3	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	32	105	14	0	151	25	124	29	1	179	65	83	27	2	177	11	182	34	0	227	734
05:00 PM	45	128	16	0	189	34	157	46	4	241	32	86	34	1	153	14	183	39	0	236	819
05:15 PM	40	113	10	0	163	34	124	22	2	182	36	91	31	0	158	18	196	34	0	248	751
05:30 PM	39	107	10	0	156	31	93	36	1	161	41	87	22	0	150	8	166	25	0	199	666
Total Volume	156	453	50	0	659	124	498	133	8	763	174	347	114	3	638	51	727	132	0	910	2970
% App. Total	23.7	68.7	7.6	0		16.3	65.3	17.4	1		27.3	54.4	17.9	0.5		5.6	79.9	14.5	0		
PHF	.867	.885	.781	.000	.872	.912	.793	.723	.500	.791	.669	.953	.838	.375	.901	.708	.927	.846	.000	.917	.907

Counts Unlimited
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City of Claremont
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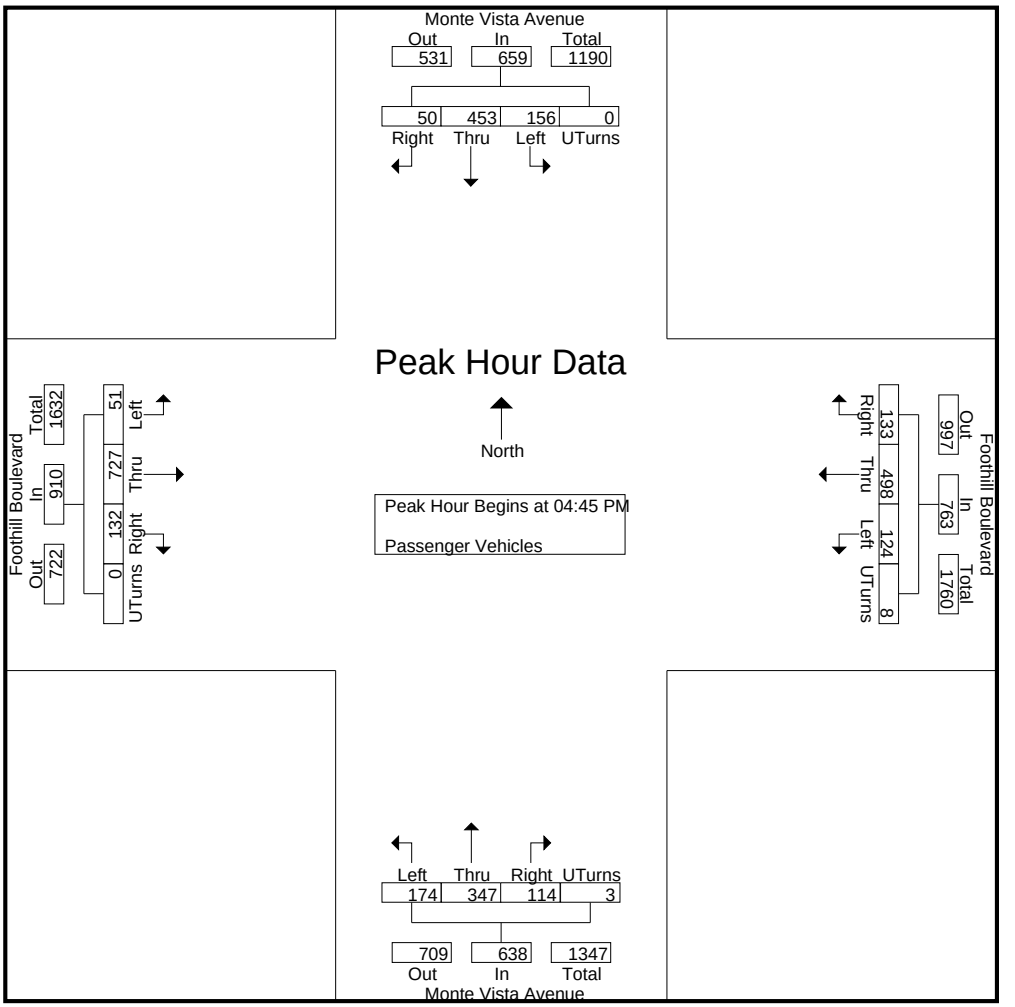
E/W: Foothill Boulevard (US Route 66)
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	32	105	14	0	151	25	124	29	1	179	65	83	27	2	177	11	182	34	0	227
+15 mins.	45	128	16	0	189	34	157	46	4	241	32	86	34	1	153	14	183	39	0	236
+30 mins.	40	113	10	0	163	34	124	22	2	182	36	91	31	0	158	18	196	34	0	248
+45 mins.	39	107	10	0	156	31	93	36	1	161	41	87	22	0	150	8	166	25	0	199
Total Volume	156	453	50	0	659	124	498	133	8	763	174	347	114	3	638	51	727	132	0	910
% App. Total	23.7	68.7	7.6	0		16.3	65.3	17.4	1		27.3	54.4	17.9	0.5		5.6	79.9	14.5	0	
PHF	.867	.885	.781	.000	.872	.912	.793	.723	.500	.791	.669	.953	.838	.375	.901	.708	.927	.846	.000	.917

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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	3	1	0	4	7
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Grand Total	0	0	0	0	0	0	3	0	0	3	1	1	0	0	2	0	6	1	0	7	12
Apprch %	0	0	0	0		0	100	0	0		50	50	0	0		0	85.7	14.3	0		
Total %	0	0	0	0	0	0	25	0	0	25	8.3	8.3	0	0	16.7	0	50	8.3	0	58.3	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total Volume	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	3	0	0	3	7
% App. Total	0	0	0	0		0	100	0	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.250	.000	.000	.000	.250	.000	.375	.000	.000	.375	.583

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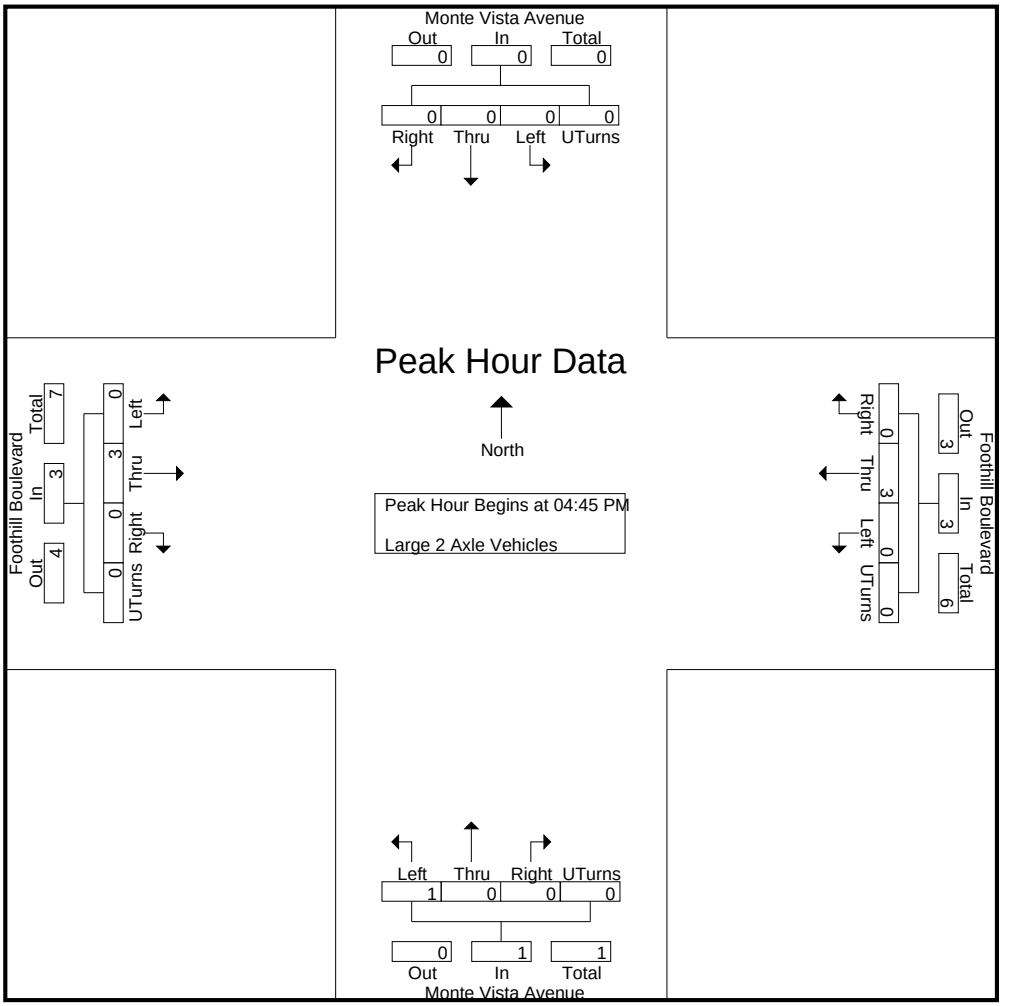
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	3	0	0	3
% App. Total	0	0	0	0		0	100	0	0		100	0	0	0		0	100	0	0	
PHF	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.250	.000	.000	.000	.250	.000	.375	.000	.000	.375

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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	1	1	0	2	6
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
04:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	0	3	1	0	4	0	2	0	0	2	0	2	1	0	3	11
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	3	0	0	3	0	3	1	0	4	0	2	0	0	2	0	2	1	0	3	12
Apprch %	0	100	0	0		0	75	25	0		0	100	0	0		0	66.7	33.3	0		
Total %	0	25	0	0	25	0	25	8.3	0	33.3	0	16.7	0	0	16.7	0	16.7	8.3	0	25	

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total		Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500

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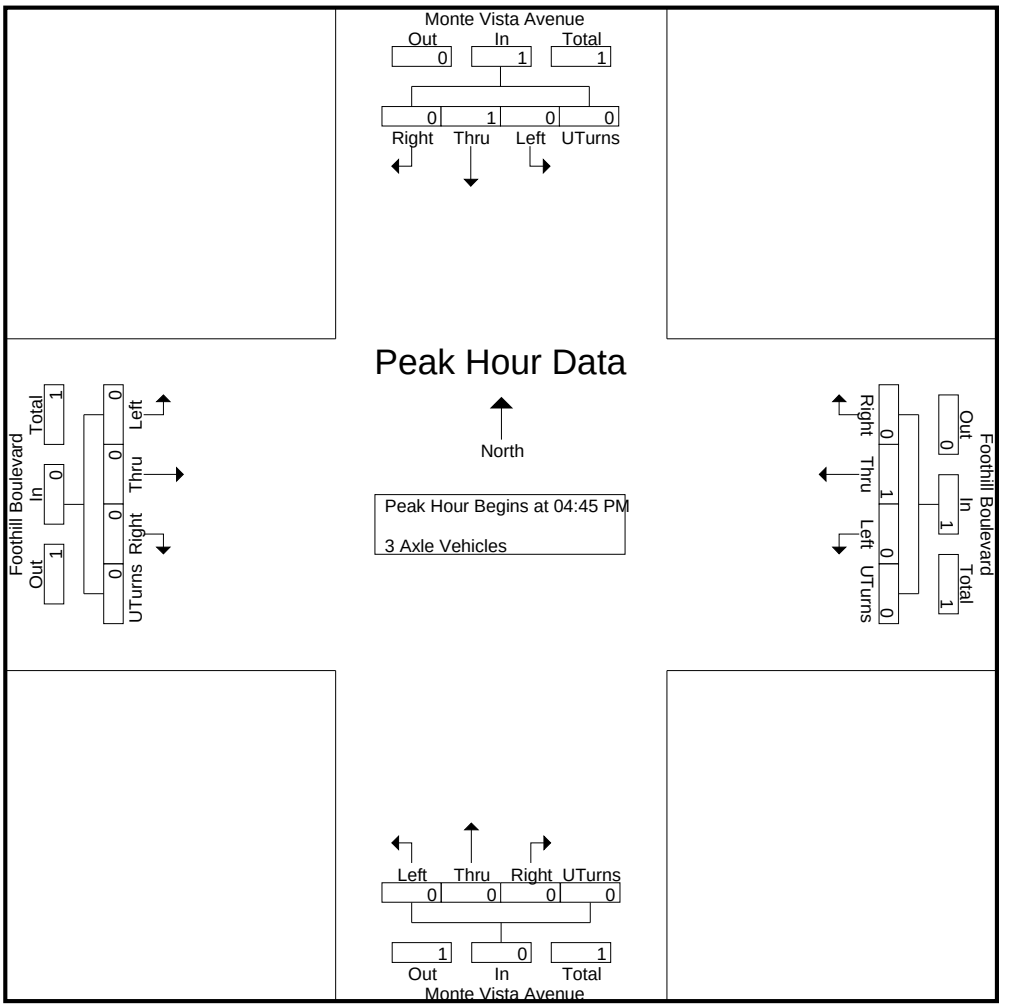
Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
Start Date : 5/9/2019
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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File Name : 06_CMT_Monte Vista_Foothill PM
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Start Date : 5/9/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	Monte Vista Avenue Southbound					Foothill Boulevard Westbound					Monte Vista Avenue Northbound					Foothill Boulevard Eastbound					
Start Time	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Left	Thru	Right	UTurns	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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Weather: Clear

File Name : 06_CMT_Monte Vista_Foothill PM
Site Code : 00319387
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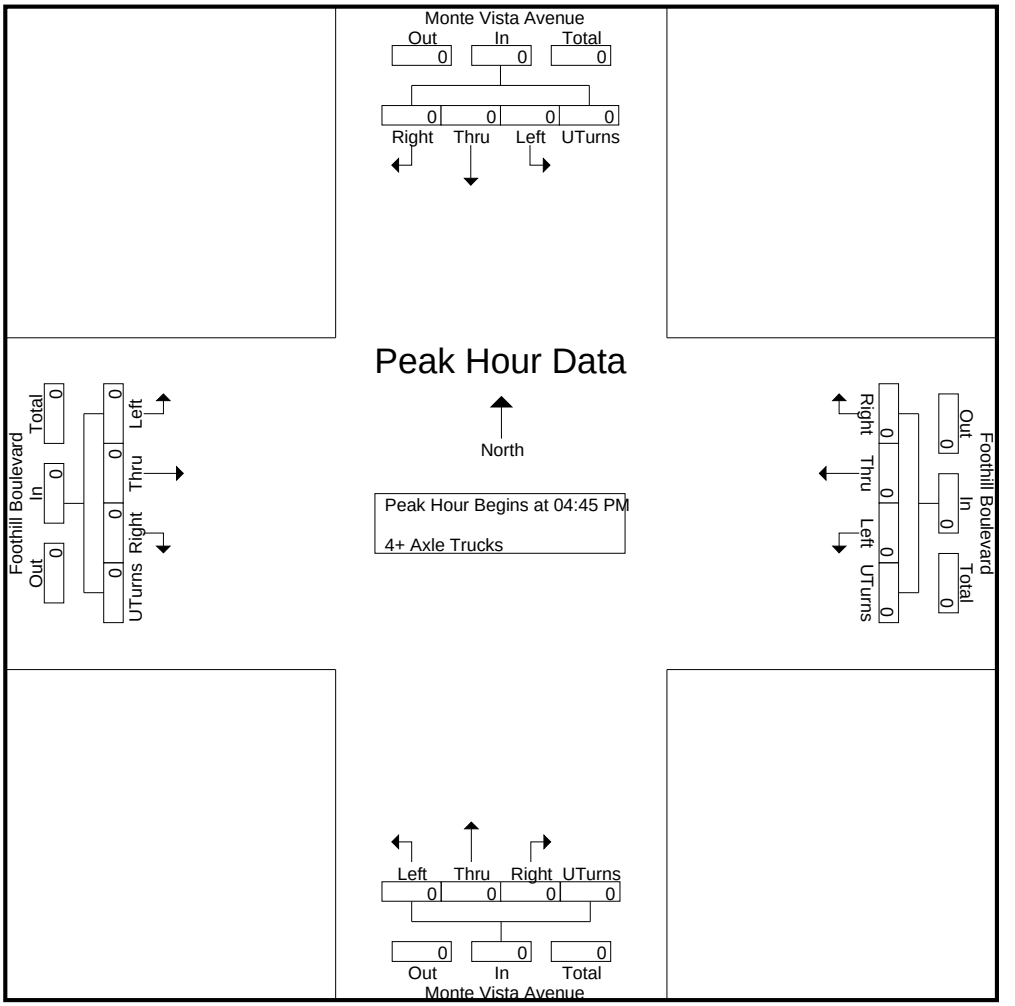

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

APPENDIX C:

VOLUME DEVELOPMENT WORKSHEETS

LSA

Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
1 Claremont Blvd/Foothill Blvd								
NBL	180	0	0	180	141	0	0	141
NBT	181	0	0	181	299	0	0	299
NBR	34	0	0	34	84	0	0	84
SBL	56	0	0	56	72	0	0	72
SBT	304	0	0	304	177	0	0	177
SBR	81	0	0	81	97	0	0	97
EBL	150	0	0	150	144	0	0	144
EBT	401	12	0	413	764	9	0	773
EBR	110	0	0	110	126	0	0	126
WBL	101	0	0	101	88	0	0	88
WBT	657	11	0	668	506	6	0	512
WBR	41	0	0	41	39	0	0	39
North Leg								
Approach	441	0	0	441	346	0	0	346
Departure	372	0	0	372	482	0	0	482
Total	813	0	0	813	828	0	0	828
South Leg								
Approach	395	0	0	395	524	0	0	524
Departure	515	0	0	515	391	0	0	391
Total	910	0	0	910	915	0	0	915
East Leg								
Approach	799	11	0	810	633	6	0	639
Departure	491	12	0	503	920	9	0	929
Total	1,290	23	0	1,313	1,553	15	0	1,568
West Leg								
Approach	661	12	0	673	1,034	9	0	1,043
Departure	918	11	0	929	744	6	0	750
Total	1,579	23	0	1,602	1,778	15	0	1,793
Total Approaches								
Approach	2,296	23	0	2,319	2,537	15	0	2,552
Departure	2,296	23	0	2,319	2,537	15	0	2,552
Total	4,592	46	0	4,638	5,074	30	0	5,104

LSA

Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
2 Driveway 1/E Foothill Blvd								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	3	7	0	10	12	4	0	16
EBL	0	0	0	0	0	0	0	0
EBT	491	12	5	508	920	9	6	935
EBR	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0
WBT	582	3	5	590	707	2	6	715
WBR	11	9	0	20	25	25	0	50
North Leg								
Approach	3	7	0	10	12	4	0	16
Departure	11	9	0	20	25	25	0	50
Total	14	16	0	30	37	29	0	66
South Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
East Leg								
Approach	593	12	5	610	732	27	6	765
Departure	491	12	5	508	920	9	6	935
Total	1,084	24	10	1,118	1,652	36	12	1,700
West Leg								
Approach	491	12	5	508	920	9	6	935
Departure	585	10	5	600	719	6	6	731
Total	1,076	22	10	1,108	1,639	15	12	1,666
Total Approaches								
Approach	1,087	31	10	1,128	1,664	40	12	1,716
Departure	1,087	31	10	1,128	1,664	40	12	1,716
Total	2,174	62	20	2,256	3,328	80	24	3,432

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Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
3 Driveway 2/E Foothill Blvd								
NBL	0	0	0	0	0	0	0	0
NBT	0	0	0	0	0	0	0	0
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	0	0	0	0	0	0	0	0
SBR	0	3	7	10	0	2	8	10
EBL	0	0	0	0	0	0	0	0
EBT	491	12	5	508	920	9	6	935
EBR	0	0	0	0	0	0	0	0
WBL	0	0	0	0	0	0	0	0
WBT	585	9	-5	589	719	25	-3	741
WBR	0	37	18	55	0	15	11	26
North Leg								
Approach	0	3	7	10	0	2	8	10
Departure	0	37	18	55	0	15	11	26
Total	0	40	25	65	0	17	19	36
South Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
East Leg								
Approach	585	46	13	644	719	40	8	767
Departure	491	12	5	508	920	9	6	935
Total	1,076	58	18	1,152	1,639	49	14	1,702
West Leg								
Approach	491	12	5	508	920	9	6	935
Departure	585	12	2	599	719	27	5	751
Total	1,076	24	7	1,107	1,639	36	11	1,686
Total Approaches								
Approach	1,076	61	25	1,162	1,639	51	22	1,712
Departure	1,076	61	25	1,162	1,639	51	22	1,712
Total	2,152	122	50	2,324	3,278	102	44	3,424

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Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
4 Monte Vista Ave/N Claremont Blvd								
NBL	21	0	0	21	27	0	0	27
NBT	410	3	0	413	565	2	0	567
NBR	1	0	0	1	1	0	0	1
SBL	3	0	0	3	1	0	0	1
SBT	533	11	0	544	569	15	0	584
SBR	289	1	0	290	211	2	0	213
EBL	145	14	2	161	285	8	1	294
EBT	0	0	0	0	3	0	0	3
EBR	16	0	0	16	28	0	0	28
WBL	1	0	0	1	2	0	0	2
WBT	1	0	0	1	5	0	0	5
WBR	1	0	0	1	1	0	0	1
North Leg								
Approach	825	12	0	837	781	17	0	798
Departure	556	17	2	575	851	10	1	862
Total	1,381	29	2	1,412	1,632	27	1	1,660
South Leg								
Approach	432	3	0	435	593	2	0	595
Departure	550	11	0	561	599	15	0	614
Total	982	14	0	996	1,192	17	0	1,209
East Leg								
Approach	3	0	0	3	8	0	0	8
Departure	4	0	0	4	5	0	0	5
Total	7	0	0	7	13	0	0	13
West Leg								
Approach	161	14	2	177	316	8	1	325
Departure	311	1	0	312	243	2	0	245
Total	472	15	2	489	559	10	1	570
Total Approaches								
Approach	1,421	29	2	1,452	1,698	27	1	1,726
Departure	1,421	29	2	1,452	1,698	27	1	1,726
Total	2,842	58	4	2,904	3,396	54	2	3,452

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Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
5 Monte Vista Ave/ Marylind Ave-Driveway 3								
NBL	3	1	0	4	2	2	0	4
NBT	460	0	0	460	538	0	0	538
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	499	11	0	510	621	13	0	634
SBR	4	1	0	5	0	2	0	2
EBL	1	3	0	4	9	2	0	11
EBT	0	0	0	0	0	0	0	0
EBR	0	2	0	2	5	1	0	6
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	503	12	0	515	621	15	0	636
Departure	461	3	0	464	547	2	0	549
Total	964	15	0	979	1,168	17	0	1,185
South Leg								
Approach	463	1	0	464	540	2	0	542
Departure	499	13	0	512	626	14	0	640
Total	962	14	0	976	1,166	16	0	1,182
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	1	5	0	6	14	3	0	17
Departure	7	2	0	9	2	4	0	6
Total	8	7	0	15	16	7	0	23
Total Approaches								
Approach	967	18	0	985	1,175	20	0	1,195
Departure	967	18	0	985	1,175	20	0	1,195
Total	1,934	36	0	1,970	2,350	40	0	2,390

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Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
6 Monte Vista Ave/ Driveway 4								
NBL	0	0	0	0	0	0	0	0
NBT	468	1	0	469	531	2	0	533
NBR	0	0	0	0	0	0	0	0
SBL	0	0	0	0	0	0	0	0
SBT	462	9	0	471	660	4	0	664
SBR	0	4	0	4	0	10	0	10
EBL	0	0	0	0	0	0	0	0
EBT	0	0	0	0	0	0	0	0
EBR	0	36	0	36	0	18	0	18
WBL	0	0	0	0	0	0	0	0
WBT	0	0	0	0	0	0	0	0
WBR	0	0	0	0	0	0	0	0
North Leg								
Approach	462	13	0	475	660	14	0	674
Departure	468	1	0	469	531	2	0	533
Total	930	14	0	944	1,191	16	0	1,207
South Leg								
Approach	468	1	0	469	531	2	0	533
Departure	462	45	0	507	660	22	0	682
Total	930	46	0	976	1,191	24	0	1,215
East Leg								
Approach	0	0	0	0	0	0	0	0
Departure	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0
West Leg								
Approach	0	36	0	36	0	18	0	18
Departure	0	4	0	4	0	10	0	10
Total	0	40	0	40	0	28	0	28
Total Approaches								
Approach	930	50	0	980	1,191	34	0	1,225
Departure	930	50	0	980	1,191	34	0	1,225
Total	1,860	100	0	1,960	2,382	68	0	2,450

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Table C-1 - Existing (2019) Peak Hour Volume Summary

	A.M. Peak Hour				P.M. Peak Hour			
	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project	Existing Without Project	Project Trips	Pass-By Trips	Existing With Project
7 **Monte Vista Ave/E Foothill Blvd**								
NBL	116	16	3	135	182	19	2	203
NBT	319	1	-3	317	347	2	-1	348
NBR	64	0	-1	63	114	0	0	114
SBL	98	14	-1	111	156	6	-1	161
SBT	343	25	-3	365	454	13	-2	465
SBR	21	7	4	32	50	3	3	56
EBL	27	12	4	43	51	9	2	62
EBT	347	0	0	347	736	0	2	738
EBR	116	0	2	118	133	0	3	136
WBL	103	0	-1	102	140	0	0	140
WBT	456	10	0	466	501	11	0	512
WBR	125	0	-1	124	133	0	0	133
North Leg								
Approach	462	46	0	508	660	22	0	682
Departure	471	13	0	484	531	11	1	543
Total	933	59	0	992	1,191	33	1	1,225
South Leg								
Approach	499	17	-1	515	643	21	1	665
Departure	562	25	-2	585	727	13	1	741
Total	1,061	42	-3	1,100	1,370	34	2	1,406
East Leg								
Approach	684	10	-2	692	774	11	0	785
Departure	509	14	-2	521	1,006	6	1	1,013
Total	1,193	24	-4	1,213	1,780	17	1	1,798
West Leg								
Approach	490	12	6	508	920	9	7	936
Departure	593	33	7	633	733	33	5	771
Total	1,083	45	13	1,141	1,653	42	12	1,707
Total Approaches								
Approach	2,135	85	3	2,223	2,997	63	8	3,068
Departure	2,135	85	3	2,223	2,997	63	8	3,068
Total	4,270	170	6	4,446	5,994	126	16	6,136

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
1	**Claremont Blvd/Foothill Blvd**						
NBL		180	11	191	0	0	191
NBT		181	11	192	0	0	192
NBR		34	2	36	0	0	36
SBL		56	3	59	0	0	59
SBT		304	18	322	0	0	322
SBR		81	5	86	0	0	86
EBL		150	9	159	0	0	159
EBT		401	24	425	12	0	437
EBR		110	7	117	0	0	117
WBL		101	6	107	0	0	107
WBT		657	39	696	11	0	707
WBR		41	2	43	0	0	43
North Leg							
	Approach	441	26	467	0	0	467
	Departure	372	22	394	0	0	394
	Total	813	48	861	0	0	861
South Leg							
	Approach	395	24	419	0	0	419
	Departure	515	31	546	0	0	546
	Total	910	55	965	0	0	965
East Leg							
	Approach	799	47	846	11	0	857
	Departure	491	29	520	12	0	532
	Total	1,290	76	1,366	23	0	1,389
West Leg							
	Approach	661	40	701	12	0	713
	Departure	918	55	973	11	0	984
	Total	1,579	95	1,674	23	0	1,697
Total Approaches							
	Approach	2,296	137	2,433	23	0	2,456
	Departure	2,296	137	2,433	23	0	2,456
	Total	4,592	274	4,866	46	0	4,912

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
2	**Driveway 1/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		3	0	3	7	0	10
EBL		0	0	0	0	0	0
EBT		491	29	520	12	5	537
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		582	35	617	3	5	625
WBR		11	1	12	9	0	21
North Leg							
	Approach	3	0	3	7	0	10
	Departure	11	1	12	9	0	21
	Total	14	1	15	16	0	31
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	593	36	629	12	5	646
	Departure	491	29	520	12	5	537
	Total	1,084	65	1,149	24	10	1,183
West Leg							
	Approach	491	29	520	12	5	537
	Departure	585	35	620	10	5	635
	Total	1,076	64	1,140	22	10	1,172
Total Approaches							
	Approach	1,087	65	1,152	31	10	1,193
	Departure	1,087	65	1,152	31	10	1,193
	Total	2,174	130	2,304	62	20	2,386

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
3	**Driveway 2/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		0	0	0	3	7	10
EBL		0	0	0	0	0	0
EBT		491	29	520	12	5	537
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		585	35	620	9	-5	624
WBR		0	0	0	37	18	55
North Leg							
	Approach	0	0	0	3	7	10
	Departure	0	0	0	37	18	55
	Total	0	0	0	40	25	65
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	585	35	620	46	13	679
	Departure	491	29	520	12	5	537
	Total	1,076	64	1,140	58	18	1,216
West Leg							
	Approach	491	29	520	12	5	537
	Departure	585	35	620	12	2	634
	Total	1,076	64	1,140	24	7	1,171
Total Approaches							
	Approach	1,076	64	1,140	61	25	1,226
	Departure	1,076	64	1,140	61	25	1,226
	Total	2,152	128	2,280	122	50	2,452

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
4	**Monte Vista Ave/N Claremont Blvd**						
NBL		21	1	22	0	0	22
NBT		410	25	435	3	0	438
NBR		1	0	1	0	0	1
SBL		3	0	3	0	0	3
SBT		533	32	565	11	0	576
SBR		289	17	306	1	0	307
EBL		145	9	154	14	2	170
EBT		0	0	0	0	0	0
EBR		16	1	17	0	0	17
WBL		1	0	1	0	0	1
WBT		1	0	1	0	0	1
WBR		1	0	1	0	0	1
North Leg							
	Approach	825	49	874	12	0	886
	Departure	556	34	590	17	2	609
	Total	1,381	83	1,464	29	2	1,495
South Leg							
	Approach	432	26	458	3	0	461
	Departure	550	33	583	11	0	594
	Total	982	59	1,041	14	0	1,055
East Leg							
	Approach	3	0	3	0	0	3
	Departure	4	0	4	0	0	4
	Total	7	0	7	0	0	7
West Leg							
	Approach	161	10	171	14	2	187
	Departure	311	18	329	1	0	330
	Total	472	28	500	15	2	517
Total Approaches							
	Approach	1,421	85	1,506	29	2	1,537
	Departure	1,421	85	1,506	29	2	1,537
	Total	2,842	170	3,012	58	4	3,074

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
5	**Monte Vista Ave/ Marylind Ave-Driveway 3**						
NBL		3	0	3	1	0	4
NBT		460	28	488	0	0	488
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		499	30	529	11	0	540
SBR		4	0	4	1	0	5
EBL		1	0	1	3	0	4
EBT		0	0	0	0	0	0
EBR		0	0	0	2	0	2
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	503	30	533	12	0	545
	Departure	461	28	489	3	0	492
	Total	964	58	1,022	15	0	1,037
South Leg							
	Approach	463	28	491	1	0	492
	Departure	499	30	529	13	0	542
	Total	962	58	1,020	14	0	1,034
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	1	0	1	5	0	6
	Departure	7	0	7	2	0	9
	Total	8	0	8	7	0	15
Total Approaches							
	Approach	967	58	1,025	18	0	1,043
	Departure	967	58	1,025	18	0	1,043
	Total	1,934	116	2,050	36	0	2,086

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Table C-2 - Opening Year Peak Hour Volume Summary

		AM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
6	**Monte Vista Ave/ Driveway 4**						
NBL		0	0	0	0	0	0
NBT		468	28	496	1	0	497
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		462	28	490	9	0	499
SBR		0	0	0	4	0	4
EBL		0	0	0	0	0	0
EBT		0	0	0	0	0	0
EBR		0	0	0	36	0	36
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	462	28	490	13	0	503
	Departure	468	28	496	1	0	497
	Total	930	56	986	14	0	1,000
South Leg							
	Approach	468	28	496	1	0	497
	Departure	462	28	490	45	0	535
	Total	930	56	986	46	0	1,032
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	0	0	0	36	0	36
	Departure	0	0	0	4	0	4
	Total	0	0	0	40	0	40
Total Approaches							
	Approach	930	56	986	50	0	1,036
	Departure	930	56	986	50	0	1,036
	Total	1,860	112	1,972	100	0	2,072

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Table C-2 - Opening Year Peak Hour Volume Summary

	AM Peak Hour					
	Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
7 Monte Vista Ave/E Foothill Blvd						
NBL	116	7	123	16	3	142
NBT	319	19	338	1	-3	336
NBR	64	4	68	0	-1	67
SBL	98	6	104	14	-1	117
SBT	343	21	364	25	-3	386
SBR	21	1	22	7	4	33
EBL	27	2	29	12	4	45
EBT	347	21	368	0	0	368
EBR	116	7	123	0	2	125
WBL	103	6	109	0	-1	108
WBT	456	27	483	10	0	493
WBR	125	8	133	0	-1	132
North Leg						
Approach	462	28	490	46	0	536
Departure	471	29	500	13	0	513
Total	933	57	990	59	0	1,049
South Leg						
Approach	499	30	529	17	-1	545
Departure	562	34	596	25	-2	619
Total	1,061	64	1,125	42	-3	1,164
East Leg						
Approach	684	41	725	10	-2	733
Departure	509	31	540	14	-2	552
Total	1,193	72	1,265	24	-4	1,285
West Leg						
Approach	490	30	520	12	6	538
Departure	593	35	628	33	7	668
Total	1,083	65	1,148	45	13	1,206
Total Approaches						
Approach	2,135	129	2,264	85	3	2,352
Departure	2,135	129	2,264	85	3	2,352
Total	4,270	258	4,528	170	6	4,704

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
1	**Claremont Blvd/Foothill Blvd**						
NBL		141	8	149	0	0	149
NBT		299	18	317	0	0	317
NBR		84	5	89	0	0	89
SBL		72	4	76	0	0	76
SBT		177	11	188	0	0	188
SBR		97	6	103	0	0	103
EBL		144	9	153	0	0	153
EBT		764	46	810	9	0	819
EBR		126	8	134	0	0	134
WBL		88	5	93	0	0	93
WBT		506	30	536	6	0	542
WBR		39	2	41	0	0	41
North Leg							
	Approach	346	21	367	0	0	367
	Departure	482	29	511	0	0	511
	Total	828	50	878	0	0	878
South Leg							
	Approach	524	31	555	0	0	555
	Departure	391	24	415	0	0	415
	Total	915	55	970	0	0	970
East Leg							
	Approach	633	37	670	6	0	676
	Departure	920	55	975	9	0	984
	Total	1,553	92	1,645	15	0	1,660
West Leg							
	Approach	1,034	63	1,097	9	0	1,106
	Departure	744	44	788	6	0	794
	Total	1,778	107	1,885	15	0	1,900
Total Approaches							
	Approach	2,537	152	2,689	15	0	2,704
	Departure	2,537	152	2,689	15	0	2,704
	Total	5,074	304	5,378	30	0	5,408

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
2	**Driveway 1/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		12	1	13	4	0	17
EBL		0	0	0	0	0	0
EBT		920	55	975	9	6	990
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		707	42	749	2	6	757
WBR		25	2	27	25	0	52
North Leg							
	Approach	12	1	13	4	0	17
	Departure	25	2	27	25	0	52
	Total	37	3	40	29	0	69
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	732	44	776	27	6	809
	Departure	920	55	975	9	6	990
	Total	1,652	99	1,751	36	12	1,799
West Leg							
	Approach	920	55	975	9	6	990
	Departure	719	43	762	6	6	774
	Total	1,639	98	1,737	15	12	1,764
Total Approaches							
	Approach	1,664	100	1,764	40	12	1,816
	Departure	1,664	100	1,764	40	12	1,816
	Total	3,328	200	3,528	80	24	3,632

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
3	**Driveway 2/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		0	0	0	2	8	10
EBL		0	0	0	0	0	0
EBT		920	55	975	9	6	990
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		719	43	762	25	-3	784
WBR		0	0	0	15	11	26
North Leg							
	Approach	0	0	0	2	8	10
	Departure	0	0	0	15	11	26
	Total	0	0	0	17	19	36
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	719	43	762	40	8	810
	Departure	920	55	975	9	6	990
	Total	1,639	98	1,737	49	14	1,800
West Leg							
	Approach	920	55	975	9	6	990
	Departure	719	43	762	27	5	794
	Total	1,639	98	1,737	36	11	1,784
Total Approaches							
	Approach	1,639	98	1,737	51	22	1,810
	Departure	1,639	98	1,737	51	22	1,810
	Total	3,278	196	3,474	102	44	3,620

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
4	**Monte Vista Ave/N Claremont Blvd**						
NBL		27	2	29	0	0	29
NBT		565	34	599	2	0	601
NBR		1	0	1	0	0	1
SBL		1	0	1	0	0	1
SBT		569	34	603	15	0	618
SBR		211	13	224	2	0	226
EBL		285	17	302	8	1	311
EBT		3	0	3	0	0	3
EBR		28	2	30	0	0	30
WBL		2	0	2	0	0	2
WBT		5	0	5	0	0	5
WBR		1	0	1	0	0	1
North Leg							
	Approach	781	47	828	17	0	845
	Departure	851	51	902	10	1	913
	Total	1,632	98	1,730	27	1	1,758
South Leg							
	Approach	593	36	629	2	0	631
	Departure	599	36	635	15	0	650
	Total	1,192	72	1,264	17	0	1,281
East Leg							
	Approach	8	0	8	0	0	8
	Departure	5	0	5	0	0	5
	Total	13	0	13	0	0	13
West Leg							
	Approach	316	19	335	8	1	344
	Departure	243	15	258	2	0	260
	Total	559	34	593	10	1	604
Total Approaches							
	Approach	1,698	102	1,800	27	1	1,828
	Departure	1,698	102	1,800	27	1	1,828
	Total	3,396	204	3,600	54	2	3,656

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
5	**Monte Vista Ave/ Marylind Ave-Driveway 3**						
NBL		2	0	2	2	0	4
NBT		538	32	570	0	0	570
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		621	37	658	13	0	671
SBR		0	0	0	2	0	2
EBL		9	1	10	2	0	12
EBT		0	0	0	0	0	0
EBR		5	0	5	1	0	6
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	621	37	658	15	0	673
	Departure	547	33	580	2	0	582
	Total	1,168	70	1,238	17	0	1,255
South Leg							
	Approach	540	32	572	2	0	574
	Departure	626	37	663	14	0	677
	Total	1,166	69	1,235	16	0	1,251
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	14	1	15	3	0	18
	Departure	2	0	2	4	0	6
	Total	16	1	17	7	0	24
Total Approaches							
	Approach	1,175	70	1,245	20	0	1,265
	Departure	1,175	70	1,245	20	0	1,265
	Total	2,350	140	2,490	40	0	2,530

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
6	**Monte Vista Ave/ Driveway 4**						
NBL		0	0	0	0	0	0
NBT		531	32	563	2	0	565
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		660	40	700	4	0	704
SBR		0	0	0	10	0	10
EBL		0	0	0	0	0	0
EBT		0	0	0	0	0	0
EBR		0	0	0	18	0	18
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	660	40	700	14	0	714
	Departure	531	32	563	2	0	565
	Total	1,191	72	1,263	16	0	1,279
South Leg							
	Approach	531	32	563	2	0	565
	Departure	660	40	700	22	0	722
	Total	1,191	72	1,263	24	0	1,287
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	0	0	0	18	0	18
	Departure	0	0	0	10	0	10
	Total	0	0	0	28	0	28
Total Approaches							
	Approach	1,191	72	1,263	34	0	1,297
	Departure	1,191	72	1,263	34	0	1,297
	Total	2,382	144	2,526	68	0	2,594

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Table C-2 - Opening Year Peak Hour Volume Summary

		PM Peak Hour					
		Existing (2019) Volumes	2019-2021 Growth	OY Without Project	Project Trips	Pass-By Trips	OY With Project
7	**Monte Vista Ave/E Foothill Blvd**						
NBL		182	11	193	19	2	214
NBT		347	21	368	2	-1	369
NBR		114	7	121	0	0	121
SBL		156	9	165	6	-1	170
SBT		454	27	481	13	-2	492
SBR		50	3	53	3	3	59
EBL		51	3	54	9	2	65
EBT		736	44	780	0	2	782
EBR		133	8	141	0	3	144
WBL		140	8	148	0	0	148
WBT		501	30	531	11	0	542
WBR		133	8	141	0	0	141
North Leg							
	Approach	660	39	699	22	0	721
	Departure	531	32	563	11	1	575
	Total	1,191	71	1,262	33	1	1,296
South Leg							
	Approach	643	39	682	21	1	704
	Departure	727	43	770	13	1	784
	Total	1,370	82	1,452	34	2	1,488
East Leg							
	Approach	774	46	820	11	0	831
	Departure	1,006	60	1,066	6	1	1,073
	Total	1,780	106	1,886	17	1	1,904
West Leg							
	Approach	920	55	975	9	7	991
	Departure	733	44	777	33	5	815
	Total	1,653	99	1,752	42	12	1,806
Total Approaches							
	Approach	2,997	179	3,176	63	8	3,247
	Departure	2,997	179	3,176	63	8	3,247
	Total	5,994	358	6,352	126	16	6,494

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Table C-3- Cumulative Peak Hour Volume Summary

	AM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
1 Claremont Blvd/Foothill Blvd						
NBL	191	9	200	0	0	200
NBT	192	4	196	0	0	196
NBR	36	0	36	0	0	36
SBL	59	0	59	0	0	59
SBT	322	10	332	0	0	332
SBR	86	20	106	0	0	106
EBL	159	12	171	0	0	171
EBT	425	118	543	12	0	555
EBR	117	4	121	0	0	121
WBL	107	2	109	0	0	109
WBT	696	136	832	11	0	843
WBR	43	0	43	0	0	43
North Leg						
Approach	467	30	497	0	0	497
Departure	394	16	410	0	0	410
Total	861	46	907	0	0	907
South Leg						
Approach	419	13	432	0	0	432
Departure	546	16	562	0	0	562
Total	965	29	994	0	0	994
East Leg						
Approach	846	138	984	11	0	995
Departure	520	118	638	12	0	650
Total	1,366	256	1,622	23	0	1,645
West Leg						
Approach	701	134	835	12	0	847
Departure	973	165	1,138	11	0	1,149
Total	1,674	299	1,973	23	0	1,996
Total Approaches						
Approach	2,433	315	2,748	23	0	2,771
Departure	2,433	315	2,748	23	0	2,771
Total	4,866	630	5,496	46	0	5,542

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
2	**Driveway 1/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		3	0	3	7	0	10
EBL		0	0	0	0	0	0
EBT		520	118	638	12	5	655
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		617	138	755	3	5	763
WBR		12	0	12	9	0	21
North Leg							
	Approach	3	0	3	7	0	10
	Departure	12	0	12	9	0	21
	Total	15	0	15	16	0	31
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	629	138	767	12	5	784
	Departure	520	118	638	12	5	655
	Total	1,149	256	1,405	24	10	1,439
West Leg							
	Approach	520	118	638	12	5	655
	Departure	620	138	758	10	5	773
	Total	1,140	256	1,396	22	10	1,428
Total Approaches							
	Approach	1,152	256	1,408	31	10	1,449
	Departure	1,152	256	1,408	31	10	1,449
	Total	2,304	512	2,816	62	20	2,898

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
3	**Driveway 2/E Foothill Blvd**						
NBL		0	0	0	0	0	0
NBT		0	0	0	0	0	0
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		0	0	0	0	0	0
SBR		0	0	0	3	7	10
EBL		0	0	0	0	0	0
EBT		520	118	638	12	5	655
EBR		0	0	0	0	0	0
WBL		0	0	0	0	0	0
WBT		620	138	758	9	-5	762
WBR		0	0	0	37	18	55
North Leg							
	Approach	0	0	0	3	7	10
	Departure	0	0	0	37	18	55
	Total	0	0	0	40	25	65
South Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
East Leg							
	Approach	620	138	758	46	13	817
	Departure	520	118	638	12	5	655
	Total	1,140	256	1,396	58	18	1,472
West Leg							
	Approach	520	118	638	12	5	655
	Departure	620	138	758	12	2	772
	Total	1,140	256	1,396	24	7	1,427
Total Approaches							
	Approach	1,140	256	1,396	61	25	1,482
	Departure	1,140	256	1,396	61	25	1,482
	Total	2,280	512	2,792	122	50	2,964

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
4	**Monte Vista Ave/N Claremont Blvd**						
NBL		22	0	22	0	0	22
NBT		435	128	563	3	0	566
NBR		1	0	1	0	0	1
SBL		3	0	3	0	0	3
SBT		565	201	766	11	0	777
SBR		306	30	336	1	0	337
EBL		154	16	170	14	2	186
EBT		0	0	0	0	0	0
EBR		17	0	17	0	0	17
WBL		1	0	1	0	0	1
WBT		1	0	1	0	0	1
WBR		1	0	1	0	0	1
North Leg							
	Approach	874	231	1,105	12	0	1,117
	Departure	590	144	734	17	2	753
	Total	1,464	375	1,839	29	2	1,870
South Leg							
	Approach	458	128	586	3	0	589
	Departure	583	201	784	11	0	795
	Total	1,041	329	1,370	14	0	1,384
East Leg							
	Approach	3	0	3	0	0	3
	Departure	4	0	4	0	0	4
	Total	7	0	7	0	0	7
West Leg							
	Approach	171	16	187	14	2	203
	Departure	329	30	359	1	0	360
	Total	500	46	546	15	2	563
Total Approaches							
	Approach	1,506	375	1,881	29	2	1,912
	Departure	1,506	375	1,881	29	2	1,912
	Total	3,012	750	3,762	58	4	3,824

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
5	**Monte Vista Ave/ Marylind Ave-Driveway 3**						
NBL		3	0	3	1	0	4
NBT		488	128	616	0	0	616
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		529	201	730	11	0	741
SBR		4	0	4	1	0	5
EBL		1	0	1	3	0	4
EBT		0	0	0	0	0	0
EBR		0	0	0	2	0	2
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	533	201	734	12	0	746
	Departure	489	128	617	3	0	620
	Total	1,022	329	1,351	15	0	1,366
South Leg							
	Approach	491	128	619	1	0	620
	Departure	529	201	730	13	0	743
	Total	1,020	329	1,349	14	0	1,363
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	1	0	1	5	0	6
	Departure	7	0	7	2	0	9
	Total	8	0	8	7	0	15
Total Approaches							
	Approach	1,025	329	1,354	18	0	1,372
	Departure	1,025	329	1,354	18	0	1,372
	Total	2,050	658	2,708	36	0	2,744

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
6	**Monte Vista Ave/ Driveway 4**						
NBL		0	0	0	0	0	0
NBT		496	128	624	1	0	625
NBR		0	0	0	0	0	0
SBL		0	0	0	0	0	0
SBT		490	201	691	9	0	700
SBR		0	0	0	4	0	4
EBL		0	0	0	0	0	0
EBT		0	0	0	0	0	0
EBR		0	0	0	36	0	36
WBL		0	0	0	0	0	0
WBT		0	0	0	0	0	0
WBR		0	0	0	0	0	0
North Leg							
	Approach	490	201	691	13	0	704
	Departure	496	128	624	1	0	625
	Total	986	329	1,315	14	0	1,329
South Leg							
	Approach	496	128	624	1	0	625
	Departure	490	201	691	45	0	736
	Total	986	329	1,315	46	0	1,361
East Leg							
	Approach	0	0	0	0	0	0
	Departure	0	0	0	0	0	0
	Total	0	0	0	0	0	0
West Leg							
	Approach	0	0	0	36	0	36
	Departure	0	0	0	4	0	4
	Total	0	0	0	40	0	40
Total Approaches							
	Approach	986	329	1,315	50	0	1,365
	Departure	986	329	1,315	50	0	1,365
	Total	1,972	658	2,630	100	0	2,730

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Table C-3- Cumulative Peak Hour Volume Summary

		AM Peak Hour					
		Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
7	**Monte Vista Ave/E Foothill Blvd**						
NBL		123	81	204	16	3	223
NBT		338	126	464	1	-3	462
NBR		68	30	98	0	-1	97
SBL		104	9	113	14	-1	126
SBT		364	214	578	25	-3	600
SBR		22	1	23	7	4	34
EBL		29	0	29	12	4	45
EBT		368	31	399	0	0	399
EBR		123	97	220	0	2	222
WBL		109	73	182	0	-1	181
WBT		483	73	556	10	0	566
WBR		133	26	159	0	-1	158
North Leg							
	Approach	490	224	714	46	0	760
	Departure	500	152	652	13	0	665
	Total	990	376	1,366	59	0	1,425
South Leg							
	Approach	529	237	766	17	-1	782
	Departure	596	384	980	25	-2	1,003
	Total	1,125	621	1,746	42	-3	1,785
East Leg							
	Approach	725	172	897	10	-2	905
	Departure	540	70	610	14	-2	622
	Total	1,265	242	1,507	24	-4	1,527
West Leg							
	Approach	520	128	648	12	6	666
	Departure	628	155	783	33	7	823
	Total	1,148	283	1,431	45	13	1,489
Total Approaches							
	Approach	2,264	761	3,025	85	3	3,113
	Departure	2,264	761	3,025	85	3	3,113
	Total	4,528	1,522	6,050	170	6	6,226

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
1	**Claremont Blvd/Foothill Blvd**					
NBL	149	29	178	0	0	178
NBT	317	41	358	0	0	358
NBR	89	26	115	0	0	115
SBL	76	0	76	0	0	76
SBT	188	7	195	0	0	195
SBR	103	16	119	0	0	119
EBL	153	21	174	0	0	174
EBT	810	187	997	9	0	1,006
EBR	134	9	143	0	0	143
WBL	93	2	95	0	0	95
WBT	536	131	667	6	0	673
WBR	41	0	41	0	0	41
North Leg						
	367	23	390	0	0	390
	511	62	573	0	0	573
	878	85	963	0	0	963
South Leg						
	555	96	651	0	0	651
	415	18	433	0	0	433
	970	114	1,084	0	0	1,084
East Leg						
	670	133	803	6	0	809
	975	213	1,188	9	0	1,197
	1,645	346	1,991	15	0	2,006
West Leg						
	1,097	217	1,314	9	0	1,323
	788	176	964	6	0	970
	1,885	393	2,278	15	0	2,293
Total Approaches						
	2,689	469	3,158	15	0	3,173
	2,689	469	3,158	15	0	3,173
	5,378	938	6,316	30	0	6,346

LSA

Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
2	**Driveway 1/E Foothill Blvd**					
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	13	0	13	4	0	17
EBL	0	0	0	0	0	0
EBT	975	213	1,188	9	6	1,203
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	749	133	882	2	6	890
WBR	27	0	27	25	0	52
North Leg						
	13	0	13	4	0	17
	27	0	27	25	0	52
	40	0	40	29	0	69
South Leg						
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
East Leg						
	776	133	909	27	6	942
	975	213	1,188	9	6	1,203
	1,751	346	2,097	36	12	2,145
West Leg						
	975	213	1,188	9	6	1,203
	762	133	895	6	6	907
	1,737	346	2,083	15	12	2,110
Total Approaches						
	1,764	346	2,110	40	12	2,162
	1,764	346	2,110	40	12	2,162
	3,528	692	4,220	80	24	4,324

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
3	**Driveway 2/E Foothill Blvd**					
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	2	8	10
EBL	0	0	0	0	0	0
EBT	975	213	1,188	9	6	1,203
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	762	133	895	25	-3	917
WBR	0	0	0	15	11	26
North Leg						
	0	0	0	2	8	10
	0	0	0	15	11	26
	0	0	0	17	19	36
South Leg						
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
East Leg						
	762	133	895	40	8	943
	975	213	1,188	9	6	1,203
	1,737	346	2,083	49	14	2,146
West Leg						
	975	213	1,188	9	6	1,203
	762	133	895	27	5	927
	1,737	346	2,083	36	11	2,130
Total Approaches						
	1,737	346	2,083	51	22	2,156
	1,737	346	2,083	51	22	2,156
	3,474	692	4,166	102	44	4,312

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
4	**Monte Vista Ave/N Claremont Blvd**					
NBL	29	0	29	0	0	29
NBT	599	202	801	2	0	803
NBR	1	0	1	0	0	1
SBL	1	0	1	0	0	1
SBT	603	220	823	15	0	838
SBR	224	23	247	2	0	249
EBL	302	62	364	8	1	373
EBT	3	0	3	0	0	3
EBR	30	0	30	0	0	30
WBL	2	0	2	0	0	2
WBT	5	0	5	0	0	5
WBR	1	0	1	0	0	1
North Leg						
	828	243	1,071	17	0	1,088
	902	264	1,166	10	1	1,177
	1,730	507	2,237	27	1	2,265
South Leg						
	629	202	831	2	0	833
	635	220	855	15	0	870
	1,264	422	1,686	17	0	1,703
East Leg						
	8	0	8	0	0	8
	5	0	5	0	0	5
	13	0	13	0	0	13
West Leg						
	335	62	397	8	1	406
	258	23	281	2	0	283
	593	85	678	10	1	689
Total Approaches						
	1,800	507	2,307	27	1	2,335
	1,800	507	2,307	27	1	2,335
	3,600	1,014	4,614	54	2	4,670

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
5	**Monte Vista Ave/ Marylind Ave-Driveway 3**					
NBL	2	0	2	2	0	4
NBT	570	202	772	0	0	772
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	658	220	878	13	0	891
SBR	0	0	0	2	0	2
EBL	10	0	10	2	0	12
EBT	0	0	0	0	0	0
EBR	5	0	5	1	0	6
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
	658	220	878	15	0	893
	580	202	782	2	0	784
	1,238	422	1,660	17	0	1,677
South Leg						
	572	202	774	2	0	776
	663	220	883	14	0	897
	1,235	422	1,657	16	0	1,673
East Leg						
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
West Leg						
	15	0	15	3	0	18
	2	0	2	4	0	6
	17	0	17	7	0	24
Total Approaches						
	1,245	422	1,667	20	0	1,687
	1,245	422	1,667	20	0	1,687
	2,490	844	3,334	40	0	3,374

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
6	**Monte Vista Ave/ Driveway 4**					
NBL	0	0	0	0	0	0
NBT	563	202	765	2	0	767
NBR	0	0	0	0	0	0
SBL	0	0	0	0	0	0
SBT	700	220	920	4	0	924
SBR	0	0	0	10	0	10
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	18	0	18
WBL	0	0	0	0	0	0
WBT	0	0	0	0	0	0
WBR	0	0	0	0	0	0
North Leg						
	700	220	920	14	0	934
	563	202	765	2	0	767
	1,263	422	1,685	16	0	1,701
South Leg						
	563	202	765	2	0	767
	700	220	920	22	0	942
	1,263	422	1,685	24	0	1,709
East Leg						
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0
West Leg						
	0	0	0	18	0	18
	0	0	0	10	0	10
	0	0	0	28	0	28
Total Approaches						
	1,263	422	1,685	34	0	1,719
	1,263	422	1,685	34	0	1,719
	2,526	844	3,370	68	0	3,438

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Table C-3- Cumulative Peak Hour Volume Summary

	PM Peak Hour					
	Opening Year 2021	Cumulative Project Trips	Cumulative Without Project	Project Trips	Pass-By Trips	Cumulative With Project
7	**Monte Vista Ave/E Foothill Blvd**					
NBL	193	93	286	19	2	307
NBT	368	204	572	2	-1	573
NBR	121	56	177	0	0	177
SBL	165	30	195	6	-1	200
SBT	481	216	697	13	-2	708
SBR	53	1	54	3	3	60
EBL	54	9	63	9	2	74
EBT	780	94	874	0	2	876
EBR	141	123	264	0	3	267
WBL	148	69	217	0	0	217
WBT	531	54	585	11	0	596
WBR	141	18	159	0	0	159
North Leg						
	699	247	946	22	0	968
	563	231	794	11	1	806
	1,262	478	1,740	33	1	1,774
South Leg						
	682	353	1,035	21	1	1,057
	770	408	1,178	13	1	1,192
	1,452	761	2,213	34	2	2,249
East Leg						
	820	141	961	11	0	972
	1,066	180	1,246	6	1	1,253
	1,886	321	2,207	17	1	2,225
West Leg						
	975	226	1,201	9	7	1,217
	777	148	925	33	5	963
	1,752	374	2,126	42	12	2,180
Total Approaches						
	3,176	967	4,143	63	8	4,214
	3,176	967	4,143	63	8	4,214
	6,352	1,934	8,286	126	16	8,428

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

	AM Peak Hour			
	Build-out (2040) Without Project	**Project Trips**	**Pass-by Trips**	**Build-out (2040) With Project**
1 Claremont Blvd/Foothill Blvd				
NBL	201	0	0	201
NBT	230	0	0	230
NBR	55	0	0	55
SBL	67	0	0	67
SBT	349	0	0	349
SBR	111	0	0	111
EBL	180	0	0	180
EBT	549	12	0	561
EBR	127	0	0	127
WBL	114	0	0	114
WBT	874	11	0	885
WBR	45	0	0	45
North Leg				
Approach	527	0	0	527
Departure	455	0	0	455
Total	982	0	0	982
South Leg				
Approach	486	0	0	486
Departure	590	0	0	590
Total	1,076	0	0	1,076
East Leg				
Approach	1,033	11	0	1,044
Departure	671	12	0	683
Total	1,704	23	0	1,727
West Leg				
Approach	856	12	0	868
Departure	1,186	11	0	1,197
Total	2,042	23	0	2,065
Total Approaches				
Approach	2,902	23	0	2,925
Departure	2,902	23	0	2,925
Total	5,804	46	0	5,850

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

	AM Peak Hour			
	Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
2 Driveway 1/E Foothill Blvd				
NBL	0	0	0	0
NBT	0	0	0	0
NBR	0	0	0	0
SBL	0	0	0	0
SBT	0	0	0	0
SBR	0	7	0	7
EBL	0	0	0	0
EBT	671	12	5	688
EBR	0	0	0	0
WBL	0	0	0	0
WBT	822	3	5	830
WBR	0	9	0	9
North Leg				
Approach	0	7	0	7
Departure	0	9	0	9
Total	0	16	0	16
South Leg				
Approach	0	0	0	0
Departure	0	0	0	0
Total	0	0	0	0
East Leg				
Approach	822	12	5	839
Departure	671	12	5	688
Total	1,493	24	10	1,527
West Leg				
Approach	671	12	5	688
Departure	822	10	5	837
Total	1,493	22	10	1,525
Total Approaches				
Approach	1,493	31	10	1,534
Departure	1,493	31	10	1,534
Total	2,986	62	20	3,068

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

	AM Peak Hour			
	Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
3 Driveway 2/E Foothill Blvd				
NBL	0	0	0	0
NBT	0	0	0	0
NBR	0	0	0	0
SBL	0	0	0	0
SBT	0	0	0	0
SBR	0	3	7	10
EBL	0	0	0	0
EBT	671	12	5	688
EBR	0	0	0	0
WBL	0	0	0	0
WBT	822	9	-5	826
WBR	0	37	18	55
North Leg				
Approach	0	3	7	10
Departure	0	37	18	55
Total	0	40	25	65
South Leg				
Approach	0	0	0	0
Departure	0	0	0	0
Total	0	0	0	0
East Leg				
Approach	822	46	13	881
Departure	671	12	5	688
Total	1,493	58	18	1,569
West Leg				
Approach	671	12	5	688
Departure	822	12	2	836
Total	1,493	24	7	1,524
Total Approaches				
Approach	1,493	61	25	1,579
Departure	1,493	61	25	1,579
Total	2,986	122	50	3,158

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

		AM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
4	**Monte Vista Ave/N Claremont Blvd**				
NBL		23	0	0	23
NBT		591	3	0	594
NBR		1	0	0	1
SBL		3	0	0	3
SBT		804	11	0	815
SBR		353	1	0	354
EBL		195	14	2	211
EBT		0	0	0	0
EBR		22	0	0	22
WBL		1	0	0	1
WBT		1	0	0	1
WBR		1	0	0	1
North Leg					
	Approach	1,160	12	0	1,172
	Departure	787	17	2	806
	Total	1,947	29	2	1,978
South Leg					
	Approach	615	3	0	618
	Departure	827	11	0	838
	Total	1,442	14	0	1,456
East Leg					
	Approach	3	0	0	3
	Departure	4	0	0	4
	Total	7	0	0	7
West Leg					
	Approach	217	14	2	233
	Departure	377	1	0	378
	Total	594	15	2	611
Total Approaches					
	Approach	1,995	29	2	2,026
	Departure	1,995	29	2	2,026
	Total	3,990	58	4	4,052

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

		AM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
5	**Monte Vista Ave/ Marylind Ave-Driveway 3**				
NBL		3	1	0	4
NBT		647	0	0	647
NBR		0	0	0	0
SBL		0	0	0	0
SBT		767	11	0	778
SBR		4	1	0	5
EBL		1	3	0	4
EBT		0	0	0	0
EBR		0	2	0	2
WBL		0	0	0	0
WBT		0	0	0	0
WBR		0	0	0	0
North Leg					
	Approach	771	12	0	783
	Departure	648	3	0	651
	Total	1,419	15	0	1,434
South Leg					
	Approach	650	1	0	651
	Departure	767	13	0	780
	Total	1,417	14	0	1,431
East Leg					
	Approach	0	0	0	0
	Departure	0	0	0	0
	Total	0	0	0	0
West Leg					
	Approach	1	5	0	6
	Departure	7	2	0	9
	Total	8	7	0	15
Total Approaches					
	Approach	1,422	18	0	1,440
	Departure	1,422	18	0	1,440
	Total	2,844	36	0	2,880

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

		AM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
6	**Monte Vista Ave/ Driveway 4**				
NBL		0	0	0	0
NBT		655	1	0	656
NBR		0	0	0	0
SBL		0	0	0	0
SBT		726	9	0	735
SBR		0	4	0	4
EBL		0	0	0	0
EBT		0	0	0	0
EBR		0	36	0	36
WBL		0	0	0	0
WBT		0	0	0	0
WBR		0	0	0	0
North Leg					
	Approach	726	13	0	739
	Departure	655	1	0	656
	Total	1,381	14	0	1,395
South Leg					
	Approach	655	1	0	656
	Departure	726	45	0	771
	Total	1,381	46	0	1,427
East Leg					
	Approach	0	0	0	0
	Departure	0	0	0	0
	Total	0	0	0	0
West Leg					
	Approach	0	36	0	36
	Departure	0	4	0	4
	Total	0	40	0	40
Total Approaches					
	Approach	1,381	50	0	1,431
	Departure	1,381	50	0	1,431
	Total	2,762	100	0	2,862

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

		AM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
7	**Monte Vista Ave/E Foothill Blvd**				
NBL		214	16	3	233
NBT		487	1	-3	485
NBR		103	0	-1	102
SBL		119	14	-1	132
SBT		607	25	-3	629
SBR		24	7	4	35
EBL		32	12	0	44
EBT		445	0	0	445
EBR		231	0	2	233
WBL		191	0	-1	190
WBT		584	10	0	594
WBR		167	0	-1	166
North Leg					
	Approach	750	46	0	796
	Departure	686	13	-4	695
	Total	1,436	59	-4	1,491
South Leg					
	Approach	804	17	-1	820
	Departure	1,029	25	-2	1,052
	Total	1,833	42	-3	1,872
East Leg					
	Approach	942	10	-2	950
	Departure	667	14	-2	679
	Total	1,609	24	-4	1,629
West Leg					
	Approach	708	12	2	722
	Departure	822	33	7	862
	Total	1,530	45	9	1,584
Total Approaches					
	Approach	3,204	85	-1	3,288
	Departure	3,204	85	-1	3,288
	Total	6,408	170	-2	6,576

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Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
1	**Claremont Blvd/Foothill Blvd**				
NBL		187	0	0	187
NBT		376	0	0	376
NBR		121	0	0	121
SBL		80	0	0	80
SBT		223	0	0	223
SBR		125	0	0	125
EBL		183	0	0	183
EBT		1,047	9	0	1,056
EBR		150	0	0	150
WBL		133	0	0	133
WBT		700	6	0	706
WBR		46	0	0	46
North Leg					
	Approach	428	0	0	428
	Departure	605	0	0	605
	Total	1,033	0	0	1,033
South Leg					
	Approach	684	0	0	684
	Departure	506	0	0	506
	Total	1,190	0	0	1,190
East Leg					
	Approach	879	6	0	885
	Departure	1,248	9	0	1,257
	Total	2,127	15	0	2,142
West Leg					
	Approach	1,380	9	0	1,389
	Departure	1,012	6	0	1,018
	Total	2,392	15	0	2,407
Total Approaches					
	Approach	3,371	15	0	3,386
	Departure	3,371	15	0	3,386
	Total	6,742	30	0	6,772

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
2	**Driveway 1/E Foothill Blvd**				
NBL		0	0	0	0
NBT		0	0	0	0
NBR		0	0	0	0
SBL		0	0	0	0
SBT		0	0	0	0
SBR		0	4	0	4
EBL		0	0	0	0
EBT		1,247	9	6	1,262
EBR		0	0	0	0
WBL		0	0	0	0
WBT		966	2	6	974
WBR		0	25	0	25
North Leg					
	Approach	0	4	0	4
	Departure	0	25	0	25
	Total	0	29	0	29
South Leg					
	Approach	0	0	0	0
	Departure	0	0	0	0
	Total	0	0	0	0
East Leg					
	Approach	966	27	6	999
	Departure	1,247	9	6	1,262
	Total	2,213	36	12	2,261
West Leg					
	Approach	1,247	9	6	1,262
	Departure	966	6	6	978
	Total	2,213	15	12	2,240
Total Approaches					
	Approach	2,213	40	12	2,265
	Departure	2,213	40	12	2,265
	Total	4,426	80	24	4,530

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
3	**Driveway 2/E Foothill Blvd**				
NBL		0	0	0	0
NBT		0	0	0	0
NBR		0	0	0	0
SBL		0	0	0	0
SBT		0	0	0	0
SBR		0	2	8	10
EBL		0	0	0	0
EBT		1,247	9	6	1,262
EBR		0	0	0	0
WBL		0	0	0	0
WBT		966	25	-3	988
WBR		0	15	11	26
North Leg					
	Approach	0	2	8	10
	Departure	0	15	11	26
	Total	0	17	19	36
South Leg					
	Approach	0	0	0	0
	Departure	0	0	0	0
	Total	0	0	0	0
East Leg					
	Approach	966	40	8	1,014
	Departure	1,247	9	6	1,262
	Total	2,213	49	14	2,276
West Leg					
	Approach	1,247	9	6	1,262
	Departure	966	27	5	998
	Total	2,213	36	11	2,260
Total Approaches					
	Approach	2,213	51	22	2,286
	Departure	2,213	51	22	2,286
	Total	4,426	102	44	4,572

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
4	**Monte Vista Ave/N Claremont Blvd**				
NBL		41	0	0	41
NBT		841	2	0	843
NBR		1	0	0	1
SBL		1	0	0	1
SBT		864	15	0	879
SBR		259	2	0	261
EBL		382	8	1	391
EBT		3	0	0	3
EBR		32	0	0	32
WBL		2	0	0	2
WBT		6	0	0	6
WBR		1	0	0	1
North Leg					
	Approach	1,124	17	0	1,141
	Departure	1,224	10	1	1,235
	Total	2,348	27	1	2,376
South Leg					
	Approach	883	2	0	885
	Departure	898	15	0	913
	Total	1,781	17	0	1,798
East Leg					
	Approach	9	0	0	9
	Departure	5	0	0	5
	Total	14	0	0	14
West Leg					
	Approach	417	8	1	426
	Departure	306	2	0	308
	Total	723	10	1	734
Total Approaches					
	Approach	2,433	27	1	2,461
	Departure	2,433	27	1	2,461
	Total	4,866	54	2	4,922

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

	PM Peak Hour			
	Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
5 Monte Vista Ave/ Marylind Ave-Driveway 3				
NBL	2	2	0	4
NBT	811	0	0	811
NBR	0	0	0	0
SBL	0	0	0	0
SBT	922	13	0	935
SBR	0	2	0	2
EBL	11	2	0	13
EBT	0	0	0	0
EBR	5	1	0	6
WBL	0	0	0	0
WBT	0	0	0	0
WBR	0	0	0	0
North Leg				
Approach	922	15	0	937
Departure	822	2	0	824
Total	1,744	17	0	1,761
South Leg				
Approach	813	2	0	815
Departure	927	14	0	941
Total	1,740	16	0	1,756
East Leg				
Approach	0	0	0	0
Departure	0	0	0	0
Total	0	0	0	0
West Leg				
Approach	16	3	0	19
Departure	2	4	0	6
Total	18	7	0	25
Total Approaches				
Approach	1,751	20	0	1,771
Departure	1,751	20	0	1,771
Total	3,502	40	0	3,542

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
6	**Monte Vista Ave/ Driveway 4**				
NBL		0	0	0	0
NBT		803	2	0	805
NBR		0	0	0	0
SBL		0	0	0	0
SBT		966	4	0	970
SBR		0	10	0	10
EBL		0	0	0	0
EBT		0	0	0	0
EBR		0	18	0	18
WBL		0	0	0	0
WBT		0	0	0	0
WBR		0	0	0	0
North Leg					
	Approach	966	14	0	980
	Departure	803	2	0	805
	Total	1,769	16	0	1,785
South Leg					
	Approach	803	2	0	805
	Departure	966	22	0	988
	Total	1,769	24	0	1,793
East Leg					
	Approach	0	0	0	0
	Departure	0	0	0	0
	Total	0	0	0	0
West Leg					
	Approach	0	18	0	18
	Departure	0	10	0	10
	Total	0	28	0	28
Total Approaches					
	Approach	1,769	34	0	1,803
	Departure	1,769	34	0	1,803
	Total	3,538	68	0	3,606

LSA

Table C-4 - Build-out (2040) Peak Hour Volume Summary

		PM Peak Hour			
		Build-out (2040) Without Project	Project Trips	Pass-by Trips	Build-out (2040) With Project
7	**Monte Vista Ave/E Foothill Blvd**				
NBL		300	19	2	321
NBT		601	2	-1	602
NBR		186	0	0	186
SBL		205	6	-1	210
SBT		732	13	-2	743
SBR		57	3	3	63
EBL		66	9	0	75
EBT		918	0	2	920
EBR		277	0	3	280
WBL		228	0	0	228
WBT		609	11	0	620
WBR		167	0	0	167
North Leg					
	Approach	994	22	0	1,016
	Departure	834	11	-1	844
	Total	1,828	33	-1	1,860
South Leg					
	Approach	1,087	21	1	1,109
	Departure	1,237	13	1	1,251
	Total	2,324	34	2	2,360
East Leg					
	Approach	1,004	11	0	1,015
	Departure	1,309	6	1	1,316
	Total	2,313	17	1	2,331
West Leg					
	Approach	1,261	9	5	1,275
	Departure	966	33	5	1,004
	Total	2,227	42	10	2,279
Total Approaches					
	Approach	4,346	63	6	4,415
	Departure	4,346	63	6	4,415
	Total	8,692	126	12	8,830

APPENDIX D:

LOS ANGELES COUNTY CONGESTION MANAGEMENT PROGRAM (2010) GROWTH FACTORS

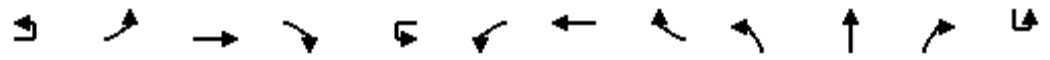
Exhibit D-1

GENERAL TRAFFIC VOLUME GROWTH FACTORS

RSA	Representative City/Place	2010	2015	2020	2025	2030	2035
7	Agoura Hills	1.000	1.020	1.041	1.052	1.063	1.075
8	Santa Clarita	1.000	1.145	1.291	1.348	1.405	1.461
9	Lancaster	1.000	1.214	1.427	1.676	1.924	2.172
10	Palmdale	1.000	1.134	1.267	1.363	1.458	1.553
11	Angeles Forest	1.000	1.151	1.301	1.394	1.487	1.580
12	West S.F. Valley	1.000	1.027	1.054	1.068	1.083	1.097
13	Burbank	1.000	1.024	1.049	1.063	1.077	1.092
14	Sylmar	1.000	1.024	1.049	1.071	1.093	1.114
15	Malibu	1.000	1.027	1.054	1.075	1.096	1.117
16	Santa Monica	1.000	1.014	1.028	1.038	1.049	1.059
17	West/Central L.A.	1.000	1.007	1.014	1.024	1.034	1.044
18	South Bay/LAX	1.000	1.013	1.026	1.035	1.044	1.053
19	Palos Verdes	1.000	1.025	1.051	1.061	1.071	1.081
20	Long Beach	1.000	1.076	1.152	1.160	1.168	1.177
21	Vernon	1.000	1.073	1.146	1.158	1.170	1.182
22	Downey	1.000	1.052	1.104	1.116	1.127	1.139
23	Downtown L.A.	1.000	1.009	1.018	1.030	1.042	1.054
24	Glendale	1.000	1.014	1.027	1.041	1.055	1.068
25	Pasadena	1.000	1.041	1.082	1.098	1.115	1.131
26	West Covina	1.000	1.023	1.046	1.066	1.086	1.106
27	Pomona	1.000	1.081	1.161	1.190	1.219	1.248

APPENDIX E:

LEVEL OF SERVICE WORKSHEETS



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	39	150	401	110	8	101	657	41	180	181	34	1
Future Volume (veh/h)	39	150	401	110	8	101	657	41	180	181	34	1
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1841	1841	1841	1856	1856	1856	
Adj Flow Rate, veh/h		172	461	126		116	755	47	207	208	39	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		3	3	3		4	4	4	3	3	3	
Cap, veh/h		209	1053	470		147	925	412	280	1103	203	
Arrive On Green		0.12	0.30	0.30		0.08	0.26	0.26	0.08	0.37	0.37	
Sat Flow, veh/h		1767	3526	1572		1753	3497	1560	3428	2972	548	
Grp Volume(v), veh/h		172	461	126		116	755	47	207	122	125	
Grp Sat Flow(s),veh/h/ln		1767	1763	1572		1753	1749	1560	1714	1763	1757	
Q Serve(g_s), s		8.6	9.5	5.5		5.8	18.2	2.1	5.3	4.2	4.3	
Cycle Q Clear(g_c), s		8.6	9.5	5.5		5.8	18.2	2.1	5.3	4.2	4.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		209	1053	470		147	925	412	280	654	652	
V/C Ratio(X)		0.82	0.44	0.27		0.79	0.82	0.11	0.74	0.19	0.19	
Avail Cap(c_a), veh/h		318	1207	538		286	1139	508	320	654	652	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		38.8	25.5	24.1		40.5	31.1	25.1	40.4	19.1	19.2	
Incr Delay (d2), s/veh		10.1	0.3	0.3		9.1	3.9	0.1	7.7	0.6	0.7	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.2	3.9	2.0		2.9	8.0	0.8	2.5	1.8	1.8	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		48.9	25.8	24.4		49.5	35.0	25.2	48.1	19.7	19.8	
LnGrp LOS		D	C	C		D	C	C	D	B	B	
Approach Vol, veh/h			759				918			454		
Approach Delay, s/veh			30.8				36.3			32.7		
Approach LOS			C				D			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	37.9	12.0	31.4	11.8	34.7	15.1	28.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.2	6.3	7.8	11.5	7.3	10.8	10.6	20.2
Green Ext Time (p_c), s	0.0	1.1	0.1	3.4	0.1	1.5	0.2	3.6

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	56	304	81
Future Volume (veh/h)	56	304	81
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856
Adj Flow Rate, veh/h	64	349	93
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3
Cap, veh/h	82	928	244
Arrive On Green	0.05	0.34	0.34
Sat Flow, veh/h	1767	2762	726
Grp Volume(v), veh/h	64	221	221
Grp Sat Flow(s),veh/h/ln	1767	1763	1725
Q Serve(g_s), s	3.2	8.6	8.8
Cycle Q Clear(g_c), s	3.2	8.6	8.8
Prop In Lane	1.00		0.42
Lane Grp Cap(c), veh/h	82	592	580
V/C Ratio(X)	0.78	0.37	0.38
Avail Cap(c_a), veh/h	130	592	580
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	22.7	22.8
Incr Delay (d2), s/veh	14.6	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.8	3.8
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.1	24.5	24.7
LnGrp LOS	E	C	C
Approach Vol, veh/h		506	
Approach Delay, s/veh		28.7	
Approach LOS		C	
Timer - Assigned Phs			

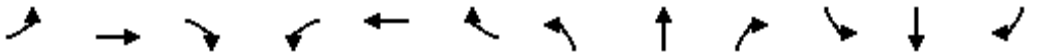
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	499	582	11	0	3
Future Vol, veh/h	0	499	582	11	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	525	613	12	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	313
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	689
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	689
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	689
HCM Lane V/C Ratio	-	-	-	0.005
HCM Control Delay (s)	-	-	-	10.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	16	1	1	1	21	410	1	3	533	289
Future Volume (veh/h)	145	0	16	1	1	1	21	410	1	3	533	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	165	0	12	1	1	1	23	451	1	3	586	318
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	255	0	113	2	2	2	101	2476	5	101	2419	1079
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.06	0.67	0.67	0.06	0.67	0.67
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3695	8	1810	3610	1610
Grp Volume(v), veh/h	165	0	12	3	0	0	23	220	232	3	586	318
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	4.0	0.0	0.6	0.2	0.0	0.0	1.1	4.1	4.1	0.1	5.8	7.3
Cycle Q Clear(g_c), s	4.0	0.0	0.6	0.2	0.0	0.0	1.1	4.1	4.1	0.1	5.8	7.3
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	255	0	113	7	0	0	101	1209	1272	101	2419	1079
V/C Ratio(X)	0.65	0.00	0.11	0.42	0.00	0.00	0.23	0.18	0.18	0.03	0.24	0.29
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1209	1272	362	2419	1079
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	0.0	39.2	44.7	0.0	0.0	40.7	5.6	5.6	40.2	5.8	6.1
Incr Delay (d2), s/veh	2.8	0.0	0.4	35.5	0.0	0.0	1.1	0.3	0.3	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.3	0.1	0.0	0.0	0.5	1.5	1.5	0.1	1.9	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	39.6	80.2	0.0	0.0	41.8	5.9	5.9	40.3	5.9	6.3
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		177			3			475			907	
Approach Delay, s/veh		43.2			80.2			7.6			6.1	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	64.8		10.8	9.5	64.8		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	6.1		6.0	3.1	9.3		2.2				
Green Ext Time (p_c), s	0.0	2.1		0.4	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

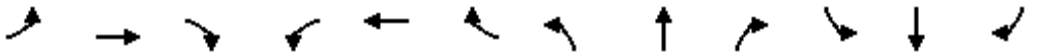
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	3	460	499	4
Future Vol, veh/h	1	0	3	460	499	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	3	484	525	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	775	265	529	0	-	0
Stage 1	527	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	339	739	1048	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	776	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	338	739	1048	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	776	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1048	-	338	-	-
HCM Lane V/C Ratio	0.003	-	0.003	-	-
HCM Control Delay (s)	8.4	-	15.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	347	116	103	456	125	116	319	64	98	343	21
Future Volume (veh/h)	27	347	116	103	456	125	116	319	64	98	343	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	31	394	132	117	518	142	132	362	73	111	390	24
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	54	611	272	188	696	310	208	1896	846	183	2590	158
Arrive On Green	0.03	0.17	0.17	0.05	0.19	0.19	0.06	0.53	0.53	0.05	0.52	0.52
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4999	304
Grp Volume(v), veh/h	31	394	132	117	518	142	132	362	73	111	269	145
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1845
Q Serve(g_s), s	1.5	9.2	6.7	2.9	12.2	7.0	3.3	4.8	2.0	2.8	3.7	3.7
Cycle Q Clear(g_c), s	1.5	9.2	6.7	2.9	12.2	7.0	3.3	4.8	2.0	2.8	3.7	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	54	611	272	188	696	310	208	1896	846	183	1792	956
V/C Ratio(X)	0.57	0.65	0.48	0.62	0.74	0.46	0.64	0.19	0.09	0.61	0.15	0.15
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1896	846	332	1792	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	34.9	33.8	41.7	34.2	32.2	41.4	11.3	10.6	41.8	11.3	11.3
Incr Delay (d2), s/veh	9.1	1.2	1.3	3.3	1.6	1.1	3.2	0.2	0.2	3.2	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.0	2.7	1.3	5.4	2.8	1.5	1.9	0.7	1.3	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	36.0	35.2	45.0	35.8	33.2	44.6	11.5	10.8	45.0	11.5	11.7
LnGrp LOS	D	D	D	D	D	C	D	B	B	D	B	B
Approach Vol, veh/h		557			777			567			525	
Approach Delay, s/veh		36.7			36.7			19.1			18.6	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	51.8	9.3	19.7	9.8	51.1	7.2	21.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	4.8	6.8	4.9	11.2	5.3	5.7	3.5	14.2
Green Ext Time (p_c), s	0.1	2.5	0.2	2.5	0.2	2.3	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	16	144	764	126	12	88	506	39	141	299	84	3
Future Volume (veh/h)	16	144	764	126	12	88	506	39	141	299	84	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1885	1885	1885	
Adj Flow Rate, veh/h		160	849	140		98	562	43	157	332	93	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %		0	0	0		0	0	0	1	1	1	
Cap, veh/h		206	1081	482		136	941	420	248	1069	295	
Arrive On Green		0.11	0.30	0.30		0.08	0.26	0.26	0.07	0.39	0.38	
Sat Flow, veh/h		1810	3610	1610		1810	3610	1610	3483	2773	765	
Grp Volume(v), veh/h		160	849	140		98	562	43	157	213	212	
Grp Sat Flow(s),veh/h/ln		1810	1805	1610		1810	1805	1610	1742	1791	1747	
Q Serve(g_s), s		7.7	19.4	6.0		4.8	12.3	1.8	3.9	7.5	7.7	
Cycle Q Clear(g_c), s		7.7	19.4	6.0		4.8	12.3	1.8	3.9	7.5	7.7	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.44	
Lane Grp Cap(c), veh/h		206	1081	482		136	941	420	248	690	673	
V/C Ratio(X)		0.78	0.79	0.29		0.72	0.60	0.10	0.63	0.31	0.32	
Avail Cap(c_a), veh/h		310	1364	608		247	1239	553	317	690	673	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		38.8	28.9	24.2		40.7	29.1	25.3	40.7	19.3	19.4	
Incr Delay (d2), s/veh		6.9	2.4	0.3		7.0	0.6	0.1	2.7	1.2	1.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.8	8.5	2.3		2.4	5.3	0.7	1.8	3.2	3.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		45.7	31.3	24.5		47.7	29.7	25.4	43.3	20.5	20.7	
LnGrp LOS		D	C	C		D	C	C	D	C	C	
Approach Vol, veh/h			1149				703			582		
Approach Delay, s/veh			32.5				32.0			26.7		
Approach LOS			C				C			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	38.7	10.8	30.9	10.4	37.9	14.2	27.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	5.9	9.7	6.8	21.4	5.9	7.6	9.7	14.3
Green Ext Time (p_c), s	0.0	1.8	0.1	5.1	0.1	1.3	0.2	3.6

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	72	177	97
Future Volume (veh/h)	72	177	97
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	80	197	108
Peak Hour Factor	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0
Cap, veh/h	113	862	452
Arrive On Green	0.06	0.38	0.37
Sat Flow, veh/h	1810	2288	1201
Grp Volume(v), veh/h	80	154	151
Grp Sat Flow(s),veh/h/ln	1810	1805	1684
Q Serve(g_s), s	3.9	5.2	5.6
Cycle Q Clear(g_c), s	3.9	5.2	5.6
Prop In Lane	1.00		0.71
Lane Grp Cap(c), veh/h	113	680	634
V/C Ratio(X)	0.71	0.23	0.24
Avail Cap(c_a), veh/h	157	680	634
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	19.1	19.3
Incr Delay (d2), s/veh	8.4	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.3	2.3
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	49.8	19.9	20.2
LnGrp LOS	D	B	C
Approach Vol, veh/h		385	
Approach Delay, s/veh		26.2	
Approach LOS		C	
Timer - Assigned Phs			

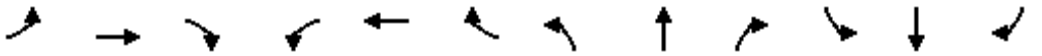
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	920	707	25	0	12
Future Vol, veh/h	0	920	707	25	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	968	744	26	0	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	385
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	619
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	619
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	619
HCM Lane V/C Ratio	-	-	-	0.02
HCM Control Delay (s)	-	-	-	10.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	3	28	2	5	1	27	565	1	1	569	211
Future Volume (veh/h)	285	3	28	2	5	1	27	565	1	1	569	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	335	0	22	2	6	1	31	642	1	1	647	240
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	454	0	202	5	16	3	111	2285	4	111	2230	995
Arrive On Green	0.13	0.00	0.13	0.02	0.02	0.01	0.06	0.62	0.61	0.06	0.62	0.62
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	335	0	22	9	0	0	31	313	330	1	647	240
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	8.1	0.0	1.1	0.6	0.0	0.0	1.5	7.2	7.2	0.0	7.5	6.0
Cycle Q Clear(g_c), s	8.1	0.0	1.1	0.6	0.0	0.0	1.5	7.2	7.2	0.0	7.5	6.0
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	0	202	23	0	0	111	1115	1173	111	2230	995
V/C Ratio(X)	0.74	0.00	0.11	0.38	0.00	0.00	0.28	0.28	0.28	0.01	0.29	0.24
Avail Cap(c_a), veh/h	738	0	328	287	0	0	372	1115	1173	372	2230	995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	34.8	43.8	0.0	0.0	40.4	8.0	8.0	39.7	8.0	7.7
Incr Delay (d2), s/veh	2.4	0.0	0.2	10.0	0.0	0.0	1.4	0.6	0.6	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	0.4	0.3	0.0	0.0	0.7	2.7	2.9	0.0	2.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	35.0	53.8	0.0	0.0	41.7	8.6	8.6	39.7	8.1	7.8
LnGrp LOS	D	A	D	D	A	A	D	A	A	D	A	A
Approach Vol, veh/h		357			9			674			888	
Approach Delay, s/veh		39.9			53.8			10.1			8.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	59.6		15.4	9.5	59.6		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.2		10.1	3.5	9.5		2.6				
Green Ext Time (p_c), s	0.0	2.6		0.8	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		14.9	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

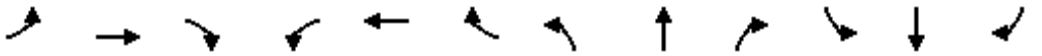
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	9	5	2	538	621	0
Future Vol, veh/h	9	5	2	538	621	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	5	2	566	654	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	941	327	654	0	-	0
Stage 1	654	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	265	675	943	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	264	675	943	-	-	-
Mov Cap-2 Maneuver	264	-	-	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	943	-	337	-	-
HCM Lane V/C Ratio	0.002	-	0.044	-	-
HCM Control Delay (s)	8.8	-	16.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	736	133	140	501	133	182	347	114	156	454	50
Future Volume (veh/h)	51	736	133	140	501	133	182	347	114	156	454	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	56	809	146	154	551	146	200	381	125	171	499	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	86	1019	455	248	1103	492	301	1422	634	265	1821	198
Arrive On Green	0.05	0.28	0.28	0.07	0.31	0.31	0.09	0.39	0.39	0.08	0.38	0.38
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4749	516
Grp Volume(v), veh/h	56	809	146	154	551	146	200	381	125	171	361	193
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1807
Q Serve(g_s), s	2.7	18.7	6.4	3.8	11.3	6.2	5.0	6.4	4.6	4.3	6.5	6.6
Cycle Q Clear(g_c), s	2.7	18.7	6.4	3.8	11.3	6.2	5.0	6.4	4.6	4.3	6.5	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	86	1019	455	248	1103	492	301	1422	634	265	1326	693
V/C Ratio(X)	0.65	0.79	0.32	0.62	0.50	0.30	0.66	0.27	0.20	0.65	0.27	0.28
Avail Cap(c_a), veh/h	215	1243	555	390	1215	542	507	1422	634	351	1326	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	29.9	25.5	40.7	25.6	23.9	39.9	18.5	17.9	40.4	19.1	19.2
Incr Delay (d2), s/veh	8.1	3.0	0.4	2.5	0.4	0.3	2.5	0.5	0.7	2.6	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	8.3	2.5	1.7	4.8	2.4	2.2	2.7	1.8	1.9	2.6	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	32.8	25.9	43.2	26.0	24.2	42.4	18.9	18.6	43.1	19.6	20.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		1011			851			706			725	
Approach Delay, s/veh		32.8			28.8			25.5			25.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	39.4	10.4	29.4	11.7	38.5	8.3	31.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	6.3	8.4	5.8	20.7	7.0	8.6	4.7	13.3
Green Ext Time (p_c), s	0.1	2.5	0.1	4.3	0.3	2.6	0.0	3.9

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	39	150	413	110	10	101	668	41	180	181	34	1
Future Volume (veh/h)	39	150	413	110	10	101	668	41	180	181	34	1
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1841	1841	1841	1856	1856	1856	
Adj Flow Rate, veh/h		172	475	126		116	768	47	207	208	39	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		3	3	3		4	4	4	3	3	3	
Cap, veh/h		209	1064	475		147	936	418	280	1093	201	
Arrive On Green		0.12	0.30	0.30		0.08	0.27	0.27	0.08	0.37	0.37	
Sat Flow, veh/h		1767	3526	1572		1753	3497	1560	3428	2972	548	
Grp Volume(v), veh/h		172	475	126		116	768	47	207	122	125	
Grp Sat Flow(s),veh/h/ln		1767	1763	1572		1753	1749	1560	1714	1763	1757	
Q Serve(g_s), s		8.6	9.8	5.5		5.8	18.5	2.0	5.3	4.2	4.4	
Cycle Q Clear(g_c), s		8.6	9.8	5.5		5.8	18.5	2.0	5.3	4.2	4.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		209	1064	475		147	936	418	280	648	646	
V/C Ratio(X)		0.82	0.45	0.27		0.79	0.82	0.11	0.74	0.19	0.19	
Avail Cap(c_a), veh/h		318	1207	538		286	1139	508	320	648	646	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		38.8	25.3	23.8		40.5	30.9	24.9	40.4	19.3	19.4	
Incr Delay (d2), s/veh		10.1	0.3	0.3		9.1	4.1	0.1	7.7	0.6	0.7	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.2	4.0	2.0		2.9	8.1	0.8	2.5	1.8	1.9	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		48.9	25.6	24.1		49.5	35.0	25.0	48.1	20.0	20.0	
LnGrp LOS		D	C	C		D	D	C	D	B	C	
Approach Vol, veh/h			773				931			454		
Approach Delay, s/veh			30.6				36.3			32.8		
Approach LOS			C				D			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	37.6	12.0	31.7	11.8	34.4	15.1	28.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.2	6.4	7.8	11.8	7.3	10.8	10.6	20.5
Green Ext Time (p_c), s	0.0	1.1	0.1	3.5	0.1	1.5	0.2	3.5

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	56	304	81
Future Volume (veh/h)	56	304	81
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856
Adj Flow Rate, veh/h	64	349	93
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3
Cap, veh/h	82	919	242
Arrive On Green	0.05	0.33	0.33
Sat Flow, veh/h	1767	2762	726
Grp Volume(v), veh/h	64	221	221
Grp Sat Flow(s),veh/h/ln	1767	1763	1725
Q Serve(g_s), s	3.2	8.6	8.8
Cycle Q Clear(g_c), s	3.2	8.6	8.8
Prop In Lane	1.00		0.42
Lane Grp Cap(c), veh/h	82	587	574
V/C Ratio(X)	0.78	0.38	0.38
Avail Cap(c_a), veh/h	130	587	574
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	22.9	23.0
Incr Delay (d2), s/veh	14.6	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.8	3.8
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	57.1	24.8	24.9
LnGrp LOS	E	C	C
Approach Vol, veh/h		506	
Approach Delay, s/veh		28.9	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	516	590	20	0	10
Future Vol, veh/h	0	516	590	20	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	543	621	21	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	321
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	681
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	681
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	681
HCM Lane V/C Ratio	-	-	-	0.015
HCM Control Delay (s)	-	-	-	10.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

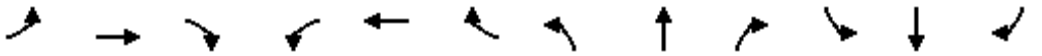
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	516	589	55	0	10
Future Vol, veh/h	0	516	589	55	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	543	620	58	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	339
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	663
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	663
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	663
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	-	-	-	10.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	0	16	1	1	1	21	413	1	3	544	289
Future Volume (veh/h)	161	0	16	1	1	1	21	413	1	3	544	289
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	183	0	12	1	1	1	23	454	1	3	598	318
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	275	0	122	2	2	2	101	2455	5	101	2399	1070
Arrive On Green	0.08	0.00	0.08	0.00	0.00	0.00	0.06	0.66	0.66	0.06	0.66	0.66
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3695	8	1810	3610	1610
Grp Volume(v), veh/h	183	0	12	3	0	0	23	222	233	3	598	318
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	4.4	0.0	0.6	0.2	0.0	0.0	1.1	4.2	4.2	0.1	6.0	7.4
Cycle Q Clear(g_c), s	4.4	0.0	0.6	0.2	0.0	0.0	1.1	4.2	4.2	0.1	6.0	7.4
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	0	122	7	0	0	101	1199	1261	101	2399	1070
V/C Ratio(X)	0.67	0.00	0.10	0.42	0.00	0.00	0.23	0.18	0.18	0.03	0.25	0.30
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1199	1261	362	2399	1070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	38.7	44.7	0.0	0.0	40.7	5.8	5.8	40.2	6.1	6.3
Incr Delay (d2), s/veh	2.8	0.0	0.3	35.5	0.0	0.0	1.1	0.3	0.3	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.3	0.1	0.0	0.0	0.5	1.5	1.6	0.1	2.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	0.0	39.1	80.2	0.0	0.0	41.8	6.1	6.1	40.3	6.1	6.5
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		195			3			478			919	
Approach Delay, s/veh		43.0			80.2			7.8			6.4	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	64.3		11.3	9.5	64.3		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	6.2		6.4	3.1	9.4		2.2				
Green Ext Time (p_c), s	0.0	2.1		0.5	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.4	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	4	460	510	5
Future Vol, veh/h	4	2	4	460	510	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	4	484	537	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	790	271	542	0	-	0
Stage 1	540	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	331	733	1037	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	330	733	1037	-	-	-
Mov Cap-2 Maneuver	330	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1037	-	404	-	-
HCM Lane V/C Ratio	0.004	-	0.016	-	-
HCM Control Delay (s)	8.5	-	14.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	0	469	471	4
Future Vol, veh/h	0	36	0	469	471	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	494	496	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	250	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	644	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	644	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	644	-	-
HCM Lane V/C Ratio	-	0.059	-	-
HCM Control Delay (s)	-	10.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	16	31	347	118	102	466	124	135	317	63	111	365
Future Volume (veh/h)	16	31	347	118	102	466	124	135	317	63	111	365
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		35	394	134	116	530	141	153	360	72	126	415
Peak Hour Factor		0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %		0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h		59	633	282	187	708	316	232	1861	830	196	2459
Arrive On Green		0.03	0.18	0.18	0.05	0.20	0.20	0.07	0.52	0.52	0.06	0.51
Sat Flow, veh/h		1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4867
Grp Volume(v), veh/h		35	394	134	116	530	141	153	360	72	126	293
Grp Sat Flow(s),veh/h/ln		1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729
Q Serve(g_s), s		1.7	9.1	6.7	2.9	12.4	6.9	3.8	4.8	2.0	3.2	4.1
Cycle Q Clear(g_c), s		1.7	9.1	6.7	2.9	12.4	6.9	3.8	4.8	2.0	3.2	4.1
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		59	633	282	187	708	316	232	1861	830	196	1747
V/C Ratio(X)		0.60	0.62	0.47	0.62	0.75	0.45	0.66	0.19	0.09	0.64	0.17
Avail Cap(c_a), veh/h		191	983	438	449	1063	474	527	1861	830	332	1747
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		43.0	34.4	33.4	41.7	34.1	31.9	41.0	11.7	11.1	41.6	12.0
Incr Delay (d2), s/veh		9.3	1.0	1.2	3.3	1.6	1.0	3.2	0.2	0.2	3.5	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	4.0	2.7	1.3	5.5	2.7	1.7	1.9	0.7	1.4	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		52.3	35.4	34.6	45.1	35.7	32.9	44.2	12.0	11.3	45.1	12.2
LnGrp LOS		D	D	C	D	D	C	D	B	B	D	B
Approach Vol, veh/h			563			787			585			577
Approach Delay, s/veh			36.2			36.6			20.3			19.5
Approach LOS			D			D			C			B

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	50.9	9.3	20.3	10.5	50.0	7.4	22.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.2	6.8	4.9	11.1	5.8	6.2	3.7	14.4
Green Ext Time (p_c), s	0.1	2.5	0.2	2.5	0.3	2.5	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	32
Future Volume (veh/h)	32
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	36
Peak Hour Factor	0.88
Percent Heavy Veh, %	0
Cap, veh/h	210
Arrive On Green	0.51
Sat Flow, veh/h	417
Grp Volume(v), veh/h	158
Grp Sat Flow(s),veh/h/ln	1825
Q Serve(g_s), s	4.2
Cycle Q Clear(g_c), s	4.2
Prop In Lane	0.23
Lane Grp Cap(c), veh/h	922
V/C Ratio(X)	0.17
Avail Cap(c_a), veh/h	922
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	12.1
Incr Delay (d2), s/veh	0.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.7
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	12.5
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	16	144	773	126	21	88	512	39	141	299	84	3
Future Volume (veh/h)	16	144	773	126	21	88	512	39	141	299	84	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1885	1885	1885	
Adj Flow Rate, veh/h		160	859	140		98	569	43	157	332	93	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %		0	0	0		0	0	0	1	1	1	
Cap, veh/h		197	1074	479		126	934	416	229	1042	287	
Arrive On Green		0.11	0.30	0.30		0.07	0.26	0.26	0.07	0.38	0.38	
Sat Flow, veh/h		1810	3610	1610		1810	3610	1610	3483	2773	765	
Grp Volume(v), veh/h		160	859	140		98	569	43	157	213	212	
Grp Sat Flow(s),veh/h/ln		1810	1805	1610		1810	1805	1610	1742	1791	1747	
Q Serve(g_s), s		7.8	19.7	6.0		4.8	12.5	1.8	4.0	7.6	7.8	
Cycle Q Clear(g_c), s		7.8	19.7	6.0		4.8	12.5	1.8	4.0	7.6	7.8	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.44	
Lane Grp Cap(c), veh/h		197	1074	479		126	934	416	229	673	657	
V/C Ratio(X)		0.81	0.80	0.29		0.78	0.61	0.10	0.68	0.32	0.32	
Avail Cap(c_a), veh/h		300	1344	599		237	1219	544	298	673	657	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		39.2	29.2	24.3		41.2	29.4	25.4	41.1	19.9	20.0	
Incr Delay (d2), s/veh		9.7	2.8	0.3		9.7	0.6	0.1	4.3	1.2	1.3	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.9	8.7	2.3		2.5	5.4	0.7	1.8	3.3	3.3	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		48.9	32.0	24.7		50.9	30.0	25.5	45.4	21.1	21.3	
LnGrp LOS		D	C	C		D	C	C	D	C	C	
Approach Vol, veh/h			1159				710			582		
Approach Delay, s/veh			33.4				32.6			27.7		
Approach LOS			C				C			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	38.3	10.8	31.3	10.4	37.5	14.3	27.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	5.9	9.8	6.8	21.7	6.0	7.6	9.8	14.5
Green Ext Time (p_c), s	0.0	1.8	0.1	5.0	0.1	1.3	0.2	3.6

Intersection Summary	
HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	72	177	97
Future Volume (veh/h)	72	177	97
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	80	197	108
Peak Hour Factor	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0
Cap, veh/h	103	839	441
Arrive On Green	0.06	0.37	0.37
Sat Flow, veh/h	1810	2288	1201
Grp Volume(v), veh/h	80	154	151
Grp Sat Flow(s),veh/h/ln	1810	1805	1684
Q Serve(g_s), s	3.9	5.3	5.6
Cycle Q Clear(g_c), s	3.9	5.3	5.6
Prop In Lane	1.00		0.71
Lane Grp Cap(c), veh/h	103	662	618
V/C Ratio(X)	0.77	0.23	0.25
Avail Cap(c_a), veh/h	147	662	618
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	19.7	19.8
Incr Delay (d2), s/veh	14.9	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.3	2.3
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	56.8	20.5	20.8
LnGrp LOS	E	C	C
Approach Vol, veh/h		385	
Approach Delay, s/veh		28.2	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	935	715	50	0	16
Future Vol, veh/h	0	935	715	50	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	984	753	53	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	403
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	603
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	603
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	603
HCM Lane V/C Ratio	-	-	-	0.028
HCM Control Delay (s)	-	-	-	11.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

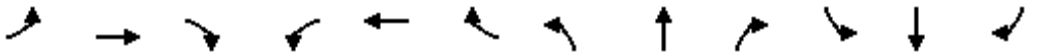
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	935	741	26	0	10
Future Vol, veh/h	0	935	741	26	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	984	780	27	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	404
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	602
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	602
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	602
HCM Lane V/C Ratio	-	-	-	0.017
HCM Control Delay (s)	-	-	-	11.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	3	28	2	5	1	27	567	1	1	584	211
Future Volume (veh/h)	294	3	28	2	5	1	27	567	1	1	584	211
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	345	0	22	2	6	1	31	644	1	1	664	240
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	446	0	199	3	10	2	101	2252	3	101	2198	980
Arrive On Green	0.12	0.00	0.12	0.01	0.01	0.01	0.06	0.61	0.61	0.06	0.61	0.61
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	345	0	22	9	0	0	31	314	331	1	664	240
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	8.4	0.0	1.1	0.6	0.0	0.0	1.5	7.4	7.4	0.0	7.9	6.2
Cycle Q Clear(g_c), s	8.4	0.0	1.1	0.6	0.0	0.0	1.5	7.4	7.4	0.0	7.9	6.2
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	446	0	199	16	0	0	101	1099	1156	101	2198	980
V/C Ratio(X)	0.77	0.00	0.11	0.58	0.00	0.00	0.31	0.29	0.29	0.01	0.30	0.24
Avail Cap(c_a), veh/h	718	0	320	279	0	0	362	1099	1156	362	2198	980
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	35.0	44.3	0.0	0.0	40.8	8.3	8.3	40.2	8.4	8.1
Incr Delay (d2), s/veh	2.9	0.0	0.2	29.2	0.0	0.0	1.7	0.7	0.6	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	0.4	0.3	0.0	0.0	0.7	2.8	3.0	0.0	2.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.1	0.0	35.2	73.5	0.0	0.0	42.6	9.0	9.0	40.2	8.5	8.2
LnGrp LOS	D	A	D	E	A	A	D	A	A	D	A	A
Approach Vol, veh/h		367			9			676			905	
Approach Delay, s/veh		40.7			73.5			10.5			8.5	
Approach LOS		D			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	59.3		15.7	9.5	59.3		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	9.4		10.4	3.5	9.9		2.6				
Green Ext Time (p_c), s	0.0	2.6		0.8	0.0	3.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		15.5	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	6	4	538	634	2
Future Vol, veh/h	11	6	4	538	634	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	6	4	566	667	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	959	335	669	0	-	0
Stage 1	668	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	258	667	931	-	-	-
Stage 1	477	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	667	931	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	739	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	931	-	328	-	-
HCM Lane V/C Ratio	0.005	-	0.055	-	-
HCM Control Delay (s)	8.9	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

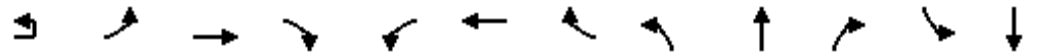
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	533	664	10
Future Vol, veh/h	0	18	0	533	664	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	19	0	561	699	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	355	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	552	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	552	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	552	-	-
HCM Lane V/C Ratio	-	0.034	-	-
HCM Control Delay (s)	-	11.8	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	53	738	136	140	512	133	203	348	114	161	465
Future Volume (veh/h)	12	53	738	136	140	512	133	203	348	114	161	465
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		58	811	149	154	563	146	223	382	125	177	511
Peak Hour Factor		0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %		0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h		77	1005	448	229	1087	485	306	1388	619	252	1733
Arrive On Green		0.04	0.28	0.28	0.07	0.30	0.30	0.09	0.38	0.38	0.07	0.37
Sat Flow, veh/h		1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4695
Grp Volume(v), veh/h		58	811	149	154	563	146	223	382	125	177	374
Grp Sat Flow(s),veh/h/ln		1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729
Q Serve(g_s), s		2.9	18.8	6.6	3.9	11.6	6.3	5.6	6.6	4.7	4.4	6.9
Cycle Q Clear(g_c), s		2.9	18.8	6.6	3.9	11.6	6.3	5.6	6.6	4.7	4.4	6.9
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		77	1005	448	229	1087	485	306	1388	619	252	1276
V/C Ratio(X)		0.75	0.81	0.33	0.67	0.52	0.30	0.73	0.28	0.20	0.70	0.29
Avail Cap(c_a), veh/h		205	1223	546	371	1195	533	488	1388	619	332	1276
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		42.6	30.2	25.8	41.1	26.0	24.2	40.0	19.1	18.5	40.8	20.1
Incr Delay (d2), s/veh		13.8	3.4	0.4	3.4	0.4	0.3	3.3	0.5	0.7	4.4	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.6	8.4	2.5	1.8	4.9	0.0	2.5	2.8	1.8	2.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		56.4	33.6	26.3	44.5	26.4	24.5	43.3	19.6	19.2	45.2	20.7
LnGrp LOS		E	C	C	D	C	C	D	B	B	D	C
Approach Vol, veh/h			1018			863			730			750
Approach Delay, s/veh			33.8			29.3			26.8			26.6
Approach LOS			C			C			C			C

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	39.1	10.4	29.5	12.4	37.7	8.3	31.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	6.4	8.6	5.9	20.8	7.6	9.0	4.9	13.6
Green Ext Time (p_c), s	0.1	2.5	0.1	4.2	0.3	2.7	0.0	3.9

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	56
Future Volume (veh/h)	56
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	62
Peak Hour Factor	0.91
Percent Heavy Veh, %	0
Cap, veh/h	207
Arrive On Green	0.37
Sat Flow, veh/h	561
Grp Volume(v), veh/h	199
Grp Sat Flow(s),veh/h/ln	1799
Q Serve(g_s), s	7.0
Cycle Q Clear(g_c), s	7.0
Prop In Lane	0.31
Lane Grp Cap(c), veh/h	664
V/C Ratio(X)	0.30
Avail Cap(c_a), veh/h	664
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	20.1
Incr Delay (d2), s/veh	1.2
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.1
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	21.3
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	39	159	425	117	8	107	696	43	191	192	36	1
Future Volume (veh/h)	39	159	425	117	8	107	696	43	191	192	36	1
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1841	1841	1841	1856	1856	1856	
Adj Flow Rate, veh/h		183	489	134		123	800	49	220	221	41	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		3	3	3		4	4	4	3	3	3	
Cap, veh/h		220	1098	490		155	963	430	292	1044	190	
Arrive On Green		0.12	0.31	0.31		0.09	0.28	0.28	0.09	0.35	0.35	
Sat Flow, veh/h		1767	3526	1572		1753	3497	1560	3428	2977	543	
Grp Volume(v), veh/h		183	489	134		123	800	49	220	129	133	
Grp Sat Flow(s),veh/h/ln		1767	1763	1572		1753	1749	1560	1714	1763	1758	
Q Serve(g_s), s		9.1	10.0	5.8		6.2	19.3	2.1	5.6	4.6	4.8	
Cycle Q Clear(g_c), s		9.1	10.0	5.8		6.2	19.3	2.1	5.6	4.6	4.8	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		220	1098	490		155	963	430	292	618	616	
V/C Ratio(X)		0.83	0.45	0.27		0.79	0.83	0.11	0.75	0.21	0.22	
Avail Cap(c_a), veh/h		318	1207	538		286	1139	508	320	618	616	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		38.5	24.8	23.3		40.2	30.6	24.4	40.2	20.5	20.5	
Incr Delay (d2), s/veh		11.7	0.3	0.3		8.9	4.6	0.1	8.9	0.8	0.8	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.6	4.1	2.1		3.0	8.5	0.8	2.7	2.0	2.1	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.2	25.0	23.6		49.1	35.2	24.5	49.1	21.2	21.3	
LnGrp LOS		D	C	C		D	D	C	D	C	C	
Approach Vol, veh/h			806				972			482		
Approach Delay, s/veh			30.5				36.4			34.0		
Approach LOS			C				D			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	36.1	12.4	32.5	12.2	32.8	15.7	29.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.4	6.8	8.2	12.0	7.6	11.7	11.1	21.3
Green Ext Time (p_c), s	0.0	1.2	0.1	3.6	0.1	1.5	0.2	3.5

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	59	322	86
Future Volume (veh/h)	59	322	86
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856
Adj Flow Rate, veh/h	68	370	99
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3
Cap, veh/h	87	868	230
Arrive On Green	0.05	0.31	0.31
Sat Flow, veh/h	1767	2758	729
Grp Volume(v), veh/h	68	235	234
Grp Sat Flow(s),veh/h/ln	1767	1763	1724
Q Serve(g_s), s	3.4	9.5	9.7
Cycle Q Clear(g_c), s	3.4	9.5	9.7
Prop In Lane	1.00		0.42
Lane Grp Cap(c), veh/h	87	555	543
V/C Ratio(X)	0.78	0.42	0.43
Avail Cap(c_a), veh/h	130	555	543
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	24.4	24.4
Incr Delay (d2), s/veh	16.0	2.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.2	4.2
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	58.3	26.7	26.9
LnGrp LOS	E	C	C
Approach Vol, veh/h		537	
Approach Delay, s/veh		30.8	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	529	617	12	0	3
Future Vol, veh/h	0	529	617	12	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	557	649	13	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	331
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	671
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	671
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	671
HCM Lane V/C Ratio	-	-	-	0.005
HCM Control Delay (s)	-	-	-	10.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	0	17	1	1	1	22	435	1	3	565	306
Future Volume (veh/h)	154	0	17	1	1	1	22	435	1	3	565	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	175	0	13	1	1	1	24	478	1	3	621	336
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	266	0	118	2	2	2	101	2465	5	101	2407	1074
Arrive On Green	0.07	0.00	0.07	0.00	0.00	0.00	0.06	0.67	0.67	0.06	0.67	0.67
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3696	8	1810	3610	1610
Grp Volume(v), veh/h	175	0	13	3	0	0	24	233	246	3	621	336
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	4.2	0.0	0.7	0.2	0.0	0.0	1.1	4.5	4.5	0.1	6.2	7.9
Cycle Q Clear(g_c), s	4.2	0.0	0.7	0.2	0.0	0.0	1.1	4.5	4.5	0.1	6.2	7.9
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	266	0	118	7	0	0	101	1204	1266	101	2407	1074
V/C Ratio(X)	0.66	0.00	0.11	0.42	0.00	0.00	0.24	0.19	0.19	0.03	0.26	0.31
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1204	1266	362	2407	1074
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	38.9	44.7	0.0	0.0	40.7	5.7	5.7	40.2	6.0	6.3
Incr Delay (d2), s/veh	2.8	0.0	0.4	35.5	0.0	0.0	1.2	0.4	0.3	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.3	0.1	0.0	0.0	0.5	1.6	1.7	0.1	2.1	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	0.0	39.3	80.2	0.0	0.0	41.9	6.1	6.1	40.3	6.1	6.5
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		188			3			503			960	
Approach Delay, s/veh		43.1			80.2			7.8			6.3	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	64.5		11.1	9.5	64.5		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	6.5		6.2	3.1	9.9		2.2				
Green Ext Time (p_c), s	0.0	2.2		0.4	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.1	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

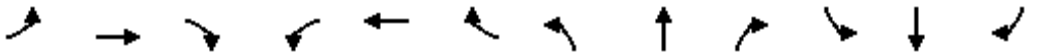
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	3	488	529	4
Future Vol, veh/h	1	0	3	488	529	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	3	514	557	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	822	281	561	0	-	0
Stage 1	559	-	-	-	-	-
Stage 2	263	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	316	722	1020	-	-	-
Stage 1	542	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	315	722	1020	-	-	-
Mov Cap-2 Maneuver	315	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	763	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	315	-	-
HCM Lane V/C Ratio	0.003	-	0.003	-	-
HCM Control Delay (s)	8.5	-	16.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	368	123	109	483	133	123	338	68	104	364	22
Future Volume (veh/h)	29	368	123	109	483	133	123	338	68	104	364	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	418	140	124	549	151	140	384	77	118	414	25
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	56	639	285	197	729	325	217	1854	827	187	2528	151
Arrive On Green	0.03	0.18	0.18	0.06	0.20	0.20	0.06	0.51	0.51	0.05	0.51	0.51
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	5005	299
Grp Volume(v), veh/h	33	418	140	124	549	151	140	384	77	118	285	154
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1846
Q Serve(g_s), s	1.6	9.7	7.1	3.1	12.9	7.4	3.5	5.2	2.2	3.0	4.0	4.1
Cycle Q Clear(g_c), s	1.6	9.7	7.1	3.1	12.9	7.4	3.5	5.2	2.2	3.0	4.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	56	639	285	197	729	325	217	1854	827	187	1747	932
V/C Ratio(X)	0.58	0.65	0.49	0.63	0.75	0.46	0.64	0.21	0.09	0.63	0.16	0.17
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1854	827	332	1747	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	34.5	33.4	41.6	33.8	31.6	41.2	11.9	11.2	41.7	12.0	12.0
Incr Delay (d2), s/veh	9.2	1.1	1.3	3.3	1.8	1.0	3.2	0.3	0.2	3.5	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	2.8	1.4	5.7	2.9	1.6	2.1	0.8	1.4	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	35.6	34.7	44.9	35.6	32.7	44.4	12.2	11.4	45.2	12.2	12.4
LnGrp LOS	D	D	C	D	D	C	D	B	B	D	B	B
Approach Vol, veh/h		591			824			601			557	
Approach Delay, s/veh		36.3			36.5			19.6			19.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	50.7	9.5	20.4	10.1	50.0	7.3	22.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.0	7.2	5.1	11.7	5.5	6.1	3.6	14.9
Green Ext Time (p_c), s	0.1	2.7	0.2	2.6	0.2	2.5	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	16	153	810	134	12	93	536	41	149	317	89	3
Future Volume (veh/h)	16	153	810	134	12	93	536	41	149	317	89	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1885	1885	1885	
Adj Flow Rate, veh/h		170	900	149		103	596	46	166	352	99	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %		0	0	0		0	0	0	1	1	1	
Cap, veh/h		207	1111	495		132	962	429	239	995	276	
Arrive On Green		0.11	0.31	0.31		0.07	0.27	0.27	0.07	0.36	0.36	
Sat Flow, veh/h		1810	3610	1610		1810	3610	1610	3483	2770	768	
Grp Volume(v), veh/h		170	900	149		103	596	46	166	226	225	
Grp Sat Flow(s),veh/h/ln		1810	1805	1610		1810	1805	1610	1742	1791	1747	
Q Serve(g_s), s		8.3	20.7	6.4		5.0	13.1	1.9	4.2	8.3	8.5	
Cycle Q Clear(g_c), s		8.3	20.7	6.4		5.0	13.1	1.9	4.2	8.3	8.5	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.44	
Lane Grp Cap(c), veh/h		207	1111	495		132	962	429	239	644	628	
V/C Ratio(X)		0.82	0.81	0.30		0.78	0.62	0.11	0.70	0.35	0.36	
Avail Cap(c_a), veh/h		300	1344	599		237	1219	544	298	644	628	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		39.0	28.7	23.8		41.0	29.0	24.9	41.0	21.1	21.2	
Incr Delay (d2), s/veh		11.3	3.2	0.3		9.5	0.7	0.1	5.1	1.5	1.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.3	9.1	0.0		2.6	5.6	0.7	1.9	3.7	3.7	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.3	31.9	24.1		50.5	29.7	25.0	46.1	22.6	22.8	
LnGrp LOS		D	C	C		D	C	C	D	C	C	
Approach Vol, veh/h			1219				745			617		
Approach Delay, s/veh			33.5				32.3			29.0		
Approach LOS			C				C			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	36.8	11.1	32.2	10.7	36.1	14.8	28.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.1	10.5	7.0	22.7	6.2	8.1	10.3	15.1
Green Ext Time (p_c), s	0.0	1.8	0.1	5.0	0.1	1.4	0.2	3.7

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	76	188	103
Future Volume (veh/h)	76	188	103
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	84	209	114
Peak Hour Factor	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0
Cap, veh/h	108	803	421
Arrive On Green	0.06	0.35	0.35
Sat Flow, veh/h	1810	2290	1199
Grp Volume(v), veh/h	84	163	160
Grp Sat Flow(s),veh/h/ln	1810	1805	1684
Q Serve(g_s), s	4.1	5.8	6.1
Cycle Q Clear(g_c), s	4.1	5.8	6.1
Prop In Lane	1.00		0.71
Lane Grp Cap(c), veh/h	108	633	591
V/C Ratio(X)	0.78	0.26	0.27
Avail Cap(c_a), veh/h	147	633	591
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	20.9	21.0
Incr Delay (d2), s/veh	16.3	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.6	2.5
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	58.0	21.8	22.1
LnGrp LOS	E	C	C
Approach Vol, veh/h		407	
Approach Delay, s/veh		29.4	
Approach LOS		C	
Timer - Assigned Phs			

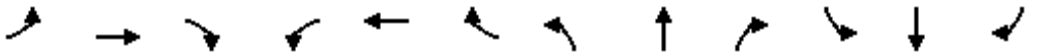
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	975	749	27	0	13
Future Vol, veh/h	0	975	749	27	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1026	788	28	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	408
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	598
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	598
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	598
HCM Lane V/C Ratio	-	-	-	0.023
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	302	3	30	2	5	1	29	599	1	1	603	224
Future Volume (veh/h)	302	3	30	2	5	1	29	599	1	1	603	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	355	0	24	2	6	1	33	681	1	1	685	255
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	457	0	203	3	10	2	101	2242	3	101	2188	976
Arrive On Green	0.13	0.00	0.13	0.01	0.01	0.01	0.06	0.61	0.61	0.06	0.61	0.61
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3699	5	1810	3610	1610
Grp Volume(v), veh/h	355	0	24	9	0	0	33	332	350	1	685	255
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	8.6	0.0	1.2	0.6	0.0	0.0	1.6	8.0	8.0	0.0	8.3	6.7
Cycle Q Clear(g_c), s	8.6	0.0	1.2	0.6	0.0	0.0	1.6	8.0	8.0	0.0	8.3	6.7
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	0	203	16	0	0	101	1094	1151	101	2188	976
V/C Ratio(X)	0.78	0.00	0.12	0.58	0.00	0.00	0.33	0.30	0.30	0.01	0.31	0.26
Avail Cap(c_a), veh/h	718	0	320	279	0	0	362	1094	1151	362	2188	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	34.8	44.3	0.0	0.0	40.9	8.6	8.6	40.2	8.6	8.3
Incr Delay (d2), s/veh	2.9	0.0	0.3	29.2	0.0	0.0	1.9	0.7	0.7	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.5	0.3	0.0	0.0	0.7	3.1	3.2	0.0	3.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	35.1	73.5	0.0	0.0	42.8	9.3	9.2	40.2	8.7	8.4
LnGrp LOS	D	A	D	E	A	A	D	A	A	D	A	A
Approach Vol, veh/h		379			9			715			941	
Approach Delay, s/veh		40.6			73.5			10.8			8.7	
Approach LOS		D			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	59.0		15.9	9.5	59.0		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	10.0		10.6	3.6	10.3		2.6				
Green Ext Time (p_c), s	0.0	2.6		0.8	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

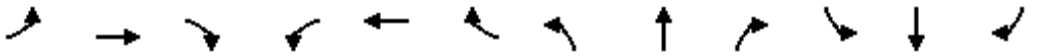
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	5	2	570	658	0
Future Vol, veh/h	10	5	2	570	658	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	5	2	600	693	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	997	347	693	0	-	0
Stage 1	693	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	244	655	912	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	244	655	912	-	-	-
Mov Cap-2 Maneuver	244	-	-	-	-	-
Stage 1	462	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	912	-	309	-	-
HCM Lane V/C Ratio	0.002	-	0.051	-	-
HCM Control Delay (s)	9	-	17.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	780	141	148	531	141	193	368	121	165	481	53
Future Volume (veh/h)	54	780	141	148	531	141	193	368	121	165	481	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	59	857	155	163	584	155	212	404	133	181	529	58
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	78	1044	466	239	1135	506	295	1335	595	256	1704	184
Arrive On Green	0.04	0.29	0.29	0.07	0.31	0.31	0.08	0.37	0.37	0.07	0.36	0.36
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4751	514
Grp Volume(v), veh/h	59	857	155	163	584	155	212	404	133	181	383	204
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1807
Q Serve(g_s), s	2.9	19.9	6.8	4.1	11.9	6.6	5.3	7.1	5.1	4.5	7.2	7.3
Cycle Q Clear(g_c), s	2.9	19.9	6.8	4.1	11.9	6.6	5.3	7.1	5.1	4.5	7.2	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	78	1044	466	239	1135	506	295	1335	595	256	1240	648
V/C Ratio(X)	0.76	0.82	0.33	0.68	0.51	0.31	0.72	0.30	0.22	0.71	0.31	0.31
Avail Cap(c_a), veh/h	205	1223	546	371	1195	533	488	1335	595	332	1240	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	29.8	25.2	41.0	25.2	23.4	40.2	20.1	19.5	40.8	20.8	20.9
Incr Delay (d2), s/veh	14.1	4.0	0.4	3.4	0.4	0.3	3.3	0.6	0.9	4.7	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	8.9	2.6	1.9	5.0	2.5	2.4	3.0	2.0	2.1	2.9	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	33.8	25.6	44.4	25.6	23.7	43.5	20.7	20.4	45.5	21.5	22.1
LnGrp LOS	E	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1071			902			749			768	
Approach Delay, s/veh		33.9			28.7			27.1			27.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	37.8	10.6	30.5	12.1	36.8	8.4	32.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	6.5	9.1	6.1	21.9	7.3	9.3	4.9	13.9
Green Ext Time (p_c), s	0.1	2.7	0.1	4.1	0.3	2.7	0.0	4.1

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	39	159	437	117	10	107	707	43	191	192	36	1
Future Volume (veh/h)	39	159	437	117	10	107	707	43	191	192	36	1
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1856	1856	1856		1841	1841	1841	1856	1856	1856	
Adj Flow Rate, veh/h		183	502	134		123	813	49	220	221	41	
Peak Hour Factor		0.87	0.87	0.87		0.87	0.87	0.87	0.87	0.87	0.87	
Percent Heavy Veh, %		3	3	3		4	4	4	3	3	3	
Cap, veh/h		220	1109	495		155	974	435	292	1035	189	
Arrive On Green		0.12	0.31	0.31		0.09	0.28	0.28	0.09	0.35	0.35	
Sat Flow, veh/h		1767	3526	1572		1753	3497	1560	3428	2977	543	
Grp Volume(v), veh/h		183	502	134		123	813	49	220	129	133	
Grp Sat Flow(s),veh/h/ln		1767	1763	1572		1753	1749	1560	1714	1763	1758	
Q Serve(g_s), s		9.1	10.2	5.7		6.2	19.7	2.1	5.6	4.6	4.8	
Cycle Q Clear(g_c), s		9.1	10.2	5.7		6.2	19.7	2.1	5.6	4.6	4.8	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		220	1109	495		155	974	435	292	613	611	
V/C Ratio(X)		0.83	0.45	0.27		0.79	0.83	0.11	0.75	0.21	0.22	
Avail Cap(c_a), veh/h		318	1207	538		286	1139	508	320	613	611	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		38.5	24.6	23.1		40.2	30.5	24.2	40.2	20.7	20.7	
Incr Delay (d2), s/veh		11.7	0.3	0.3		8.9	4.8	0.1	8.9	0.8	0.8	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.6	4.2	2.1		3.0	8.7	0.8	2.7	2.0	2.1	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.2	24.9	23.4		49.1	35.3	24.3	49.1	21.5	21.5	
LnGrp LOS		D	C	C		D	D	C	D	C	C	
Approach Vol, veh/h			819				985			482		
Approach Delay, s/veh			30.3				36.5			34.1		
Approach LOS			C				D			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	35.8	12.4	32.8	12.2	32.6	15.7	29.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.4	6.8	8.2	12.2	7.6	11.7	11.1	21.7
Green Ext Time (p_c), s	0.0	1.2	0.1	3.7	0.1	1.5	0.2	3.4

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	59	322	86
Future Volume (veh/h)	59	322	86
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1856	1856	1856
Adj Flow Rate, veh/h	68	370	99
Peak Hour Factor	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3
Cap, veh/h	87	860	227
Arrive On Green	0.05	0.31	0.31
Sat Flow, veh/h	1767	2758	729
Grp Volume(v), veh/h	68	235	234
Grp Sat Flow(s),veh/h/ln	1767	1763	1724
Q Serve(g_s), s	3.4	9.5	9.7
Cycle Q Clear(g_c), s	3.4	9.5	9.7
Prop In Lane	1.00		0.42
Lane Grp Cap(c), veh/h	87	550	538
V/C Ratio(X)	0.78	0.43	0.44
Avail Cap(c_a), veh/h	130	550	538
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	24.6	24.7
Incr Delay (d2), s/veh	16.0	2.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	4.3	4.3
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	58.3	27.0	27.2
LnGrp LOS	E	C	C
Approach Vol, veh/h		537	
Approach Delay, s/veh		31.1	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	546	625	21	0	10
Future Vol, veh/h	0	546	625	21	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	575	658	22	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	340
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	662
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	662
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	662
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	-	-	-	10.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

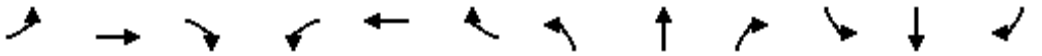
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	546	624	55	0	10
Future Vol, veh/h	0	546	624	55	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	575	657	58	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	358
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	644
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	644
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	644
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	-	-	-	10.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	0	17	1	1	1	22	438	1	3	576	306
Future Volume (veh/h)	170	0	17	1	1	1	22	438	1	3	576	306
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	193	0	13	1	1	1	24	481	1	3	633	336
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	286	0	127	2	2	2	101	2444	5	101	2387	1065
Arrive On Green	0.08	0.00	0.08	0.00	0.00	0.00	0.06	0.66	0.66	0.06	0.66	0.66
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3696	8	1810	3610	1610
Grp Volume(v), veh/h	193	0	13	3	0	0	24	235	247	3	633	336
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	4.7	0.0	0.7	0.2	0.0	0.0	1.1	4.6	4.6	0.1	6.5	8.0
Cycle Q Clear(g_c), s	4.7	0.0	0.7	0.2	0.0	0.0	1.1	4.6	4.6	0.1	6.5	8.0
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	0	127	7	0	0	101	1194	1256	101	2387	1065
V/C Ratio(X)	0.67	0.00	0.10	0.42	0.00	0.00	0.24	0.20	0.20	0.03	0.27	0.32
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1194	1256	362	2387	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	38.5	44.7	0.0	0.0	40.7	5.9	5.9	40.2	6.3	6.5
Incr Delay (d2), s/veh	2.8	0.0	0.3	35.5	0.0	0.0	1.2	0.4	0.4	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.3	0.1	0.0	0.0	0.5	1.6	1.7	0.1	2.2	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	38.8	80.2	0.0	0.0	41.9	6.3	6.3	40.3	6.3	6.7
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		206			3			506			972	
Approach Delay, s/veh		42.8			80.2			8.0			6.6	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	64.0		11.6	9.5	64.0		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	6.6		6.7	3.1	10.0		2.2				
Green Ext Time (p_c), s	0.0	2.2		0.5	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.5	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	4	488	540	5
Future Vol, veh/h	4	2	4	488	540	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	4	514	568	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	836	287	573	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	265	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	310	716	1010	-	-	-
Stage 1	534	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	309	716	1010	-	-	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	761	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1010	-	381	-	-
HCM Lane V/C Ratio	0.004	-	0.017	-	-
HCM Control Delay (s)	8.6	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	0	497	499	4
Future Vol, veh/h	0	36	0	497	499	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	523	525	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	265	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	630	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	630	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	630	-	-
HCM Lane V/C Ratio	-	0.06	-	-
HCM Control Delay (s)	-	11.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	16	33	368	125	108	493	132	142	336	67	117	386
Future Volume (veh/h)	16	33	368	125	108	493	132	142	336	67	117	386
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		38	418	142	123	560	150	161	382	76	133	439
Peak Hour Factor		0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %		0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h		62	662	295	195	740	330	241	1815	810	205	2396
Arrive On Green		0.03	0.18	0.18	0.06	0.20	0.20	0.07	0.50	0.50	0.06	0.49
Sat Flow, veh/h		1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4867
Grp Volume(v), veh/h		38	418	142	123	560	150	161	382	76	133	310
Grp Sat Flow(s),veh/h/ln		1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729
Q Serve(g_s), s		1.9	9.6	7.1	3.1	13.1	7.4	4.0	5.3	2.2	3.3	4.5
Cycle Q Clear(g_c), s		1.9	9.6	7.1	3.1	13.1	7.4	4.0	5.3	2.2	3.3	4.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		62	662	295	195	740	330	241	1815	810	205	1702
V/C Ratio(X)		0.62	0.63	0.48	0.63	0.76	0.45	0.67	0.21	0.09	0.65	0.18
Avail Cap(c_a), veh/h		191	983	438	449	1063	474	527	1815	810	332	1702
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		42.9	33.9	32.9	41.6	33.7	31.4	40.9	12.4	11.7	41.5	12.7
Incr Delay (d2), s/veh		9.6	1.0	1.2	3.3	1.9	1.0	3.2	0.3	0.2	3.5	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	4.2	2.8	1.4	5.8	2.9	1.8	2.1	0.8	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		52.5	34.9	34.1	44.9	35.6	32.4	44.1	12.7	11.9	44.9	13.0
LnGrp LOS		D	C	C	D	D	C	D	B	B	D	B
Approach Vol, veh/h			598			833			619			610
Approach Delay, s/veh			35.9			36.4			20.8			20.0
Approach LOS			D			D			C			C

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	49.8	9.5	21.0	10.7	48.8	7.6	22.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.3	7.3	5.1	11.6	6.0	6.6	3.9	15.1
Green Ext Time (p_c), s	0.1	2.7	0.2	2.6	0.3	2.7	0.0	3.3

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	33
Future Volume (veh/h)	33
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	38
Peak Hour Factor	0.88
Percent Heavy Veh, %	0
Cap, veh/h	205
Arrive On Green	0.49
Sat Flow, veh/h	416
Grp Volume(v), veh/h	167
Grp Sat Flow(s),veh/h/ln	1825
Q Serve(g_s), s	4.6
Cycle Q Clear(g_c), s	4.6
Prop In Lane	0.23
Lane Grp Cap(c), veh/h	899
V/C Ratio(X)	0.19
Avail Cap(c_a), veh/h	899
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	12.8
Incr Delay (d2), s/veh	0.5
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	1.9
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	13.2
LnGrp LOS	B
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU
Lane Configurations												
Traffic Volume (veh/h)	16	153	819	134	21	93	542	41	149	317	89	3
Future Volume (veh/h)	16	153	819	134	21	93	542	41	149	317	89	3
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		1.00	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach			No				No			No		
Adj Sat Flow, veh/h/ln		1900	1900	1900		1900	1900	1900	1885	1885	1885	
Adj Flow Rate, veh/h		170	910	149		103	602	46	166	352	99	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	
Percent Heavy Veh, %		0	0	0		0	0	0	1	1	1	
Cap, veh/h		207	1119	499		132	970	433	239	989	274	
Arrive On Green		0.11	0.31	0.31		0.07	0.27	0.27	0.07	0.36	0.36	
Sat Flow, veh/h		1810	3610	1610		1810	3610	1610	3483	2770	768	
Grp Volume(v), veh/h		170	910	149		103	602	46	166	226	225	
Grp Sat Flow(s),veh/h/ln		1810	1805	1610		1810	1805	1610	1742	1791	1747	
Q Serve(g_s), s		8.3	20.9	6.3		5.0	13.2	1.9	4.2	8.4	8.6	
Cycle Q Clear(g_c), s		8.3	20.9	6.3		5.0	13.2	1.9	4.2	8.4	8.6	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.44	
Lane Grp Cap(c), veh/h		207	1119	499		132	970	433	239	639	624	
V/C Ratio(X)		0.82	0.81	0.30		0.78	0.62	0.11	0.70	0.35	0.36	
Avail Cap(c_a), veh/h		300	1344	599		237	1219	544	298	639	624	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		39.0	28.6	23.6		41.0	28.9	24.8	41.0	21.3	21.4	
Incr Delay (d2), s/veh		11.3	3.3	0.3		9.5	0.7	0.1	5.1	1.5	1.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		4.3	9.2	0.0		2.6	5.7	0.7	1.9	3.7	3.7	
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.3	32.0	23.9		50.5	29.5	24.9	46.1	22.8	23.0	
LnGrp LOS		D	C	C		D	C	C	D	C	C	
Approach Vol, veh/h			1229				751			617		
Approach Delay, s/veh			33.5				32.1			29.1		
Approach LOS			C				C			C		

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	36.6	11.1	32.4	10.7	35.8	14.8	28.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.1	10.6	7.0	22.9	6.2	8.2	10.3	15.2
Green Ext Time (p_c), s	0.0	1.8	0.1	5.0	0.1	1.4	0.2	3.8

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBL	SBT	SBR
Lane Configurations			
Traffic Volume (veh/h)	76	188	103
Future Volume (veh/h)	76	188	103
Initial Q (Qb), veh	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00
Work Zone On Approach		No	
Adj Sat Flow, veh/h/ln	1900	1900	1900
Adj Flow Rate, veh/h	84	209	114
Peak Hour Factor	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0
Cap, veh/h	108	798	418
Arrive On Green	0.06	0.35	0.35
Sat Flow, veh/h	1810	2290	1199
Grp Volume(v), veh/h	84	163	160
Grp Sat Flow(s),veh/h/ln	1810	1805	1684
Q Serve(g_s), s	4.1	5.8	6.2
Cycle Q Clear(g_c), s	4.1	5.8	6.2
Prop In Lane	1.00		0.71
Lane Grp Cap(c), veh/h	108	629	587
V/C Ratio(X)	0.78	0.26	0.27
Avail Cap(c_a), veh/h	147	629	587
HCM Platoon Ratio	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	21.0	21.1
Incr Delay (d2), s/veh	16.3	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.6	2.6
Unsig. Movement Delay, s/veh			
LnGrp Delay(d),s/veh	58.0	22.0	22.3
LnGrp LOS	E	C	C
Approach Vol, veh/h		407	
Approach Delay, s/veh		29.5	
Approach LOS		C	
Timer - Assigned Phs			

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	990	757	52	0	17
Future Vol, veh/h	0	990	757	52	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1042	797	55	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	426
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	582
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	582
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	582
HCM Lane V/C Ratio	-	-	-	0.031
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

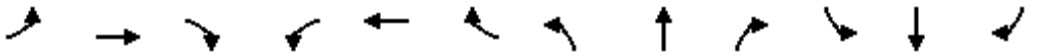
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	990	784	26	0	10
Future Vol, veh/h	0	990	784	26	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1042	825	27	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	426
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	582
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	582
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	582
HCM Lane V/C Ratio	-	-	-	0.018
HCM Control Delay (s)	-	-	-	11.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	311	3	30	2	5	1	29	601	1	1	618	224
Future Volume (veh/h)	311	3	30	2	5	1	29	601	1	1	618	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	365	0	24	2	6	1	33	683	1	1	702	255
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	467	0	208	3	10	2	101	2231	3	101	2178	971
Arrive On Green	0.13	0.00	0.13	0.01	0.01	0.01	0.06	0.60	0.60	0.06	0.60	0.60
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3699	5	1810	3610	1610
Grp Volume(v), veh/h	365	0	24	9	0	0	33	333	351	1	702	255
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	8.9	0.0	1.2	0.6	0.0	0.0	1.6	8.1	8.1	0.0	8.6	6.7
Cycle Q Clear(g_c), s	8.9	0.0	1.2	0.6	0.0	0.0	1.6	8.1	8.1	0.0	8.6	6.7
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	467	0	208	16	0	0	101	1089	1146	101	2178	971
V/C Ratio(X)	0.78	0.00	0.12	0.58	0.00	0.00	0.33	0.31	0.31	0.01	0.32	0.26
Avail Cap(c_a), veh/h	718	0	320	279	0	0	362	1089	1146	362	2178	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	34.6	44.3	0.0	0.0	40.9	8.7	8.7	40.2	8.8	8.4
Incr Delay (d2), s/veh	3.1	0.0	0.2	29.2	0.0	0.0	1.9	0.7	0.7	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.5	0.3	0.0	0.0	0.7	3.1	3.2	0.0	3.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	34.8	73.5	0.0	0.0	42.8	9.4	9.4	40.2	8.9	8.6
LnGrp LOS	D	A	C	E	A	A	D	A	A	D	A	A
Approach Vol, veh/h		389			9			717			958	
Approach Delay, s/veh		40.6			73.5			10.9			8.8	
Approach LOS		D			E			B			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	58.8		16.2	9.5	58.8		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	10.1		10.9	3.6	10.6		2.6				
Green Ext Time (p_c), s	0.0	2.6		0.8	0.0	3.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		15.8	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	6	4	570	671	2
Future Vol, veh/h	12	6	4	570	671	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	13	6	4	600	706	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1015	354	708	0	-	0
Stage 1	707	-	-	-	-	-
Stage 2	308	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	238	648	900	-	-	-
Stage 1	455	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	237	648	900	-	-	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	900	-	301	-	-
HCM Lane V/C Ratio	0.005	-	0.063	-	-
HCM Control Delay (s)	9	-	17.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	565	704	10
Future Vol, veh/h	0	18	0	565	704	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	19	0	595	741	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	376	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	535	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	535	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	535	-	-
HCM Lane V/C Ratio	-	0.035	-	-
HCM Control Delay (s)	-	12	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	12	56	782	144	148	542	141	214	369	121	170	492
Future Volume (veh/h)	12	56	782	144	148	542	141	214	369	121	170	492
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No
Adj Sat Flow, veh/h/ln		1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h		62	859	158	163	596	155	235	405	133	187	541
Peak Hour Factor		0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %		0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h		81	1046	466	239	1131	504	319	1327	592	262	1652
Arrive On Green		0.04	0.29	0.29	0.07	0.31	0.31	0.09	0.37	0.37	0.07	0.35
Sat Flow, veh/h		1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4700
Grp Volume(v), veh/h		62	859	158	163	596	155	235	405	133	187	396
Grp Sat Flow(s),veh/h/ln		1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729
Q Serve(g_s), s		3.1	20.0	7.0	4.1	12.2	6.6	5.9	7.2	5.1	4.7	7.5
Cycle Q Clear(g_c), s		3.1	20.0	7.0	4.1	12.2	6.6	5.9	7.2	5.1	4.7	7.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		81	1046	466	239	1131	504	319	1327	592	262	1215
V/C Ratio(X)		0.77	0.82	0.34	0.68	0.53	0.31	0.74	0.31	0.22	0.71	0.33
Avail Cap(c_a), veh/h		205	1223	546	371	1195	533	488	1327	592	332	1215
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		42.5	29.8	25.2	41.0	25.4	23.5	39.9	20.3	19.6	40.7	21.4
Incr Delay (d2), s/veh		14.1	4.0	0.4	3.4	0.4	0.3	3.3	0.6	0.9	5.2	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.7	9.0	2.7	1.9	5.2	2.5	2.6	3.1	2.0	2.2	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		56.7	33.8	25.6	44.4	25.8	23.8	43.2	20.9	20.5	45.9	22.1
LnGrp LOS		E	C	C	D	C	C	D	C	C	D	C
Approach Vol, veh/h			1079			914			773			793
Approach Delay, s/veh			33.9			28.8			27.6			27.9
Approach LOS			C			C			C			C

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	37.6	10.6	30.6	12.7	36.1	8.5	32.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	6.7	9.2	6.1	22.0	7.9	9.7	5.1	14.2
Green Ext Time (p_c), s	0.1	2.7	0.1	4.1	0.3	2.7	0.0	4.1

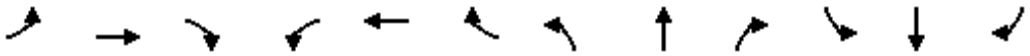
Intersection Summary	
HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	59
Future Volume (veh/h)	59
Initial Q (Qb), veh	0
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1900
Adj Flow Rate, veh/h	65
Peak Hour Factor	0.91
Percent Heavy Veh, %	0
Cap, veh/h	196
Arrive On Green	0.35
Sat Flow, veh/h	557
Grp Volume(v), veh/h	210
Grp Sat Flow(s),veh/h/ln	1800
Q Serve(g_s), s	7.7
Cycle Q Clear(g_c), s	7.7
Prop In Lane	0.31
Lane Grp Cap(c), veh/h	633
V/C Ratio(X)	0.33
Avail Cap(c_a), veh/h	633
HCM Platoon Ratio	1.00
Upstream Filter(I)	1.00
Uniform Delay (d), s/veh	21.4
Incr Delay (d2), s/veh	1.4
Initial Q Delay(d3),s/veh	0.0
%ile BackOfQ(50%),veh/ln	3.4
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	22.8
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	543	121	109	832	43	200	196	36	59	332	106
Future Volume (veh/h)	171	543	121	109	832	43	200	196	36	59	332	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	197	624	139	125	956	49	230	225	41	68	382	122
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	3	3	3	3	3	3
Cap, veh/h	234	1236	551	157	1077	480	302	927	166	87	716	226
Arrive On Green	0.13	0.35	0.35	0.09	0.31	0.31	0.09	0.31	0.31	0.05	0.27	0.27
Sat Flow, veh/h	1767	3526	1572	1753	3497	1560	3428	2987	535	1767	2637	832
Grp Volume(v), veh/h	197	624	139	125	956	49	230	131	135	68	254	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1753	1749	1560	1714	1763	1759	1767	1763	1706
Q Serve(g_s), s	9.8	12.6	5.7	6.3	23.4	2.0	5.9	5.0	5.1	3.4	11.0	11.3
Cycle Q Clear(g_c), s	9.8	12.6	5.7	6.3	23.4	2.0	5.9	5.0	5.1	3.4	11.0	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.49
Lane Grp Cap(c), veh/h	234	1236	551	157	1077	480	302	547	546	87	479	463
V/C Ratio(X)	0.84	0.50	0.25	0.80	0.89	0.10	0.76	0.24	0.25	0.78	0.53	0.54
Avail Cap(c_a), veh/h	318	1236	551	286	1139	508	320	547	546	130	479	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	23.1	20.8	40.2	29.7	22.3	40.1	23.1	23.2	42.3	27.9	28.0
Incr Delay (d2), s/veh	13.8	0.3	0.2	8.8	8.5	0.1	9.8	1.0	1.1	16.0	4.2	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.1	2.1	3.1	10.7	0.7	2.9	2.2	2.3	1.9	5.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	23.4	21.0	49.0	38.1	22.3	49.9	24.2	24.3	58.3	32.0	32.4
LnGrp LOS	D	C	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		960			1130			496			572	
Approach Delay, s/veh		28.9			38.7			36.1			35.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	32.4	12.6	36.1	12.4	29.0	16.4	32.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.4	7.1	8.3	14.6	7.9	13.3	11.8	25.4
Green Ext Time (p_c), s	0.0	1.2	0.1	4.3	0.0	1.3	0.2	2.3

Intersection Summary	
HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

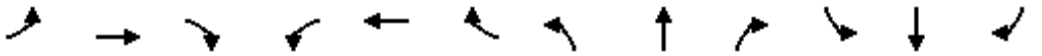
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	638	755	12	0	3
Future Vol, veh/h	0	638	755	12	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	672	795	13	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	404
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	602
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	602
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	602
HCM Lane V/C Ratio	-	-	-	0.005
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	0	17	1	1	1	22	563	1	3	766	336
Future Volume (veh/h)	170	0	17	1	1	1	22	563	1	3	766	336
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	193	0	13	1	1	1	24	619	1	3	842	369
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	286	0	127	2	2	2	101	2446	4	101	2387	1065
Arrive On Green	0.08	0.00	0.08	0.00	0.00	0.00	0.06	0.66	0.66	0.06	0.66	0.66
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	193	0	13	3	0	0	24	302	318	3	842	369
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	4.7	0.0	0.7	0.2	0.0	0.0	1.1	6.1	6.1	0.1	9.3	9.1
Cycle Q Clear(g_c), s	4.7	0.0	0.7	0.2	0.0	0.0	1.1	6.1	6.1	0.1	9.3	9.1
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	0	127	7	0	0	101	1194	1256	101	2387	1065
V/C Ratio(X)	0.67	0.00	0.10	0.42	0.00	0.00	0.24	0.25	0.25	0.03	0.35	0.35
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1194	1256	362	2387	1065
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	38.5	44.7	0.0	0.0	40.7	6.2	6.2	40.2	6.7	6.7
Incr Delay (d2), s/veh	2.8	0.0	0.3	35.5	0.0	0.0	1.2	0.5	0.5	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.3	0.1	0.0	0.0	0.5	2.2	2.3	0.1	3.1	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	38.8	80.2	0.0	0.0	41.9	6.7	6.7	40.3	6.8	6.9
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		206			3			644			1214	
Approach Delay, s/veh		42.8			80.2			8.0			6.9	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	64.0		11.6	9.5	64.0		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	8.1		6.7	3.1	11.3		2.2				
Green Ext Time (p_c), s	0.0	2.7		0.5	0.0	3.8		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

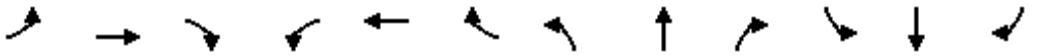
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	3	616	730	4
Future Vol, veh/h	1	0	3	616	730	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	3	648	768	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1100	386	772	0	-	0
Stage 1	770	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	210	618	852	-	-	-
Stage 1	423	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	209	618	852	-	-	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	421	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	852	-	209	-	-
HCM Lane V/C Ratio	0.004	-	0.005	-	-
HCM Control Delay (s)	9.2	-	22.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



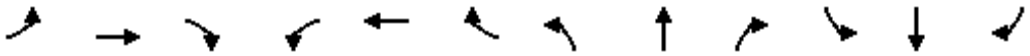
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	399	220	182	556	159	204	464	98	113	578	23
Future Volume (veh/h)	29	399	220	182	556	159	204	464	98	113	578	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	33	453	250	207	632	181	232	527	111	128	657	26
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	56	719	321	288	903	403	317	1668	744	199	2192	86
Arrive On Green	0.03	0.20	0.20	0.08	0.25	0.25	0.09	0.46	0.46	0.06	0.43	0.43
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	5120	202
Grp Volume(v), veh/h	33	453	250	207	632	181	232	527	111	128	443	240
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1864
Q Serve(g_s), s	1.6	10.3	13.2	5.2	14.3	8.5	5.8	8.3	3.6	3.2	7.6	7.6
Cycle Q Clear(g_c), s	1.6	10.3	13.2	5.2	14.3	8.5	5.8	8.3	3.6	3.2	7.6	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	56	719	321	288	903	403	317	1668	744	199	1481	798
V/C Ratio(X)	0.58	0.63	0.78	0.72	0.70	0.45	0.73	0.32	0.15	0.64	0.30	0.30
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1668	744	332	1481	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	33.0	34.2	40.3	30.7	28.5	39.9	15.3	14.0	41.6	16.9	16.9
Incr Delay (d2), s/veh	9.2	0.9	6.1	3.4	1.7	0.8	3.2	0.5	0.4	3.5	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.5	5.6	2.3	6.3	3.3	2.6	3.4	1.3	1.5	3.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	33.9	40.2	43.6	32.3	29.3	43.1	15.7	14.4	45.0	17.4	17.9
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		736			1020			870			811	
Approach Delay, s/veh		36.9			34.1			22.9			21.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	46.1	11.9	22.4	12.6	43.0	7.3	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.2	10.3	7.2	15.2	7.8	9.6	3.6	16.3
Green Ext Time (p_c), s	0.1	3.6	0.3	2.7	0.4	3.6	0.0	3.6

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	997	143	95	667	41	178	358	115	76	195	119
Future Volume (veh/h)	174	997	143	95	667	41	178	358	115	76	195	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	193	1108	159	106	741	46	198	398	128	84	217	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	0	0	0
Cap, veh/h	230	1265	564	136	1076	480	271	842	268	108	651	380
Arrive On Green	0.13	0.35	0.35	0.08	0.30	0.30	0.08	0.31	0.31	0.06	0.30	0.30
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3483	2673	850	1810	2194	1280
Grp Volume(v), veh/h	193	1108	159	106	741	46	198	265	261	84	177	172
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1742	1791	1732	1810	1805	1670
Q Serve(g_s), s	9.4	25.9	6.4	5.2	16.3	1.9	5.0	10.7	10.9	4.1	6.9	7.3
Cycle Q Clear(g_c), s	9.4	25.9	6.4	5.2	16.3	1.9	5.0	10.7	10.9	4.1	6.9	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.77
Lane Grp Cap(c), veh/h	230	1265	564	136	1076	480	271	564	545	108	536	496
V/C Ratio(X)	0.84	0.88	0.28	0.78	0.69	0.10	0.73	0.47	0.48	0.78	0.33	0.35
Avail Cap(c_a), veh/h	300	1344	599	237	1219	544	298	564	545	147	536	496
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	27.4	21.1	40.9	27.9	22.8	40.6	24.8	24.9	41.7	24.7	24.8
Incr Delay (d2), s/veh	14.9	6.5	0.3	9.3	1.4	0.1	8.0	2.8	3.0	16.3	1.6	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	11.8	0.0	2.6	7.0	0.7	2.4	4.9	4.8	2.3	3.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	33.9	21.3	50.2	29.3	22.9	48.6	27.6	27.9	58.0	26.3	26.7
LnGrp LOS	D	C	C	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		1460			893			724			433	
Approach Delay, s/veh		35.1			31.5			33.4			32.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.8	11.3	36.0	11.5	31.2	16.0	31.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.1	12.9	7.2	27.9	7.0	9.3	11.4	18.3
Green Ext Time (p_c), s	0.0	1.7	0.1	3.6	0.0	1.4	0.2	4.2

Intersection Summary	
HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

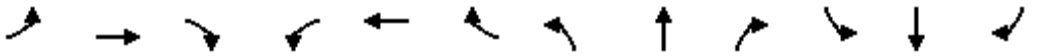
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1188	882	27	0	13
Future Vol, veh/h	0	1188	882	27	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1251	928	28	0	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	478
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	539
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	539
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	539
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	364	3	30	2	5	1	29	801	1	1	823	247
Future Volume (veh/h)	364	3	30	2	5	1	29	801	1	1	823	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	426	0	24	2	6	1	33	910	1	1	935	281
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	527	0	234	3	10	2	101	2171	2	101	2118	945
Arrive On Green	0.15	0.00	0.15	0.01	0.01	0.01	0.06	0.59	0.59	0.06	0.59	0.59
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3700	4	1810	3610	1610
Grp Volume(v), veh/h	426	0	24	9	0	0	33	444	467	1	935	281
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	10.3	0.0	1.2	0.6	0.0	0.0	1.6	12.1	12.1	0.0	13.0	7.9
Cycle Q Clear(g_c), s	10.3	0.0	1.2	0.6	0.0	0.0	1.6	12.1	12.1	0.0	13.0	7.9
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	527	0	234	16	0	0	101	1059	1114	101	2118	945
V/C Ratio(X)	0.81	0.00	0.10	0.58	0.00	0.00	0.33	0.42	0.42	0.01	0.44	0.30
Avail Cap(c_a), veh/h	718	0	320	279	0	0	362	1059	1114	362	2118	945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	0.0	33.3	44.3	0.0	0.0	40.9	10.2	10.2	40.2	10.4	9.3
Incr Delay (d2), s/veh	5.0	0.0	0.2	29.2	0.0	0.0	1.9	1.2	1.2	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	0.5	0.3	0.0	0.0	0.7	4.7	5.0	0.0	4.8	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	0.0	33.5	73.5	0.0	0.0	42.8	11.4	11.4	40.2	10.5	9.5
LnGrp LOS	D	A	C	E	A	A	D	B	B	D	B	A
Approach Vol, veh/h		450			9			944			1217	
Approach Delay, s/veh		41.7			73.5			12.5			10.3	
Approach LOS		D			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	57.3		17.7	9.5	57.3		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	14.1		12.3	3.6	15.0		2.6				
Green Ext Time (p_c), s	0.0	2.0		0.9	0.0	2.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

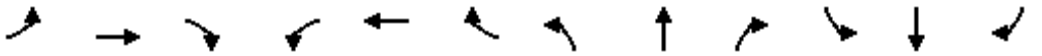
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	5	2	772	878	0
Future Vol, veh/h	10	5	2	772	878	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	5	2	813	924	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1335	462	924	0	-	0
Stage 1	924	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	148	552	748	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	148	552	748	-	-	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	351	-	-	-	-	-
Stage 2	643	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	748	-	196	-	-
HCM Lane V/C Ratio	0.003	-	0.081	-	-
HCM Control Delay (s)	9.8	-	25	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



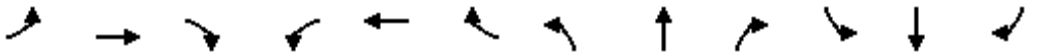
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	874	264	217	585	159	286	572	177	195	697	54
Future Volume (veh/h)	63	874	264	217	585	159	286	572	177	195	697	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	69	960	290	238	643	175	314	629	195	214	766	59
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	90	1128	503	315	1272	567	396	1140	508	289	1402	107
Arrive On Green	0.05	0.31	0.31	0.09	0.35	0.35	0.11	0.32	0.32	0.08	0.29	0.29
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4914	377
Grp Volume(v), veh/h	69	960	290	238	643	175	314	629	195	214	538	287
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1832
Q Serve(g_s), s	3.4	22.4	13.6	6.0	12.6	7.1	7.8	13.0	8.5	5.4	11.9	11.9
Cycle Q Clear(g_c), s	3.4	22.4	13.6	6.0	12.6	7.1	7.8	13.0	8.5	5.4	11.9	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	90	1128	503	315	1272	567	396	1140	508	289	987	523
V/C Ratio(X)	0.77	0.85	0.58	0.76	0.51	0.31	0.79	0.55	0.38	0.74	0.55	0.55
Avail Cap(c_a), veh/h	205	1223	546	371	1272	567	488	1140	508	332	987	523
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	29.0	26.0	40.0	23.0	21.2	38.9	25.5	24.0	40.4	27.2	27.2
Incr Delay (d2), s/veh	12.8	5.6	1.3	7.3	0.3	0.3	7.2	1.9	2.2	7.4	2.2	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	10.2	5.2	2.9	5.3	2.7	3.7	5.7	3.5	2.6	5.1	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	34.6	27.2	47.3	23.3	21.5	46.1	27.4	26.2	47.8	29.4	31.4
LnGrp LOS	E	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1319			1056			1138			1039	
Approach Delay, s/veh		34.0			28.4			32.4			33.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	32.9	12.6	32.6	14.6	30.2	9.0	36.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	7.4	15.0	8.0	24.4	9.8	13.9	5.4	14.6
Green Ext Time (p_c), s	0.1	3.2	0.1	3.7	0.3	2.5	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	555	121	109	843	43	200	196	36	59	332	106
Future Volume (veh/h)	171	555	121	109	843	43	200	196	36	59	332	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	197	638	139	125	969	49	230	225	41	68	382	122
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	3	3	3	3	3	3
Cap, veh/h	234	1244	555	157	1084	484	302	920	165	87	711	224
Arrive On Green	0.13	0.35	0.35	0.09	0.31	0.31	0.09	0.31	0.31	0.05	0.27	0.27
Sat Flow, veh/h	1767	3526	1572	1753	3497	1560	3428	2987	535	1767	2637	832
Grp Volume(v), veh/h	197	638	139	125	969	49	230	131	135	68	254	250
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1753	1749	1560	1714	1763	1759	1767	1763	1706
Q Serve(g_s), s	9.8	12.9	5.6	6.3	23.8	2.0	5.9	5.0	5.2	3.4	11.1	11.3
Cycle Q Clear(g_c), s	9.8	12.9	5.6	6.3	23.8	2.0	5.9	5.0	5.2	3.4	11.1	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.49
Lane Grp Cap(c), veh/h	234	1244	555	157	1084	484	302	543	542	87	475	460
V/C Ratio(X)	0.84	0.51	0.25	0.80	0.89	0.10	0.76	0.24	0.25	0.78	0.53	0.54
Avail Cap(c_a), veh/h	318	1244	555	286	1139	508	320	543	542	130	475	460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	23.0	20.7	40.2	29.6	22.1	40.1	23.3	23.3	42.3	28.1	28.1
Incr Delay (d2), s/veh	13.8	0.4	0.2	8.8	9.0	0.1	9.8	1.1	1.1	16.0	4.3	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	5.2	2.1	3.1	11.0	0.7	2.9	2.2	2.3	1.9	5.1	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	23.4	20.9	49.0	38.6	22.2	49.9	24.3	24.4	58.3	32.3	32.7
LnGrp LOS	D	C	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		974			1143			496			572	
Approach Delay, s/veh		28.8			39.0			36.2			35.6	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	32.2	12.6	36.3	12.4	28.8	16.4	32.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.4	7.2	8.3	14.9	7.9	13.3	11.8	25.8
Green Ext Time (p_c), s	0.0	1.2	0.1	4.4	0.0	1.3	0.2	2.1

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	655	763	21	0	10
Future Vol, veh/h	0	655	763	21	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	689	803	22	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	413
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	594
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	594
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	594
HCM Lane V/C Ratio	-	-	-	0.018
HCM Control Delay (s)	-	-	-	11.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

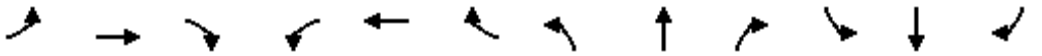
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	655	762	55	0	10
Future Vol, veh/h	0	655	762	55	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	689	802	58	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	430
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	579
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	579
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	579
HCM Lane V/C Ratio	-	-	-	0.018
HCM Control Delay (s)	-	-	-	11.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	0	17	1	1	1	22	566	1	3	777	337
Future Volume (veh/h)	186	0	17	1	1	1	22	566	1	3	777	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	210	0	13	1	1	1	24	622	1	3	854	370
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	305	0	136	2	2	2	101	2427	4	101	2369	1057
Arrive On Green	0.08	0.00	0.08	0.00	0.00	0.00	0.06	0.66	0.66	0.06	0.66	0.66
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	210	0	13	3	0	0	24	304	319	3	854	370
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	5.1	0.0	0.7	0.2	0.0	0.0	1.1	6.3	6.3	0.1	9.6	9.2
Cycle Q Clear(g_c), s	5.1	0.0	0.7	0.2	0.0	0.0	1.1	6.3	6.3	0.1	9.6	9.2
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	136	7	0	0	101	1184	1246	101	2369	1057
V/C Ratio(X)	0.69	0.00	0.10	0.42	0.00	0.00	0.24	0.26	0.26	0.03	0.36	0.35
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1184	1246	362	2369	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	0.0	38.0	44.7	0.0	0.0	40.7	6.4	6.4	40.2	7.0	6.9
Incr Delay (d2), s/veh	2.8	0.0	0.3	35.5	0.0	0.0	1.2	0.5	0.5	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.3	0.1	0.0	0.0	0.5	2.3	2.4	0.1	3.2	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	38.3	80.2	0.0	0.0	41.9	6.9	6.9	40.3	7.1	7.1
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		223			3			647			1227	
Approach Delay, s/veh		42.6			80.2			8.2			7.2	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	63.6		12.1	9.5	63.6		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	8.3		7.1	3.1	11.6		2.2				
Green Ext Time (p_c), s	0.0	2.7		0.5	0.0	3.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		11.3	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	4	616	741	5
Future Vol, veh/h	4	2	4	616	741	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	4	648	780	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1115	393	785	0	-	0
Stage 1	783	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	205	612	843	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	204	612	843	-	-	-
Mov Cap-2 Maneuver	204	-	-	-	-	-
Stage 1	414	-	-	-	-	-
Stage 2	705	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	843	-	262	-	-
HCM Lane V/C Ratio	0.005	-	0.024	-	-
HCM Control Delay (s)	9.3	-	19.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

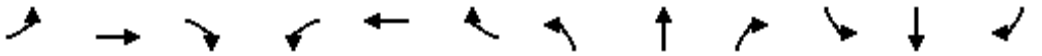
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	0	625	700	4
Future Vol, veh/h	0	36	0	625	700	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	658	737	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	371	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	539	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	539	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	539	-	-
HCM Lane V/C Ratio	-	0.07	-	-
HCM Control Delay (s)	-	12.2	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-



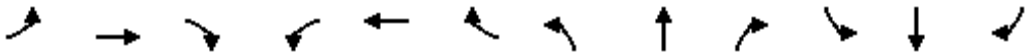
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	399	222	181	566	158	223	462	97	126	600	34
Future Volume (veh/h)	45	399	222	181	566	158	223	462	97	126	600	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	453	252	206	643	180	253	525	110	143	682	39
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	72	723	323	287	874	390	339	1648	735	216	2116	120
Arrive On Green	0.04	0.20	0.20	0.08	0.24	0.24	0.10	0.46	0.46	0.06	0.42	0.42
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	5021	286
Grp Volume(v), veh/h	51	453	252	206	643	180	253	525	110	143	469	252
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1849
Q Serve(g_s), s	2.5	10.3	13.4	5.2	14.8	8.6	6.3	8.3	3.6	3.6	8.2	8.2
Cycle Q Clear(g_c), s	2.5	10.3	13.4	5.2	14.8	8.6	6.3	8.3	3.6	3.6	8.2	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	72	723	323	287	874	390	339	1648	735	216	1457	779
V/C Ratio(X)	0.70	0.63	0.78	0.72	0.74	0.46	0.75	0.32	0.15	0.66	0.32	0.32
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1648	735	332	1457	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	32.9	34.1	40.3	31.5	29.1	39.6	15.6	14.3	41.3	17.4	17.4
Incr Delay (d2), s/veh	11.7	0.9	6.3	3.3	2.1	0.9	3.3	0.5	0.4	3.5	0.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.5	5.7	2.3	6.5	3.3	2.8	3.4	1.3	1.6	3.3	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.4	33.8	40.4	43.7	33.6	30.0	42.9	16.1	14.7	44.8	18.0	18.6
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		756			1029			888			864	
Approach Delay, s/veh		37.4			35.0			23.5			22.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	45.6	11.9	22.5	13.2	42.4	8.1	26.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.6	10.3	7.2	15.4	8.3	10.2	4.5	16.8
Green Ext Time (p_c), s	0.1	3.6	0.3	2.7	0.4	3.7	0.0	3.5

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	1006	143	95	673	41	178	358	115	76	195	119
Future Volume (veh/h)	174	1006	143	95	673	41	178	358	115	76	195	119
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	193	1118	159	106	748	46	198	398	128	84	217	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	0	0	0
Cap, veh/h	230	1271	567	136	1082	483	271	837	266	108	648	378
Arrive On Green	0.13	0.35	0.35	0.08	0.30	0.30	0.08	0.31	0.31	0.06	0.30	0.30
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3483	2673	850	1810	2194	1280
Grp Volume(v), veh/h	193	1118	159	106	748	46	198	265	261	84	177	172
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1742	1791	1732	1810	1805	1670
Q Serve(g_s), s	9.4	26.2	6.4	5.2	16.5	1.9	5.0	10.7	11.0	4.1	6.9	7.3
Cycle Q Clear(g_c), s	9.4	26.2	6.4	5.2	16.5	1.9	5.0	10.7	11.0	4.1	6.9	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.77
Lane Grp Cap(c), veh/h	230	1271	567	136	1082	483	271	561	542	108	533	493
V/C Ratio(X)	0.84	0.88	0.28	0.78	0.69	0.10	0.73	0.47	0.48	0.78	0.33	0.35
Avail Cap(c_a), veh/h	300	1344	599	237	1219	544	298	561	542	147	533	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	27.4	21.0	40.9	27.8	22.7	40.6	24.9	25.0	41.7	24.8	24.9
Incr Delay (d2), s/veh	14.9	6.8	0.3	9.3	1.5	0.1	8.0	2.8	3.0	16.3	1.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	12.0	0.0	2.6	7.1	0.7	2.4	4.9	4.8	2.3	3.1	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	34.2	21.2	50.2	29.3	22.8	48.6	27.8	28.0	58.0	26.4	26.9
LnGrp LOS	D	C	C	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		1470			900			724			433	
Approach Delay, s/veh		35.3			31.4			33.6			32.7	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	32.7	11.3	36.2	11.5	31.1	16.0	31.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.1	13.0	7.2	28.2	7.0	9.3	11.4	18.5
Green Ext Time (p_c), s	0.0	1.7	0.1	3.5	0.0	1.4	0.2	4.2

Intersection Summary	
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1203	890	52	0	17
Future Vol, veh/h	0	1203	890	52	0	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1266	937	55	0	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	496
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	525
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	525
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	525
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	12.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

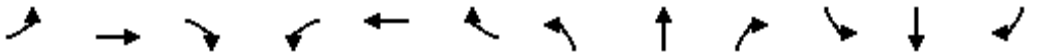
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1203	917	26	0	10
Future Vol, veh/h	0	1203	917	26	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1266	965	27	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	496
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	525
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	525
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	525
HCM Lane V/C Ratio	-	-	-	0.02
HCM Control Delay (s)	-	-	-	12
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	373	3	30	2	5	1	29	803	1	1	838	249
Future Volume (veh/h)	373	3	30	2	5	1	29	803	1	1	838	249
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	436	0	24	2	6	1	33	912	1	1	952	283
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	536	0	239	3	10	2	101	2161	2	101	2108	940
Arrive On Green	0.15	0.00	0.15	0.01	0.01	0.01	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	3591	0	1598	310	931	155	1810	3700	4	1810	3610	1610
Grp Volume(v), veh/h	436	0	24	9	0	0	33	445	468	1	952	283
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1397	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	10.6	0.0	1.2	0.6	0.0	0.0	1.6	12.2	12.2	0.0	13.4	8.0
Cycle Q Clear(g_c), s	10.6	0.0	1.2	0.6	0.0	0.0	1.6	12.2	12.2	0.0	13.4	8.0
Prop In Lane	1.00		1.00	0.22		0.11	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	536	0	239	16	0	0	101	1054	1109	101	2108	940
V/C Ratio(X)	0.81	0.00	0.10	0.58	0.00	0.00	0.33	0.42	0.42	0.01	0.45	0.30
Avail Cap(c_a), veh/h	718	0	320	279	0	0	362	1054	1109	362	2108	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	33.1	44.3	0.0	0.0	40.9	10.3	10.3	40.2	10.6	9.5
Incr Delay (d2), s/veh	5.3	0.0	0.2	29.2	0.0	0.0	1.9	1.2	1.2	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.0	0.5	0.3	0.0	0.0	0.7	4.8	5.0	0.0	4.9	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	0.0	33.2	73.5	0.0	0.0	42.8	11.6	11.5	40.2	10.7	9.6
LnGrp LOS	D	A	C	E	A	A	D	B	B	D	B	A
Approach Vol, veh/h		460			9			946			1236	
Approach Delay, s/veh		41.9			73.5			12.6			10.5	
Approach LOS		D			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	57.1		17.9	9.5	57.1		5.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	14.2		12.6	3.6	15.4		2.6				
Green Ext Time (p_c), s	0.0	2.0		0.9	0.0	1.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		16.9	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	6	4	772	891	2
Future Vol, veh/h	12	6	4	772	891	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	13	6	4	813	938	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1354	470	940	0	-	0
Stage 1	939	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	143	545	737	-	-	-
Stage 1	346	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	142	545	737	-	-	-
Mov Cap-2 Maneuver	142	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	641	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.3	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	737	-	188	-	-
HCM Lane V/C Ratio	0.006	-	0.101	-	-
HCM Control Delay (s)	9.9	-	26.3	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

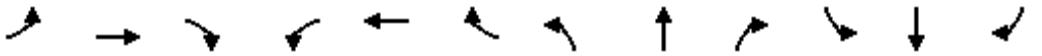
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	767	924	10
Future Vol, veh/h	0	18	0	767	924	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	19	0	807	973	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	492	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	451	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	451	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	451	-	-
HCM Lane V/C Ratio	-	0.042	-	-
HCM Control Delay (s)	-	13.3	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-



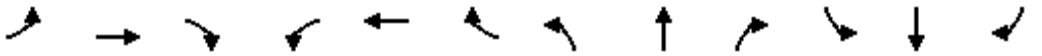
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	876	267	217	596	159	307	573	177	200	708	60
Future Volume (veh/h)	74	876	267	217	596	159	307	573	177	200	708	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	81	963	293	238	655	175	337	630	195	220	778	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	105	1130	504	315	1243	555	417	1132	505	295	1358	115
Arrive On Green	0.06	0.31	0.31	0.09	0.34	0.34	0.12	0.31	0.31	0.08	0.28	0.28
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4873	411
Grp Volume(v), veh/h	81	963	293	238	655	175	337	630	195	220	551	293
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1826
Q Serve(g_s), s	4.0	22.5	13.8	6.0	13.1	7.2	8.4	13.1	8.5	5.5	12.3	12.4
Cycle Q Clear(g_c), s	4.0	22.5	13.8	6.0	13.1	7.2	8.4	13.1	8.5	5.5	12.3	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.23
Lane Grp Cap(c), veh/h	105	1130	504	315	1243	555	417	1132	505	295	964	509
V/C Ratio(X)	0.77	0.85	0.58	0.76	0.53	0.32	0.81	0.56	0.39	0.75	0.57	0.58
Avail Cap(c_a), veh/h	205	1223	546	371	1243	555	488	1132	505	332	964	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	29.0	26.0	40.0	23.6	21.7	38.7	25.7	24.1	40.3	27.8	27.9
Incr Delay (d2), s/veh	11.2	5.7	1.4	7.3	0.4	0.3	8.5	2.0	2.2	7.9	2.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	10.3	5.3	2.9	5.5	2.7	4.1	5.8	3.5	2.7	5.3	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	34.6	27.3	47.3	24.0	22.0	47.2	27.7	26.4	48.2	30.3	32.6
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1337			1068			1162			1064	
Approach Delay, s/veh		34.1			28.9			33.1			34.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	32.7	12.6	32.7	15.2	29.6	9.7	35.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	7.5	15.1	8.0	24.5	10.4	14.4	6.0	15.1
Green Ext Time (p_c), s	0.1	3.2	0.1	3.7	0.3	2.4	0.1	4.5

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	549	127	114	874	45	201	230	55	67	349	111
Future Volume (veh/h)	180	549	127	114	874	45	201	230	55	67	349	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	207	631	146	131	1005	52	231	264	63	77	401	128
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	3	3	3	3	3	3
Cap, veh/h	244	1271	567	164	1104	493	303	823	193	99	680	215
Arrive On Green	0.14	0.36	0.36	0.09	0.32	0.32	0.09	0.29	0.29	0.06	0.26	0.26
Sat Flow, veh/h	1767	3526	1572	1753	3497	1560	3428	2834	664	1767	2636	832
Grp Volume(v), veh/h	207	631	146	131	1005	52	231	162	165	77	267	262
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1753	1749	1560	1714	1763	1736	1767	1763	1706
Q Serve(g_s), s	10.3	12.5	5.9	6.6	24.8	2.1	5.9	6.5	6.7	3.9	11.9	12.1
Cycle Q Clear(g_c), s	10.3	12.5	5.9	6.6	24.8	2.1	5.9	6.5	6.7	3.9	11.9	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.49
Lane Grp Cap(c), veh/h	244	1271	567	164	1104	493	303	512	504	99	455	440
V/C Ratio(X)	0.85	0.50	0.26	0.80	0.91	0.11	0.76	0.32	0.33	0.78	0.59	0.60
Avail Cap(c_a), veh/h	318	1271	567	286	1139	508	320	512	504	130	455	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	22.4	20.3	40.0	29.6	21.8	40.1	25.0	25.0	41.9	29.2	29.3
Incr Delay (d2), s/veh	15.3	0.3	0.2	8.7	10.7	0.1	9.9	1.6	1.7	19.7	5.5	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	5.1	2.1	3.2	11.7	0.8	2.9	2.9	2.9	2.2	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	22.7	20.5	48.6	40.2	21.9	50.0	26.6	26.8	61.6	34.7	35.1
LnGrp LOS	D	C	C	D	D	C	D	C	C	E	C	D
Approach Vol, veh/h		984			1188			558			606	
Approach Delay, s/veh		28.8			40.3			36.3			38.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	30.6	12.9	36.9	12.4	27.7	16.9	32.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.9	8.7	8.6	14.5	7.9	14.1	12.3	26.8
Green Ext Time (p_c), s	0.0	1.4	0.2	4.4	0.0	1.2	0.2	1.6

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

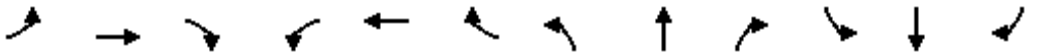
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	671	822	0	0	0
Future Vol, veh/h	0	671	822	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	706	865	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	433
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	576
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	576
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	0	22	1	1	1	23	591	1	3	804	353
Future Volume (veh/h)	195	0	22	1	1	1	23	591	1	3	804	353
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	221	0	16	1	1	1	25	649	1	3	884	388
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	317	0	141	2	2	2	101	2414	4	101	2357	1051
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.06	0.65	0.65	0.06	0.65	0.65
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	221	0	16	3	0	0	25	317	333	3	884	388
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	5.3	0.0	0.8	0.2	0.0	0.0	1.2	6.7	6.7	0.1	10.1	9.9
Cycle Q Clear(g_c), s	5.3	0.0	0.8	0.2	0.0	0.0	1.2	6.7	6.7	0.1	10.1	9.9
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	0	141	7	0	0	101	1178	1240	101	2357	1051
V/C Ratio(X)	0.70	0.00	0.11	0.42	0.00	0.00	0.25	0.27	0.27	0.03	0.38	0.37
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1178	1240	362	2357	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	0.0	37.8	44.7	0.0	0.0	40.7	6.6	6.6	40.2	7.2	7.1
Incr Delay (d2), s/veh	2.8	0.0	0.4	35.5	0.0	0.0	1.3	0.6	0.5	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3	0.1	0.0	0.0	0.6	2.4	2.5	0.1	3.4	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	38.2	80.2	0.0	0.0	42.0	7.1	7.1	40.3	7.3	7.4
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		237			3			675			1275	
Approach Delay, s/veh		42.4			80.2			8.4			7.4	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	63.3		12.4	9.5	63.3		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	8.7		7.3	3.2	12.1		2.2				
Green Ext Time (p_c), s	0.0	2.7		0.6	0.0	3.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

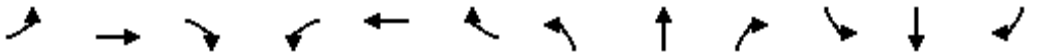
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	0	3	647	767	4
Future Vol, veh/h	1	0	3	647	767	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	3	681	807	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1156	406	811	0	-	0
Stage 1	809	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	193	600	824	-	-	-
Stage 1	403	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	192	600	824	-	-	-
Mov Cap-2 Maneuver	192	-	-	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	824	-	192	-	-
HCM Lane V/C Ratio	0.004	-	0.005	-	-
HCM Control Delay (s)	9.4	-	23.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



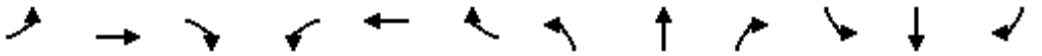
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	445	231	191	584	167	214	487	103	119	607	24
Future Volume (veh/h)	32	445	231	191	584	167	214	487	103	119	607	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	506	262	217	664	190	243	553	117	135	690	27
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	60	750	335	298	938	418	329	1618	722	207	2118	83
Arrive On Green	0.03	0.21	0.21	0.09	0.26	0.26	0.09	0.45	0.45	0.06	0.41	0.41
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	5122	200
Grp Volume(v), veh/h	36	506	262	217	664	190	243	553	117	135	465	252
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1864
Q Serve(g_s), s	1.8	11.6	13.9	5.4	15.0	8.9	6.1	9.0	3.9	3.4	8.2	8.2
Cycle Q Clear(g_c), s	1.8	11.6	13.9	5.4	15.0	8.9	6.1	9.0	3.9	3.4	8.2	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	60	750	335	298	938	418	329	1618	722	207	1430	771
V/C Ratio(X)	0.60	0.67	0.78	0.73	0.71	0.45	0.74	0.34	0.16	0.65	0.33	0.33
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1618	722	332	1430	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	32.8	33.7	40.2	30.2	27.9	39.7	16.2	14.8	41.4	17.9	17.9
Incr Delay (d2), s/veh	9.4	1.2	6.7	3.4	1.9	0.8	3.3	0.6	0.5	3.5	0.6	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.1	5.9	2.5	6.6	3.5	2.7	3.7	1.5	1.5	3.3	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	34.0	40.4	43.5	32.1	28.7	43.0	16.8	15.3	44.9	18.5	19.0
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		804			1071			913			852	
Approach Delay, s/veh		36.9			33.8			23.5			22.8	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.8	44.8	12.2	23.2	12.9	41.7	7.5	27.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.4	11.0	7.4	15.9	8.1	10.2	3.8	17.0
Green Ext Time (p_c), s	0.1	3.8	0.3	2.9	0.4	3.7	0.0	3.6

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	1047	150	133	700	46	187	376	121	80	223	125
Future Volume (veh/h)	183	1047	150	133	700	46	187	376	121	80	223	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	203	1163	167	148	778	51	208	418	134	89	248	139
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	0	0	0
Cap, veh/h	240	1295	578	182	1180	526	280	742	235	114	588	318
Arrive On Green	0.13	0.36	0.36	0.10	0.33	0.33	0.08	0.28	0.28	0.06	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3483	2675	849	1810	2260	1224
Grp Volume(v), veh/h	203	1163	167	148	778	51	208	278	274	89	196	191
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1742	1791	1732	1810	1805	1680
Q Serve(g_s), s	9.9	27.4	6.7	7.2	16.6	2.0	5.3	12.0	12.2	4.4	8.1	8.5
Cycle Q Clear(g_c), s	9.9	27.4	6.7	7.2	16.6	2.0	5.3	12.0	12.2	4.4	8.1	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.73
Lane Grp Cap(c), veh/h	240	1295	578	182	1180	526	280	497	480	114	469	437
V/C Ratio(X)	0.85	0.90	0.29	0.81	0.66	0.10	0.74	0.56	0.57	0.78	0.42	0.44
Avail Cap(c_a), veh/h	300	1344	599	237	1219	544	298	497	480	147	469	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	27.3	20.6	39.6	26.0	21.1	40.5	27.8	27.9	41.5	27.7	27.8
Incr Delay (d2), s/veh	16.4	8.2	0.3	14.9	1.3	0.1	9.0	4.5	4.8	17.9	2.7	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	12.8	2.5	3.9	7.1	0.7	2.6	5.6	5.6	2.5	3.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	35.5	20.9	54.5	27.3	21.1	49.5	32.4	32.7	59.5	30.4	31.0
LnGrp LOS	D	D	C	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		1533			977			760			476	
Approach Delay, s/veh		36.4			31.1			37.2			36.1	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	29.5	13.6	36.8	11.7	27.9	16.4	33.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.4	14.2	9.2	29.4	7.3	10.5	11.9	18.6
Green Ext Time (p_c), s	0.0	1.6	0.1	2.9	0.0	1.5	0.2	4.3

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

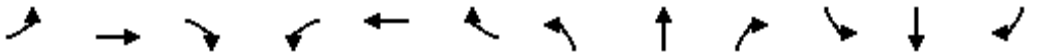
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1247	966	0	0	0
Future Vol, veh/h	0	1247	966	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1313	1017	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	509
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	515
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	515
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	-	0
HCM Lane LOS	-	-	-	A
HCM 95th %tile Q(veh)	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	382	3	32	2	6	1	41	841	1	1	864	259
Future Volume (veh/h)	382	3	32	2	6	1	41	841	1	1	864	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	446	0	25	2	7	1	47	956	1	1	982	294
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	546	0	243	3	12	2	101	2147	2	101	2094	934
Arrive On Green	0.15	0.00	0.15	0.01	0.01	0.01	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	3591	0	1598	280	981	140	1810	3700	4	1810	3610	1610
Grp Volume(v), veh/h	446	0	25	10	0	0	47	466	491	1	982	294
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1401	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	10.8	0.0	1.2	0.6	0.0	0.0	2.3	13.2	13.2	0.0	14.1	8.4
Cycle Q Clear(g_c), s	10.8	0.0	1.2	0.6	0.0	0.0	2.3	13.2	13.2	0.0	14.1	8.4
Prop In Lane	1.00		1.00	0.20		0.10	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	546	0	243	17	0	0	101	1047	1102	101	2094	934
V/C Ratio(X)	0.82	0.00	0.10	0.58	0.00	0.00	0.47	0.45	0.45	0.01	0.47	0.31
Avail Cap(c_a), veh/h	718	0	320	280	0	0	362	1047	1102	362	2094	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	32.9	44.2	0.0	0.0	41.2	10.7	10.7	40.2	10.9	9.7
Incr Delay (d2), s/veh	5.6	0.0	0.2	27.3	0.0	0.0	3.3	1.4	1.3	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	0.5	0.4	0.0	0.0	1.1	5.2	5.4	0.0	5.2	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	0.0	33.1	71.5	0.0	0.0	44.6	12.1	12.0	40.2	11.1	9.9
LnGrp LOS	D	A	C	E	A	A	D	B	B	D	B	A
Approach Vol, veh/h		471			10			1004			1277	
Approach Delay, s/veh		42.0			71.5			13.6			10.8	
Approach LOS		D			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	56.7		18.2	9.5	56.7		5.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	15.2		12.8	4.3	16.1		2.6				
Green Ext Time (p_c), s	0.0	1.6		0.9	0.1	1.3		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		17.4	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

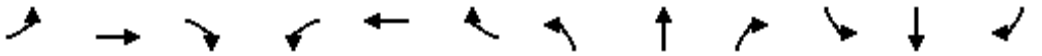
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	5	2	811	922	0
Future Vol, veh/h	11	5	2	811	922	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	5	2	854	971	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1402	486	971	0	-	0
Stage 1	971	-	-	-	-	-
Stage 2	431	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	133	533	718	-	-	-
Stage 1	333	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	533	718	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	332	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	718	-	174	-	-
HCM Lane V/C Ratio	0.003	-	0.097	-	-
HCM Control Delay (s)	10	-	27.9	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



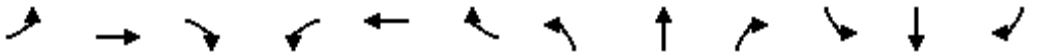
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	918	277	228	609	167	300	601	186	205	732	57
Future Volume (veh/h)	66	918	277	228	609	167	300	601	186	205	732	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	73	1009	304	251	669	184	330	660	204	225	804	63
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	95	1158	516	327	1304	582	410	1086	485	299	1321	103
Arrive On Green	0.05	0.32	0.32	0.09	0.36	0.36	0.12	0.30	0.30	0.09	0.27	0.27
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4906	383
Grp Volume(v), veh/h	73	1009	304	251	669	184	330	660	204	225	566	301
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1831
Q Serve(g_s), s	3.6	23.7	14.2	6.3	13.1	7.4	8.2	14.1	9.1	5.6	12.9	13.0
Cycle Q Clear(g_c), s	3.6	23.7	14.2	6.3	13.1	7.4	8.2	14.1	9.1	5.6	12.9	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	95	1158	516	327	1304	582	410	1086	485	299	931	493
V/C Ratio(X)	0.77	0.87	0.59	0.77	0.51	0.32	0.80	0.61	0.42	0.75	0.61	0.61
Avail Cap(c_a), veh/h	205	1223	546	371	1304	582	488	1086	485	332	931	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.1	28.8	25.6	39.9	22.5	20.7	38.7	26.9	25.2	40.2	28.7	28.8
Incr Delay (d2), s/veh	12.2	6.8	1.5	8.3	0.3	0.3	8.1	2.5	2.7	8.4	2.9	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.0	5.5	3.1	5.4	2.8	4.0	6.3	3.8	2.8	5.6	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	35.7	27.1	48.2	22.9	21.0	46.9	29.4	27.9	48.6	31.7	34.3
LnGrp LOS	D	D	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1386			1104			1194			1092	
Approach Delay, s/veh		34.8			28.3			34.0			35.9	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	31.6	12.9	33.4	15.0	28.7	9.2	37.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	7.6	16.1	8.3	25.7	10.2	15.0	5.6	15.1
Green Ext Time (p_c), s	0.1	3.1	0.1	3.1	0.3	2.2	0.0	4.6

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	561	127	114	885	45	201	230	55	67	349	111
Future Volume (veh/h)	180	561	127	114	885	45	201	230	55	67	349	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1841	1841	1841	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	207	645	146	131	1017	52	231	264	63	77	401	128
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	4	4	4	3	3	3	3	3	3
Cap, veh/h	244	1277	569	164	1110	495	303	818	192	99	675	213
Arrive On Green	0.14	0.36	0.36	0.09	0.32	0.32	0.09	0.29	0.29	0.06	0.26	0.26
Sat Flow, veh/h	1767	3526	1572	1753	3497	1560	3428	2834	664	1767	2636	832
Grp Volume(v), veh/h	207	645	146	131	1017	52	231	162	165	77	267	262
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1753	1749	1560	1714	1763	1736	1767	1763	1706
Q Serve(g_s), s	10.3	12.9	5.9	6.6	25.2	2.1	5.9	6.5	6.7	3.9	11.9	12.2
Cycle Q Clear(g_c), s	10.3	12.9	5.9	6.6	25.2	2.1	5.9	6.5	6.7	3.9	11.9	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		0.49
Lane Grp Cap(c), veh/h	244	1277	569	164	1110	495	303	509	501	99	452	437
V/C Ratio(X)	0.85	0.51	0.26	0.80	0.92	0.10	0.76	0.32	0.33	0.78	0.59	0.60
Avail Cap(c_a), veh/h	318	1277	569	286	1139	508	320	509	501	130	452	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	22.4	20.2	40.0	29.6	21.7	40.1	25.1	25.2	41.9	29.3	29.4
Incr Delay (d2), s/veh	15.3	0.3	0.2	8.7	11.3	0.1	9.9	1.6	1.7	19.7	5.6	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	5.2	2.1	3.2	11.9	0.8	2.9	2.9	3.0	2.2	5.6	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	22.7	20.4	48.6	40.9	21.8	50.0	26.7	26.9	61.6	34.9	35.4
LnGrp LOS	D	C	C	D	D	C	D	C	C	E	C	D
Approach Vol, veh/h		998			1200			558			606	
Approach Delay, s/veh		28.7			40.9			36.4			38.5	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	30.5	12.9	37.1	12.4	27.6	16.9	33.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.6	19.9	14.7	30.8	8.4	18.1	16.2	29.3
Max Q Clear Time (g_c+I1), s	5.9	8.7	8.6	14.9	7.9	14.2	12.3	27.2
Green Ext Time (p_c), s	0.0	1.4	0.2	4.5	0.0	1.2	0.2	1.4

Intersection Summary	
HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	688	830	9	0	7
Future Vol, veh/h	0	688	830	9	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	724	874	9	0	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	442
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	569
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	569
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	569
HCM Lane V/C Ratio	-	-	-	0.013
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

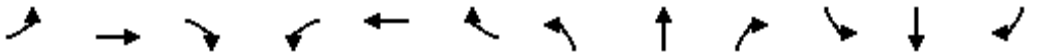
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	688	826	55	0	10
Future Vol, veh/h	0	688	826	55	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	724	869	58	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	464
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	550
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	550
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	550
HCM Lane V/C Ratio	-	-	-	0.019
HCM Control Delay (s)	-	-	-	11.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	0	22	1	1	1	23	594	1	3	815	354
Future Volume (veh/h)	211	0	22	1	1	1	23	594	1	3	815	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	239	0	16	1	1	1	25	653	1	3	896	389
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	336	0	150	2	2	2	101	2395	4	101	2337	1043
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.06	0.65	0.65	0.06	0.65	0.65
Sat Flow, veh/h	3619	0	1610	588	588	588	1810	3698	6	1810	3610	1610
Grp Volume(v), veh/h	239	0	16	3	0	0	25	319	335	3	896	389
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1765	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	5.8	0.0	0.8	0.2	0.0	0.0	1.2	6.8	6.8	0.1	10.5	10.1
Cycle Q Clear(g_c), s	5.8	0.0	0.8	0.2	0.0	0.0	1.2	6.8	6.8	0.1	10.5	10.1
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	0	150	7	0	0	101	1169	1230	101	2337	1043
V/C Ratio(X)	0.71	0.00	0.11	0.42	0.00	0.00	0.25	0.27	0.27	0.03	0.38	0.37
Avail Cap(c_a), veh/h	724	0	322	353	0	0	362	1169	1230	362	2337	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	37.4	44.7	0.0	0.0	40.7	6.8	6.8	40.2	7.4	7.4
Incr Delay (d2), s/veh	2.8	0.0	0.3	35.5	0.0	0.0	1.3	0.6	0.5	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.3	0.1	0.0	0.0	0.6	2.5	2.6	0.1	3.6	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	0.0	37.7	80.2	0.0	0.0	42.0	7.4	7.3	40.3	7.5	7.6
LnGrp LOS	D	A	D	F	A	A	D	A	A	D	A	A
Approach Vol, veh/h		255			3			679			1288	
Approach Delay, s/veh		42.1			80.2			8.6			7.6	
Approach LOS		D			F			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	62.8		12.9	9.5	62.8		4.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.1	8.8		7.8	3.2	12.5		2.2				
Green Ext Time (p_c), s	0.0	2.7		0.6	0.0	3.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		12.0	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	4	647	778	5
Future Vol, veh/h	4	2	4	647	778	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	2	4	681	819	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1171	412	824	0	-	0
Stage 1	822	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	189	595	815	-	-	-
Stage 1	397	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	188	595	815	-	-	-
Mov Cap-2 Maneuver	188	-	-	-	-	-
Stage 1	395	-	-	-	-	-
Stage 2	691	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	815	-	244	-	-
HCM Lane V/C Ratio	0.005	-	0.026	-	-
HCM Control Delay (s)	9.4	-	20.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

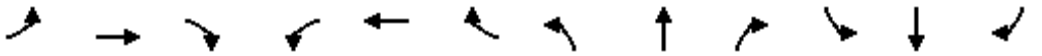
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	36	0	656	735	4
Future Vol, veh/h	0	36	0	656	735	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	38	0	691	774	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	389	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	525	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	525	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	525	-	-
HCM Lane V/C Ratio	-	0.072	-	-
HCM Control Delay (s)	-	12.4	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-



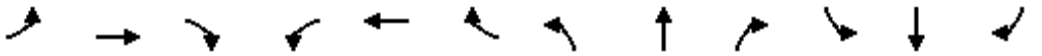
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	445	233	190	594	166	233	485	102	132	629	35
Future Volume (veh/h)	44	445	233	190	594	166	233	485	102	132	629	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	50	506	265	216	675	189	265	551	116	150	715	40
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	72	756	337	297	919	410	351	1596	712	224	2041	114
Arrive On Green	0.04	0.21	0.21	0.08	0.25	0.25	0.10	0.44	0.44	0.06	0.41	0.41
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	5028	280
Grp Volume(v), veh/h	50	506	265	216	675	189	265	551	116	150	491	264
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1850
Q Serve(g_s), s	2.5	11.6	14.0	5.4	15.4	8.9	6.6	9.0	3.9	3.8	8.8	8.9
Cycle Q Clear(g_c), s	2.5	11.6	14.0	5.4	15.4	8.9	6.6	9.0	3.9	3.8	8.8	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	72	756	337	297	919	410	351	1596	712	224	1404	751
V/C Ratio(X)	0.70	0.67	0.79	0.73	0.73	0.46	0.76	0.35	0.16	0.67	0.35	0.35
Avail Cap(c_a), veh/h	191	983	438	449	1063	474	527	1596	712	332	1404	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	32.7	33.7	40.2	30.8	28.3	39.4	16.5	15.1	41.2	18.5	18.5
Incr Delay (d2), s/veh	11.5	1.1	7.0	3.4	2.3	0.8	3.4	0.6	0.5	3.5	0.7	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.1	6.0	2.4	6.8	3.5	3.0	3.7	1.5	1.7	3.6	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.2	33.9	40.6	43.5	33.0	29.1	42.8	17.1	15.6	44.7	19.2	19.8
LnGrp LOS	D	C	D	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		821			1080			932			905	
Approach Delay, s/veh		37.3			34.5			24.2			23.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	44.3	12.1	23.3	13.5	41.0	8.1	27.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	27.5	11.5	24.5	13.5	22.5	9.5	26.5
Max Q Clear Time (g_c+I1), s	5.8	11.0	7.4	16.0	8.6	10.9	4.5	17.4
Green Ext Time (p_c), s	0.1	3.8	0.3	2.8	0.4	3.8	0.0	3.5

Intersection Summary	
HCM 6th Ctrl Delay	29.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	183	1056	150	133	706	46	187	376	121	80	223	125
Future Volume (veh/h)	183	1056	150	133	706	46	187	376	121	80	223	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1885	1885	1900	1900	1900
Adj Flow Rate, veh/h	203	1173	167	148	784	51	208	418	134	89	248	139
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	1	1	1	0	0	0
Cap, veh/h	240	1300	580	182	1184	528	280	738	234	114	585	317
Arrive On Green	0.13	0.36	0.36	0.10	0.33	0.33	0.08	0.28	0.28	0.06	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3483	2675	849	1810	2260	1224
Grp Volume(v), veh/h	203	1173	167	148	784	51	208	278	274	89	196	191
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1742	1791	1732	1810	1805	1680
Q Serve(g_s), s	9.9	27.7	6.7	7.2	16.8	2.0	5.3	12.0	12.2	4.4	8.1	8.5
Cycle Q Clear(g_c), s	9.9	27.7	6.7	7.2	16.8	2.0	5.3	12.0	12.2	4.4	8.1	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.49	1.00		0.73
Lane Grp Cap(c), veh/h	240	1300	580	182	1184	528	280	494	478	114	467	434
V/C Ratio(X)	0.85	0.90	0.29	0.81	0.66	0.10	0.74	0.56	0.57	0.78	0.42	0.44
Avail Cap(c_a), veh/h	300	1344	599	237	1219	544	298	494	478	147	467	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	27.3	20.6	39.6	26.0	21.0	40.5	27.9	28.0	41.5	27.8	27.9
Incr Delay (d2), s/veh	16.4	8.6	0.3	14.9	1.3	0.1	9.0	4.6	4.9	17.9	2.8	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	12.9	2.5	3.9	7.2	0.7	2.6	5.6	5.6	2.5	3.8	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	35.9	20.8	54.5	27.2	21.1	49.5	32.5	32.9	59.5	30.5	31.1
LnGrp LOS	D	D	C	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		1543			983			760			476	
Approach Delay, s/veh		36.7			31.0			37.3			36.2	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	29.3	13.6	36.9	11.7	27.8	16.4	34.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.3	19.4	11.8	33.5	7.7	19.0	14.9	30.4
Max Q Clear Time (g_c+I1), s	6.4	14.2	9.2	29.7	7.3	10.5	11.9	18.8
Green Ext Time (p_c), s	0.0	1.5	0.1	2.7	0.0	1.5	0.2	4.3

Intersection Summary	
HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1262	974	25	0	4
Future Vol, veh/h	0	1262	974	25	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1328	1025	26	0	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	526
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	502
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	502
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	502
HCM Lane V/C Ratio	-	-	-	0.008
HCM Control Delay (s)	-	-	-	12.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

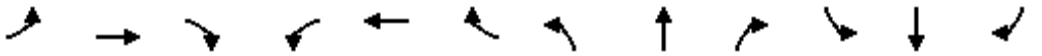
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↱
Traffic Vol, veh/h	0	1262	988	26	0	10
Future Vol, veh/h	0	1262	988	26	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1328	1040	27	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	534
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	496
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	496
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	496
HCM Lane V/C Ratio	-	-	-	0.021
HCM Control Delay (s)	-	-	-	12.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	391	3	32	2	6	1	41	843	1	1	879	261
Future Volume (veh/h)	391	3	32	2	6	1	41	843	1	1	879	261
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1441	1441	1441	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	456	0	25	2	7	1	47	958	1	1	999	297
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	1	1	1	31	31	31	0	0	0	0	0	0
Cap, veh/h	555	0	247	3	12	2	101	2137	2	101	2085	930
Arrive On Green	0.15	0.00	0.15	0.01	0.01	0.01	0.06	0.58	0.58	0.06	0.58	0.58
Sat Flow, veh/h	3591	0	1598	280	981	140	1810	3700	4	1810	3610	1610
Grp Volume(v), veh/h	456	0	25	10	0	0	47	467	492	1	999	297
Grp Sat Flow(s),veh/h/ln	1795	0	1598	1401	0	0	1810	1805	1899	1810	1805	1610
Q Serve(g_s), s	11.1	0.0	1.2	0.6	0.0	0.0	2.3	13.3	13.3	0.0	14.5	8.6
Cycle Q Clear(g_c), s	11.1	0.0	1.2	0.6	0.0	0.0	2.3	13.3	13.3	0.0	14.5	8.6
Prop In Lane	1.00		1.00	0.20		0.10	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	555	0	247	17	0	0	101	1042	1097	101	2085	930
V/C Ratio(X)	0.82	0.00	0.10	0.58	0.00	0.00	0.47	0.45	0.45	0.01	0.48	0.32
Avail Cap(c_a), veh/h	718	0	320	280	0	0	362	1042	1097	362	2085	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	32.7	44.2	0.0	0.0	41.2	10.8	10.8	40.2	11.1	9.8
Incr Delay (d2), s/veh	5.9	0.0	0.2	27.3	0.0	0.0	3.3	1.4	1.3	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.5	0.4	0.0	0.0	1.1	5.2	5.5	0.0	5.3	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	32.8	71.5	0.0	0.0	44.6	12.2	12.2	40.2	11.3	10.0
LnGrp LOS	D	A	C	E	A	A	D	B	B	D	B	B
Approach Vol, veh/h		481			10			1006			1297	
Approach Delay, s/veh		42.3			71.5			13.7			11.0	
Approach LOS		D			E			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	56.5		18.4	9.5	56.5		5.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	18.0	18.0		18.0				
Max Q Clear Time (g_c+I1), s	2.0	15.3		13.1	4.3	16.5		2.6				
Green Ext Time (p_c), s	0.0	1.5		0.8	0.1	1.1		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		17.6	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	4	811	935	2
Future Vol, veh/h	13	6	4	811	935	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	6	4	854	984	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1420	493	986	0	-	0
Stage 1	985	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	130	527	709	-	-	-
Stage 1	327	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	527	709	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.1	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	709	-	169	-	-
HCM Lane V/C Ratio	0.006	-	0.118	-	-
HCM Control Delay (s)	10.1	-	29.1	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

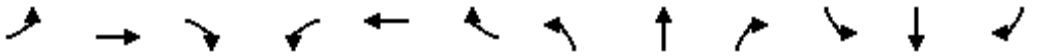
Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	805	970	10
Future Vol, veh/h	0	18	0	805	970	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	19	0	847	1021	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	516	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.1	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.9	-	-	-	-
Pot Cap-1 Maneuver	0	436	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	436	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	436	-	-
HCM Lane V/C Ratio	-	0.043	-	-
HCM Control Delay (s)	-	13.6	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	920	280	228	620	167	321	602	186	210	743	63
Future Volume (veh/h)	75	920	280	228	620	167	321	602	186	210	743	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	1011	308	251	681	184	353	662	204	231	816	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	106	1159	517	327	1283	572	431	1079	481	305	1282	108
Arrive On Green	0.06	0.32	0.32	0.09	0.36	0.36	0.12	0.30	0.30	0.09	0.26	0.26
Sat Flow, veh/h	1810	3610	1610	3510	3610	1610	3510	3610	1610	3510	4874	410
Grp Volume(v), veh/h	82	1011	308	251	681	184	353	662	204	231	578	307
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1755	1805	1610	1755	1805	1610	1755	1729	1826
Q Serve(g_s), s	4.0	23.8	14.5	6.3	13.5	7.5	8.8	14.2	9.2	5.8	13.3	13.4
Cycle Q Clear(g_c), s	4.0	23.8	14.5	6.3	13.5	7.5	8.8	14.2	9.2	5.8	13.3	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	106	1159	517	327	1283	572	431	1079	481	305	909	480
V/C Ratio(X)	0.77	0.87	0.60	0.77	0.53	0.32	0.82	0.61	0.42	0.76	0.64	0.64
Avail Cap(c_a), veh/h	205	1223	546	371	1283	572	488	1079	481	332	909	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	28.8	25.7	39.9	23.1	21.1	38.5	27.1	25.3	40.2	29.3	29.4
Incr Delay (d2), s/veh	11.1	6.9	1.6	8.3	0.4	0.3	9.5	2.6	2.7	8.9	3.4	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	11.0	5.6	3.1	5.6	2.8	4.3	6.3	3.8	2.8	5.8	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	35.7	27.3	48.2	23.5	21.4	48.0	29.7	28.0	49.1	32.7	35.8
LnGrp LOS	D	D	C	D	C	C	D	C	C	D	C	D
Approach Vol, veh/h		1401			1116			1219			1116	
Approach Delay, s/veh		34.9			28.7			34.7			37.0	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	31.4	12.9	33.4	15.6	28.2	9.8	36.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	23.5	9.5	30.5	12.5	19.5	10.2	29.8
Max Q Clear Time (g_c+I1), s	7.8	16.2	8.3	25.8	10.8	15.4	6.0	15.5
Green Ext Time (p_c), s	0.1	3.0	0.1	3.1	0.2	2.1	0.1	4.6

Intersection Summary	
HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

APPENDIX H-2:

VMT Memorandum, The Commons City of Claremont and City of Upland, Los Angeles County and San Bernardino County, California, LSA Associates, Inc.

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CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: April 23, 2020

TO: Mr. Vincent Ramos, Associate Engineer
City of Claremont

FROM: Ambarish Mukherjee, P.E., AICP

SUBJECT: The Commons Project Vehicle Miles Traveled Analysis

Under contract to the City of Claremont, LSA prepared a traffic impact analysis (TIA) to evaluate the potential traffic impacts resulting from the development of the proposed The Commons (Project), shared between City of Claremont (within Los Angeles County) and City of Upland (within San Bernardino County), The project site is located on undeveloped parcel 8307-003-066, in the City of Claremont, and parcels 1006-312-02, 1006-312-02-03, 1006-312-0204, in the City of Upland.

Subsequent to the release of the Notice of Preparation (NOP) and preparation of the TIA, the applicant applied to the City of Upland for approval of a development project for 48 townhomes on the 3.0 acres of the site located in the City of Upland pursuant to SB 35. Pursuant to Government Code Section 65913.4, if that development project is within the scope of SB 35, it is not subject to CEQA review. The applicant represents that the currently proposed development within Upland will either be approved pursuant to SB 35, without CEQA review, or it will not be constructed. For this reason, and for purposes of the TIA and the VMT analyses, the Project is comprised of the 6.5 acres of the site within Claremont, together with off-site improvements necessary to provide access and utilities to the site. The potential development of the 3.0 acres located at the northwest corner of Foothill Boulevard and Monte Vista Avenue, is treated as an adjacent cumulative project. The City of Claremont has no jurisdiction over the 3.0 acres located in Upland.

For the 6.5 acres located within Claremont, the applicant is processing a Specific Plan for the Project (The Commons Specific Plan). The project developed under the Specific Plan includes 27 single-family homes, 20 townhomes, a four-story mixed use building with 5,000 square feet of retail use on the bottom floor and 15 residential flats on the upper three floors, and over an acre of park/open space (includes the Central Park and Park Plaza). The project access will be provided by three right in right out (RIRO) driveways and one full access driveway. The project can also be accessed through an existing asphalt road between the Armstrong Nursery and project site.

LSA has prepared this Vehicle Miles Traveled (VMT) analysis for the project. Since it is expected to developed at or in the same time frame as the Project, for conservative analytical purposes, vehicle trips from the adjacent cumulative project (48 townhomes) in Upland are being considered with the Project trips

BACKGROUND

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT. Lead agencies are allowed to opt-in to the revised transportation guidelines, but the new guidelines must be used starting July 1, 2020.

The cities have not yet established thresholds related to vehicle miles of travel. However, the State law provides guidance to evaluate the project's impacts related to VMT.

California Public Resources Code Section 15064.3(b)(4) states (in part) that:

> *A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household, or in any other measure.*

Therefore, the project VMT per capita has been compared with the regional VMT per capita to provide a comparison between the two and has been included for disclosure purposes only. Following is a detailed description of the VMT analysis.

METHODOLOGY

The Governor's Office of Planning and Research (OPR) Technical Advisory (TA) states that existing VMT for residential projects may be measured at the regional or City level. Since, the project and the adjacent cumulative project are located in two cities (Claremont and Upland) which are located in two counties (Los Angeles and San Bernardino), the two counties combined have been considered as the region.

OPR TA on Evaluating Transportation Impacts in CEQA for residential projects, December 2018: Page - 15 states the following:

> *"Recommended threshold for residential projects:*
>
> *A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita."*

As mentioned above, the project and the adjacent cumulative project are shared between Los Angeles and San Bernardino Counties. Therefore, for purposes of this analysis and as suggested in the TA, both these counties combined were considered as the Region. The project and the adjacent cumulative project VMT per capita have been compared with the two counties combined (Region) VMT per capita to determine whether the project will have a significant transportation impact.

The SCAG Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) Transportation Analysis Model (SCAG RTP/SCS Model) has been used to estimate both the regional and project

VMT, since the project is shared between two different cities in two adjacent counties. SCAG RTP/SCS socioeconomic database for base (2012) scenario was updated with the project land uses to calculate project VMT. Regional and project VMT were calculated from the SCAG RTP/SCS model runs as described below:

Project Traffic Analysis Zone Update

The first step in preparation of this analysis was to update the traffic analysis zones (TAZs) in the model that includes the project area. LSA converted the proposed land use into model socioeconomic categories. SCAG RTP/SCS socioeconomic database for base (2012) scenario was updated with the proposed land use to calculate project VMT for both the Tier I and Tier II TAZ where the project is located. Since, SCAG RTP/SCS model structure does not allow creating additional zones, socioeconomic inputs already present for this TAZ were re-distributed appropriately among the adjacent TAZs.

Select Zone Model Runs

Upon completion of the socioeconomic data update, LSA conducted model runs for the base scenario. The model run included select zone model runs for the project TAZ. The select zone run was utilized in determining project specific VMT data from the model outputs.

VMT ANALYSIS

The regional VMT per capita for base year (2012) scenario was obtained from the model run. It should be noted that SCAG updates its model every 4 years and the base year of the model is typically 4 years prior to the model release date. The last SCAG RTP model update was in 2016 with a base year of 2012. The 2020 RTP will have a base year of 2016 and will not be released until 2021. OPR has acknowledged that the model base year may not accurately reflect existing conditions but it can be used for VMT analysis. Therefore, the current SCAG model with a base year of 2012 has been used for this analysis. Project select zone model runs were utilized to develop project VMT. Project VMT per capita was calculated for the base (2012) year scenario. Detailed VMT comparison for individual land use categories are illustrated below.

Residential Land Use

Since the primary land use of the project is residential, VMT per Capita for the residential component of the project were estimated and compared with the VMT per Capita for the region. Table A illustrates the VMT per capita estimates for the project and the region. As shown in Table A, the VMT per capita for the project is 23 percent higher than the regional VMT per capita under base year conditions. The difference (+23 percent) is higher than the threshold of 15 percent below existing VMT per capita as suggested in the TA. Therefore, although both the Cities are yet to adopt thresholds for VMT impacts, and based on the TA the regional VMT per capita, the residential component of the project may have a significant transportation impact under CEQA.

Non Residential (Retail) Land Use

The project retail component is a minor component of the project with only ten anticipated retail employees. As such, the retail will primarily be used by residents of the project and will be a local

serving retail development that will help reduce home-based retail trips and thereby reduce VMT. The TA recommends local serving retail developments (less than 50,000 square feet in area) be exempt of VMT analysis. The rational OPR states, is that retail locations that are "local serving" as per the zoning code, which are typically less than 50,000 square feet help reduce overall VMT. That is because, to access such uses, patrons who had to take longer trips prior to the addition of the project, will have shorter trip lengths with addition of the proposed project. Additionally, as stated in the TA, for mixed-use projects, only the "project's dominant use" may be considered for VMT analysis. Since, the retail component of the proposed project is not a major component and will primarily serve residents of the project itself, a separate VMT assessment for the retail portion of the project has not be considered.

Table A: SCAG Base Year (2012) Regional and Project VMT per Capita Comparison

Land Use	Region (Los Angeles County + San Bernardino County) Regional VMT per Capita	Project VMT per Capita	Percentage Difference of the VMT per Capita between the Regional VMT and the Project.
Residential	14.9	18.3	23%

Source: SCAG RTP/SCS Travel Demand Model
VMT = vehicle miles traveled

MITIGATION

When a Lead agency identifies a significant CEQA impact, it must identify feasible, enforceable mitigation measure(s) to avoid or substantially reduce that impact. VMT impacts would require mitigation of regional impacts through more behavioral changes. These measures must be fully enforceable through permit conditions, agreements, or other and may be implemented as through local/regional plans polices, policies or regulations, incorporated through project design.

In general, when a significant VMT impact is identified transportation demand management (TDM) actions, active transportation amenities, and other measures that reduce the number of trips represent a possible VMT mitigation strategies. Measures such as the implementation of carpool programs, the addition of bike lanes, provision of bike parking within the project site, implementation of pedestrian network improvements, provision of transit passes, and similar actions encouraging the fewer miles traveled are potential mitigation options.

Two potential mitigations measures have been identified to reduce the project VMT impact to less than significant. They are as follows:

1) The Foothill Transit Route 292 maintains a stop at the intersection of Claremont Boulevard/Foothill Boulevard approximately 0.1 miles from the project site. At present, the route has a headway of more than 15 minutes during the morning peak commute period (7 a.m. – 9 a.m.) and only one service in the afternoon peak commute period (4 p.m. – 6 p.m.).

If Foothill Transit system converted the headway to 15 minutes or less during both the peak commute periods, then the project will be considered to fall within 0.5 miles of a high quality transit area. Therefore, the project will be presumed to create a less than significant impact. To implement this change of headway, Foothill Transit would need to create a fee program and the project would have to contribute its fair share to that program. However, because there is no certainty the route conversion could be implemented and since there is no fixed timeline for implementation of the program and the service upgrade, there is no guarantee that the project VMT impact can be reduced to a less than significant level. Also, since this project is a residential project there is no guarantee the project applicant or the future owners or association of homeowners/residents could influence the Foothill Transit agency to change or modify their operations. Therefore, the Project's VMT impact would remain significant and unavoidable.

2) The nearest Metrolink station is located southeast of the intersection of Monte Vista Avenue and Richton Street approximately one mile south of the project site. The project applicant could provide a shuttle service from the station to the project site at a frequency of 15 minute or less during both the morning and afternoon peak commute periods. A guarantee of the long-term maintenance of this shuttle service would be required. If this service were to be implemented as a long-term project component, then the Project's VMT impact would be presumed to be less than significant. However, since this project is a residential project there is no guarantee the project applicant or the future owners or association of homeowners/residents would fund or maintain such a shuttle service. Therefore, the Project's VMT impact would remain significant and unavoidable.

   Attachment: Appendix A –VMT Calculation Worksheet

APPENDIX A:

VMT Calculation Worksheet

The Commons Project

VMT Calculation Worksheet

Residential

SCAG 2012 Scenario

Project Homebased VMT	5,482
County of Los Angeles + County of San Bernadino Homebased VMT	175,239,035

2012	County of Los Angeles + County of San Bernardino	Project	Percentage Difference Between the Project VMT/Capita vs the Regional VMT/Capita
Population	11,767,934	300	-
VMT/Capita	**14.9**	**18.3**	**23%**

APPENDIX I:

The Commons Specific Plan, Screencheck No. 44, KTGY Group Inc., April 2020

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DRAFT



THE COMMONS SPECIFIC PLAN

APRIL 2020

THE COMMONS SPECIFIC PLAN

APRIL 2020

Prepared for:

City of Claremont

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1.0 INTRODUCTION

1.1 PURPOSE

The purpose of The Commons Specific Plan (hereafter, "Specific Plan" or the "Project") is to implement the City of Claremont objectives and policies by presenting detailed direction for future development, and to establish development regulations and implementation mechanisms applicable solely to the properties located within the Specific Plan area. The eastern portion of the Project is located within the City of Upland; however, the provisions of this Specific Plan apply only to the portion of the Project located within the City of Claremont. When implemented, this Specific Plan will provide for orderly and efficient development in accordance with the provisions of the City of Claremont. When adopted by City legislative actions, this Specific Plan document will serve both planning and regulatory functions. The Specific Plan contains the standards, procedures, and guidelines necessary to accomplish this purpose.

1.2 PROJECT LOCATION

The Project site is located in the City of Claremont just west of the northwest corner of Foothill Boulevard and Monte Vista Avenue, as shown by ***Exhibit 1-1, Regional Map***. The City of Claremont is located on the eastern border of Los Angeles County, situated at the foothills of the San Gabriel Mountains. To the west is the City of La Verne and to the south is the City of Pomona. The City of Upland is due east of Claremont and on the western border of San Bernardino County. The Los Angeles-San Bernardino County line is the easterly border of the Specific Plan area.

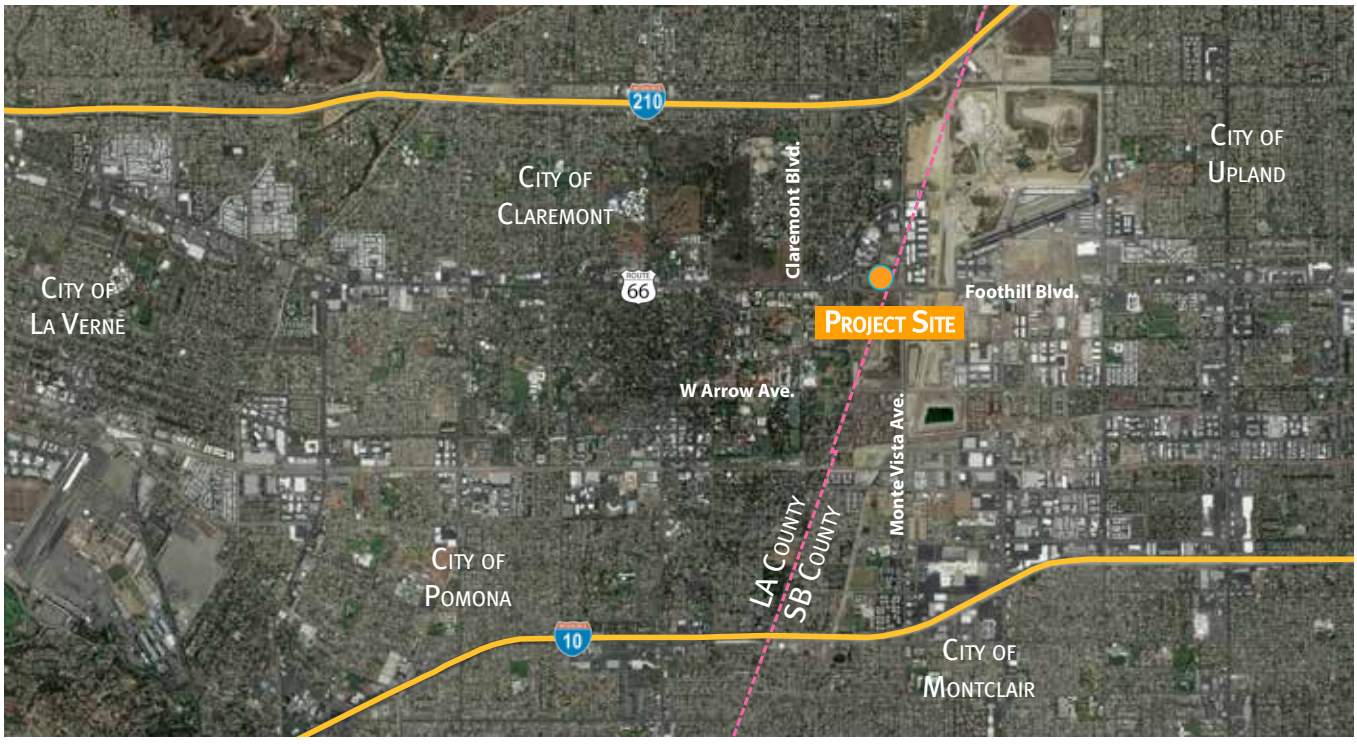

EXHIBIT 1-1: REGIONAL MAP

The Project site is bounded by Foothill Boulevard to the south, Andrew Drive and vacant land to the north, Los Angeles/ San Bernardino County Line to the east, and the existing Armstrong Garden Center to the west. It should be noted that Armstrong Garden Center is on the same parcel as the project site, but is not part of the Specific Plan area. However, part of the application includes a Tentative Tract Map to subdivide the portion of the parcel that Armstrong is located on. The actual project site encompasses approximately 6.5 acres of land (see ***Exhibit 1-2, Location Map***).



EXHIBIT 1-2: LOCATION MAP

1.3 EXISTING CONDITIONS

The Specific Plan area is currently an undeveloped, vacant lot. The topography of the project site is generally uneven, and gently sloping at about three percent from 1350 feet above mean sea level (AMSL) at the north portion of the project site to 1330 AMSL at the southwesterly portion of the project site. Surface drainage is generally directed from the north end of the project site toward Foothill Boulevard to the south. Small boulders and some concrete debris scatter the site. Soils consist of an alluvial fan which descends from the southern flanks of the San Gabriel Mountains. Vegetation consists of a moderate growth of native grasses, cactus and shrubs up to six feet in height. The Environmental Impact Report (EIR) for the Project will specify all on-site habitat and detail if impacts would be significant.

Concrete foundations from at least three former buildings are in the western portion of the site. In addition, the Project site contains non-hazardous waste (broken asphalt, boulders, concrete, lumber, etc).

1.4 SURROUNDING LAND USES

The surrounding land uses are depicted in ***Exhibit 1-3***, ***Surrounding Land Uses***.

To the west of the Specific Plan area are commercial uses that consist of Armstrong Garden Center, a gas station, and the Claremont Veterinary Hospital. To the northwest of the Specific Plan area is the Claremont Business Park, which is home to multiple office, commercial, and professional uses The property located due north of the Project is vacant, and the business located beyond Marylind Avenue is the Conveyor Manufacturing and Service (formerly 3B Grinding). Beyond Claremont Boulevard to the northwest is the College Center strip mall and residential properties. Abutting the Specific Plan area to the east within the City of Upland is vacant land proposed to be developed with 48 multi-family residential homes. These units will be integrated into the proposed Project in terms of design and circulation, however, this property is not part of the Specific Plan. Further to the east are the College Business Park and Harvest at Upland residential property (low-density multi-family designation) across from Monte Vista Avenue. To the south, across Foothill Boulevard (Route 66), is a recently approved 70-acre Sports Park. Approximately half a mile to the south of the Project area is the College Park residential development.



EXHIBIT 1-3: SURROUNDING LAND USES

1.5 AUTHORITY AND SCOPE

This Specific Plan has been prepared and established under the authority granted to the City of Claremont by the California Government Code, Title 7, Division 1, Chapter 3, Article 8, and Section 65450, and pursuant to Chapter 16.081 of the Claremont Municipal Code. The State of California, under the authority of these code sections, encourages cities to adopt Specific Plans either by resolution to establish a policy document, or by ordinance to establish a regulatory document. The Commons Specific Plan is intended to be a regulatory document and is subject to Architectural Commission review, Planning Commission review and City Council adoption by ordinance.

All future development plans, tentative parcel and/or tract map(s), or other entitlements for properties located within the boundaries of this Specific Plan area shall be consistent with the regulations set forth in this Specific Plan and with all other applicable City regulations.

Concurrently with this Specific Plan document, an EIR has been prepared in accordance with the provisions of the California Environment Quality Act (CEQA).

This Specific Plan has been prepared in accordance with the provisions of the California Government Code Section 65451, which stipulate that a specific plan contain text and diagrams specifying the following:

Land Use: The specific plan must specify the distribution, location, and extent of the uses of land, including open space, within the area covered by the plan. This discussion is included in *Section 3.3, Land Use & Planning Areas*, of this Specific Plan.

Public Facilities: The specific plan must show the existing and proposed distribution, location, extent, and intensity of major components of public and private transportation, wastewater, water, drainage, and other essential facilities located within the area covered by the plan and needed to support the land uses described in the plan. This discussion is included in *Section 3.4, Circulation Plan* and *Section 3.7, Utility Plan*, in this Specific Plan.

Development Standards: The specific plan must include standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable. This discussion is contained in ***Chapter 4, Development Regulations***, in this Specific Plan.

Implementation Measures: The specific plan must include a program of implementation measures, including regulations, programs, and financing measures. A discussion of these topics is included throughout ***Chapter 6, Implementation***, in this Specific Plan.

General Plan Consistency: The specific plan must include a statement of the relationship of the specific plan to the General Plan. An analysis of the Specific Plan's consistency with the applicable goals of the City of Claremont General Plan is contained in ***Chapter 7, General Plan Consistency***, of this Specific Plan.

Optional Contents: The specific plan may address any other subject that, in the judgment of the planning agency, is necessary or desirable for implementation of the General Plan. The Specific Plan includes residential, mixed use, public space, landscape, and sustainable design guidelines in ***Chapter 5, Design Guidelines***.

2.0 PLANNING CONTEXT

2.1 GENERAL PLAN LAND USE DESIGNATIONS

The Project area is designated as 'Commercial' by the City of Claremont General Plan. The existing land use designation is depicted in ***Exhibit 2-1, Existing General Plan Land Use Designation.*** The Project proposes to change the land use designations for the site to 'Mixed Use' with 'Specific Plan Overlay,' as depicted in ***Exhibit 2-2, Proposed General Plan Land Use Designation***.

2.2 ZONING DESIGNATIONS

The Project is currently zoned as 'Commercial Highway (CH),' as depicted in ***Exhibit 2-3, Existing Zoning Designation***. The Project proposes to change the zoning to 'SP16 - Specific Plan Area 16,' as depicted in ***Exhibit 2-4, Proposed Zoning Designation***.

2.3 LIST OF APPLICATIONS

The following applications are necessary for the City of Claremont to implement this Specific Plan:

- General Plan Amendment
- Zone Change
- Specific Plan
- Architectural Design Review
- Landscape Design Review
- Environmental Review
- Tentative Tract Map

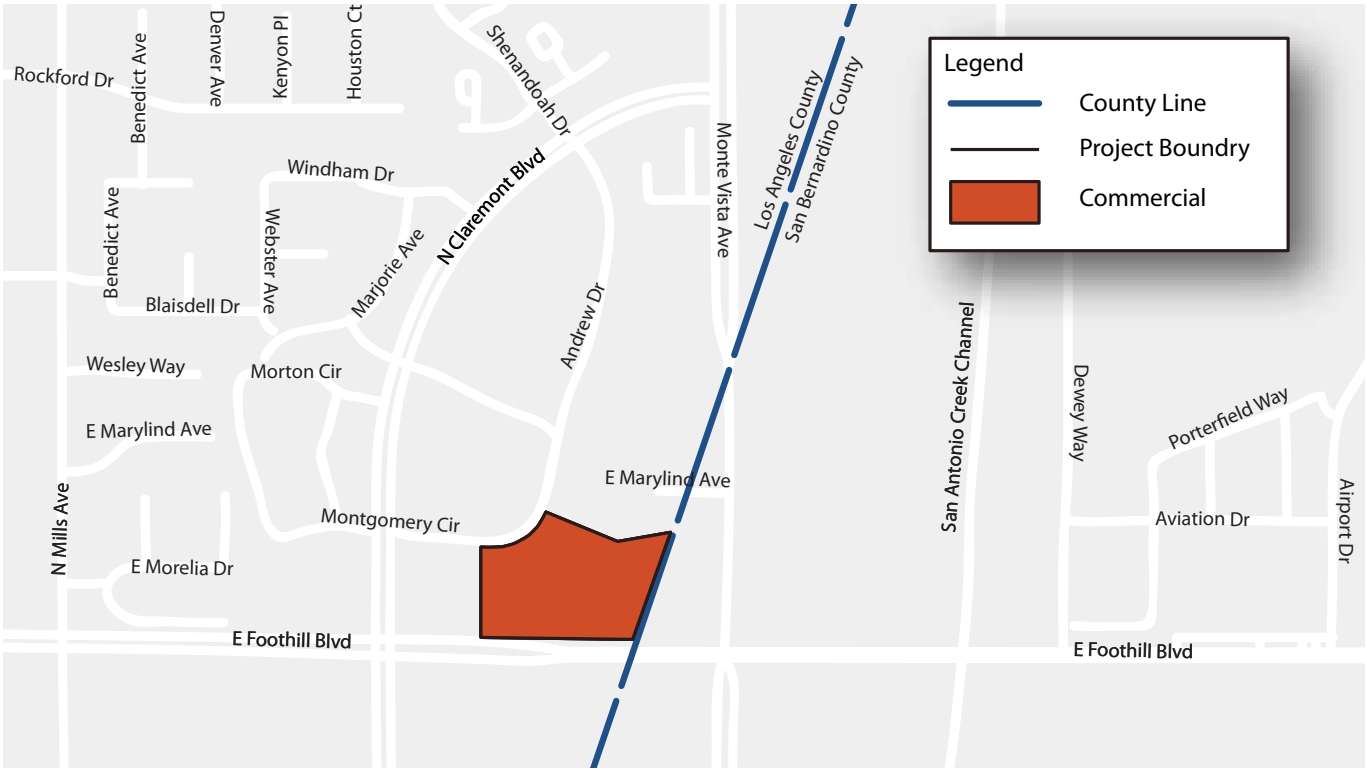

EXHIBIT 2-1: EXISTING GENERAL PLAN LAND USE DESIGNATION

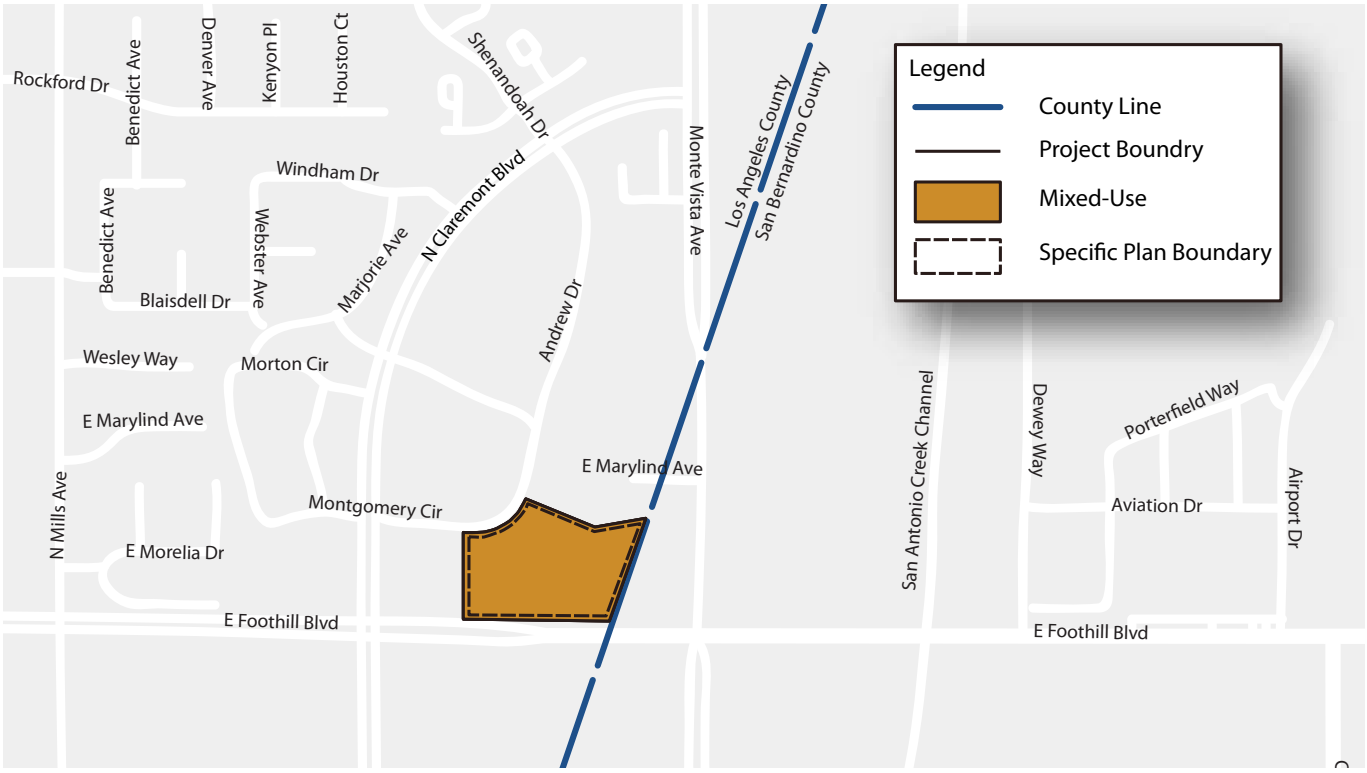

EXHIBIT 2-2: PROPOSED GENERAL PLAN LAND USE DESIGNATION



EXHIBIT 2-3: EXISTING ZONING DESIGNATION

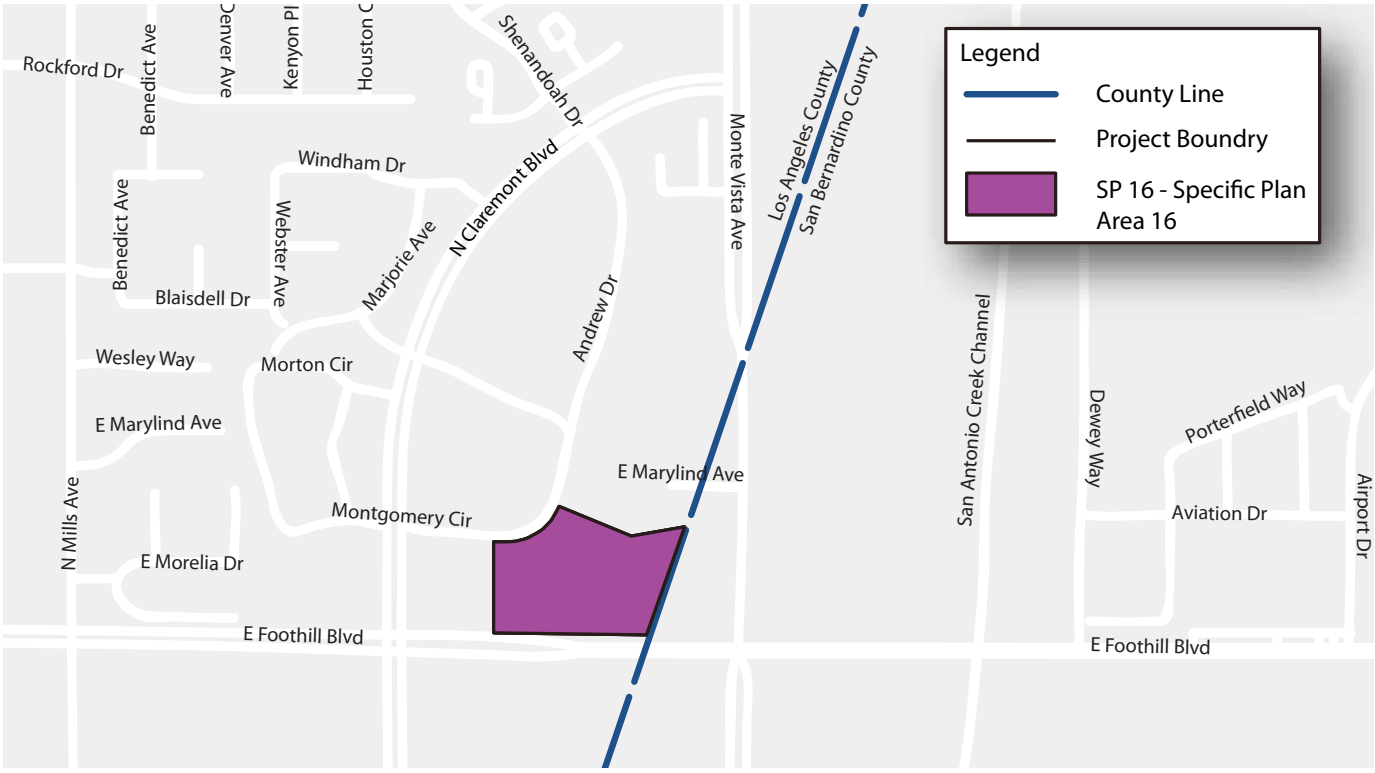

EXHIBIT 2-4: PROPOSED ZONING DESIGNATION

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3.0 PLANNING ELEMENTS

3.1 VISION

The vision for the Project is to provide a visually attractive and sustainable place that offers a mix of residential, commercial, and open space uses where people can live, dine, and socialize. A key community design concept is to create a 'gateway' project for the City of Claremont that promotes a sense of place and unique neighborhood character, catering to young professionals, families, educators, and empty nesters. The Project is a walkable community linked via large centralized linear common open space, oriented to promote social interaction among residents, visitors, and employees.

3.2 GUIDING PRINCIPLES

To achieve the Project's vision, the following guiding principles have been established to provide a broad framework and direction for the site plan and building design:

- Provide a community that meets current and future housing demands on a highly accessible site located near major roads.
- Ensure compatibility with neighboring existing commercial areas, and with future institutional, and residential uses.
- Create a walkable environment and a definable sense of place.
- Create special places such as a large open space spine and central plaza.
- Provide for infill residential development on a vacant property.
- Emphasize distinct features of site and surroundings to create a unique, mixed-use neighborhood.
- Provide diversity in product mix design to target a variety of age groups.



3.3 LAND USE & PLANNING AREAS

The proposed Project is for the development of residential, mixed-use, and open space uses on 6.48 acres of land with a maximum of 57 dwelling units and up to 5,000 square feet of commercial as presented in ***Table 3-1, Land Use Summary Table*** and ***Exhibit 3-1, Conceptual Site Plan***.

Table 3-1: Land Use Summary Table

LAND USES	PLANNING AREA	ACRES	DWELLING UNITS	COMMERCIAL (SQ FT)
Single-Family Residential	PA1	3.29	27	
Multi-Family Residential	PA2	0.91	20	
Mixed Use	PA3	0.9	15	5,000
Open Space Spine	PA4	1.38		
Total		**6.48**	**62**	**5,000**

The proposed project was divided into Specific Plan Planning Areas are described as follows:

- Planning Area 1 (PA1) is planned for single-family residential development comprised of 27 detached, single-family homes on 3.29 acres located in the northwest portion of the Project. Each home provides two garage spaces and at least one parking space on a driveway.
- Planning Area 2 (PA2) is planned for multi-family residential development comprised of 20 townhome units on 0.91 acres.
- Planning Area 3 (PA3) is planned for a mixed-use development comprised of fifteen (15) residences and 5,000 square feet of retail/commercial uses within one building. PA3 is located adjacent to Foothill Boulevard.
- Planning Area 4 (PA4) is planned for approximately 1.38 acres open space. PA4 is located in the center of the Project and is comprised of an open space spine. PA4 will serve as the heart and soul of the Project. The circulation system has been designed to loop around PA4 to connect and provide pedestrian and vehicular connections to each planning area.

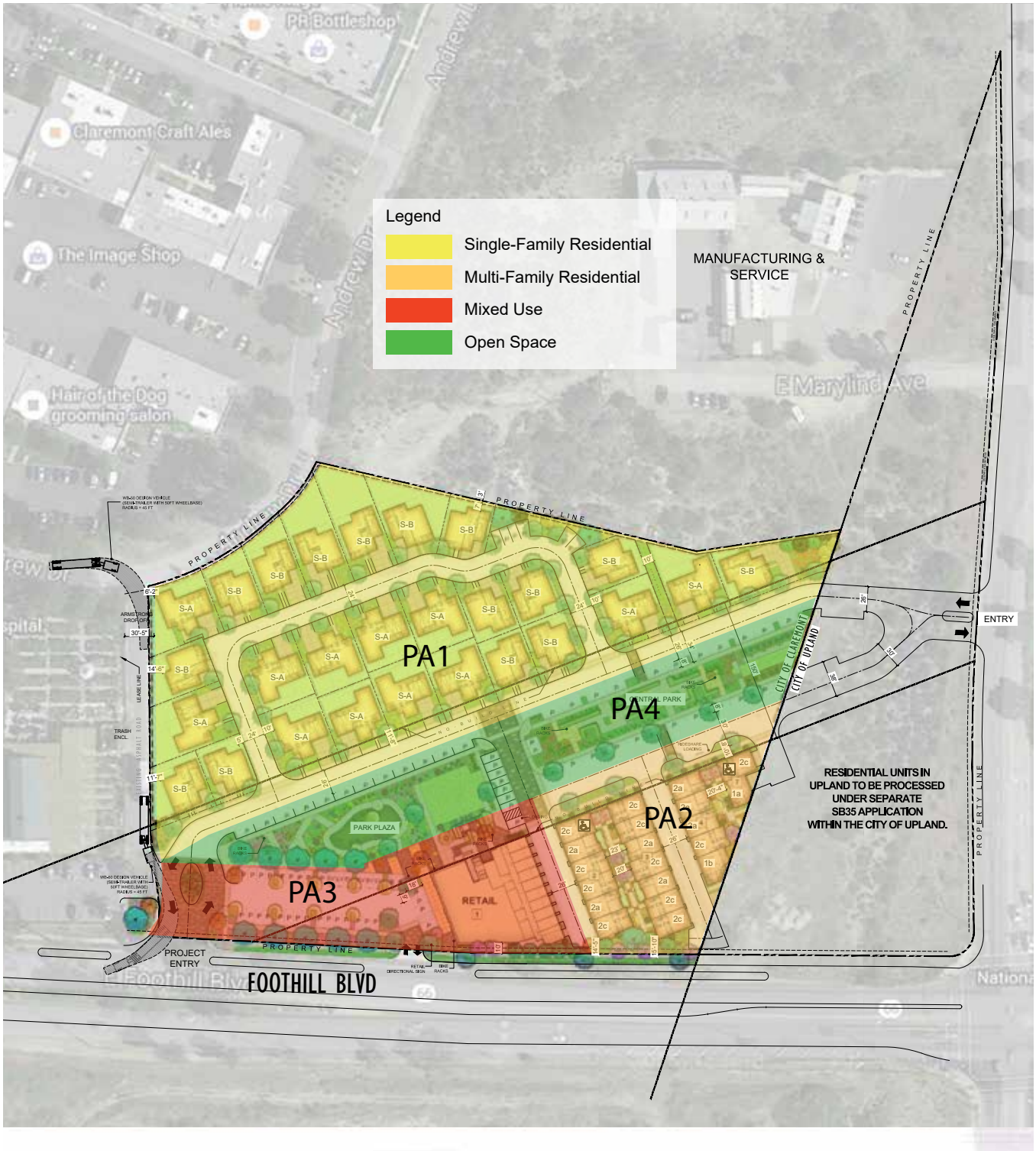


EXHIBIT 3-1: CONCEPTUAL SITE PLAN

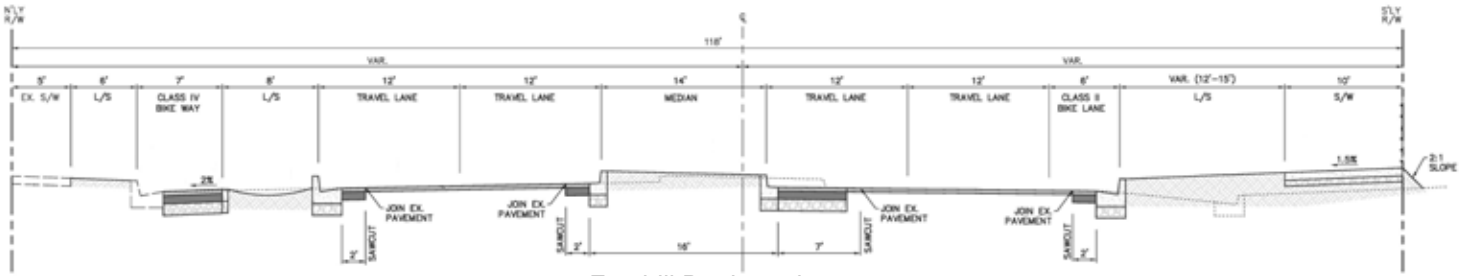
3.4 CIRCULATION PLAN

One of the fundamental design principles of the Project is creation of a walkable environment integrated with open spaces that promote and enhance the pedestrian experience. A network of parks, open space, and sidewalks will be provided to achieve connectivity within the community. ***Exhibit 3-3, Circulation Plan*** indicates the location of the public streets, private streets, and pedestrian paths within the Project.

PUBLIC STREETS

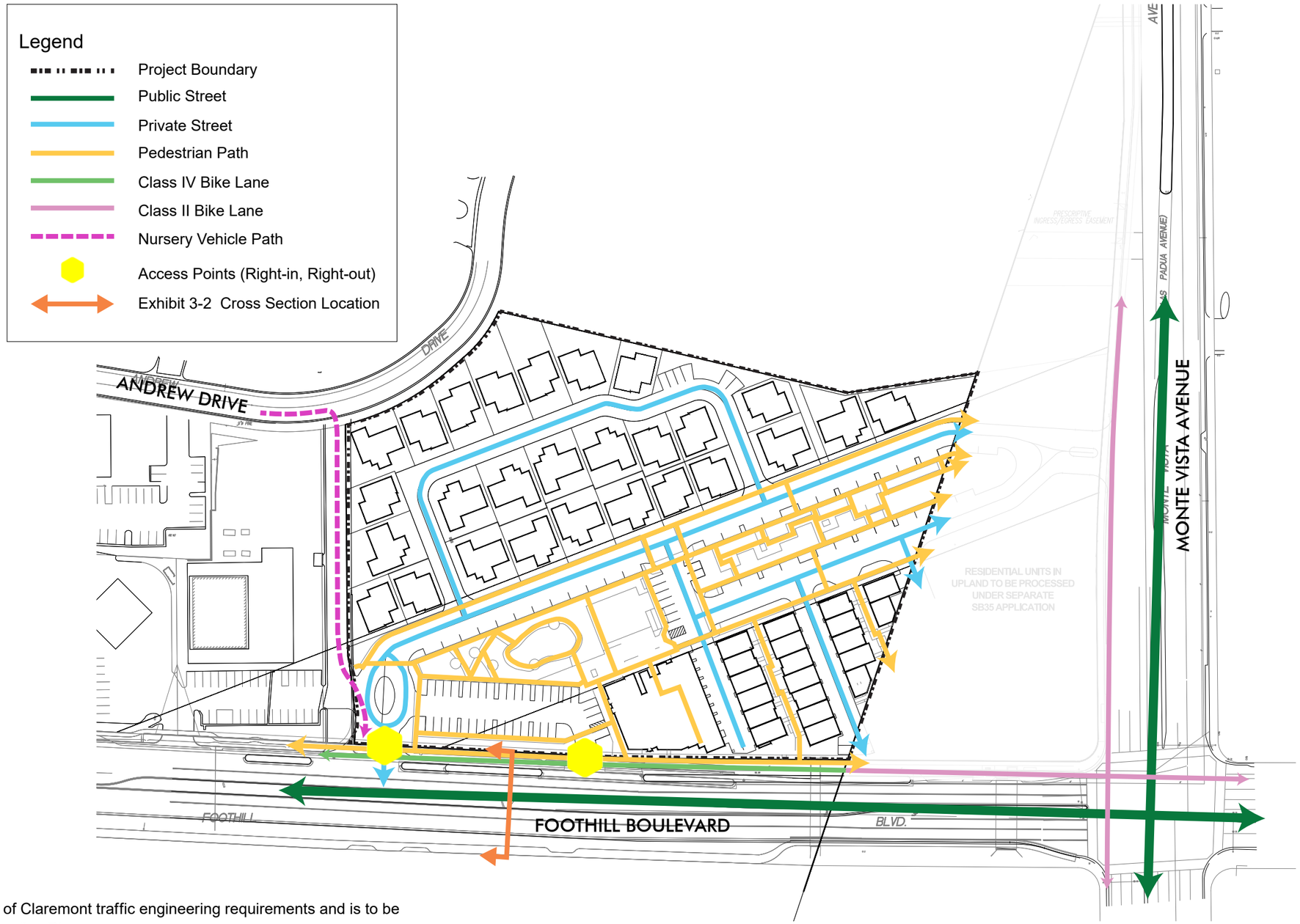
The Specific Plan area is bounded on the south by Foothill Boulevard and terminates at the Claremont city limits, just west of Monte Vista Avenue in the City of Upland. Foothill Boulevard is identified as a major arterial in the City of Claremont's General Plan Community Mobility Element. See ***Exhibit 3-2, Public Street Cross Sections*** for a cross section of Foothill Boulevard. It should be noted that Monte Vista Avenue is within the City of Upland.

Under Claremont General Plan Community Mobility Element, Foothill Boulevard is planned as a major arterial, ranging from 72 to 88 feet in width without a median, and from 84 to 100 feet with a median. Per the General Plan, Foothill Boulevard is envisioned as a mixed-use, pedestrian-oriented street that connects to adjacent residential neighborhoods and schools. Foothill Boulevard includes a Class IV Bike Lane within the City of Claremont, which transitions to a Class II Bike Lane at the city limit outside of the Specific Plan area. A Class II Bike Lane is often referred to as a bike lane and is a striped area on a roadway for one-way bicycle travel. Class IV Bike Lanes are on-street bikeways that are physically separated from vehicular traffic. The General Plan calls for future modifications of Foothill Boulevard, including re-striping to incorporate bike lanes, providing sidewalks where they do not exist, and the creation of a unified landscape treatment. Roadway and streetscaping improvements to Foothill Boulevard are required, including modifying the Class IV Bike Lane and parkway to accommodate proposed project entries. All improvements within the public right-of-way will require the appropriate permits from Public works for the roadway capital improvements. The Project includes two (2) unsignalized, right-in/right-out access entries along on Foothill Boulevard.



Foothill Boulevard

EXHIBIT 3-2: PUBLIC STREET CROSS SECTIONS



Specific Design per City of Claremont traffic engineering requirements and is to be determined at Precise Grading Plan.

EXHIBIT 3-3 CIRCULATION PLAN

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PRIVATE STREETS

Internal roadways and circulation drives provide connections among each planning area and ensure adequate emergency access for fire and other services. The private streets will minimize potential conflicts between pedestrians and vehicles and encourage a safe and enjoyable pedestrian experience within the Project. Proposed private street cross sections are shown in ***Exhibit 3-5, Private Streets***, and ***Exhibit 3-4, Typical Private Street Sections***. All private drives will have a minimum pavement width of 20 feet and all alleys should not exceed 150 feet in length without a turnaround or as allowed by the permitting fire agency.

Section A-A shows a typical 20-foot wide alley within PA2 (multi-family).

Sections B-B and C-C have a 28-foot right-of-way located within PA1 (single-family).

Section D-D has a 34-foot right-of-way and serves as the central spine of the projects. This right-of-way includes eight feet wide parallel parking on one side of the street. In addition, four-and-one-half-foot sidewalks are included on both side of the streets.

All private streets are designed to be shared with bicycle riders and will provide a connection to adjacent bicycle lanes.

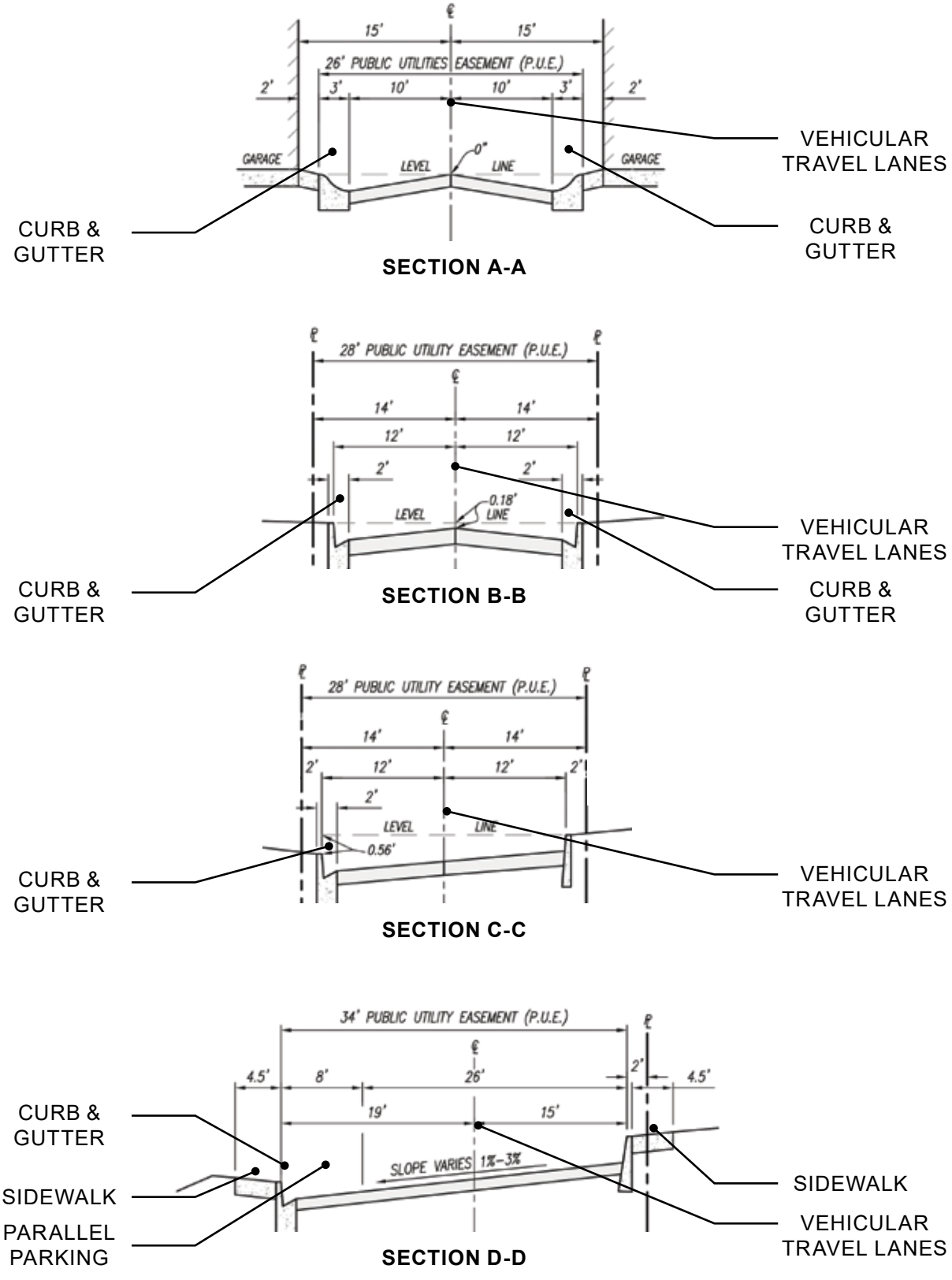

EXHIBIT 3-4: TYPICAL PRIVATE STREET SECTIONS



EXHIBIT 3-5 PRIVATE STREETS

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NON-VEHICULAR CIRCULATION

In addition to vehicular circulation, the Specific Plan considers a variety of other modes to encourage and plan for a sustainable development. LA Metro's Fire Last Mile Strategic Plan and Planning Guidelines includes guidelines to improve connectivity for areas within three miles of transit nodes. This document serves as a tool for jurisdictions to provide guidance to help increase accessibility to mass transit services. The Specific Plan is located within three miles of two transit stations, described further below.

The project is located along Foothill Boulevard (U.S. Route 66), which is a major and historic automobile highway connecting Santa Monica to Chicago. As depicted in ***Exhibit 3-6, Connectivity***, there are no mass transit facilities within a half-mile of the project site. However, there are two bus operators that provide transit services within a half-mile of the Specific Plan area. Foothill Transit route 292 stops approximately 600 feet west of the Specific Plan area and provides direct service to the Claremont and Pomona Transit Centers. Omnitrans route 66 stops approximately a half-mile east of the Specific Plan area and provides direct service to the Montclair and Fontana Transit Centers.

For bicycle connectivity, the Specific Plan area is located within three miles of two mass transit stations: the Claremont and Montclair Stations, which are located approximately 1.4 miles southwest and 1 mile southeast of the Specific Plan area, respectively.

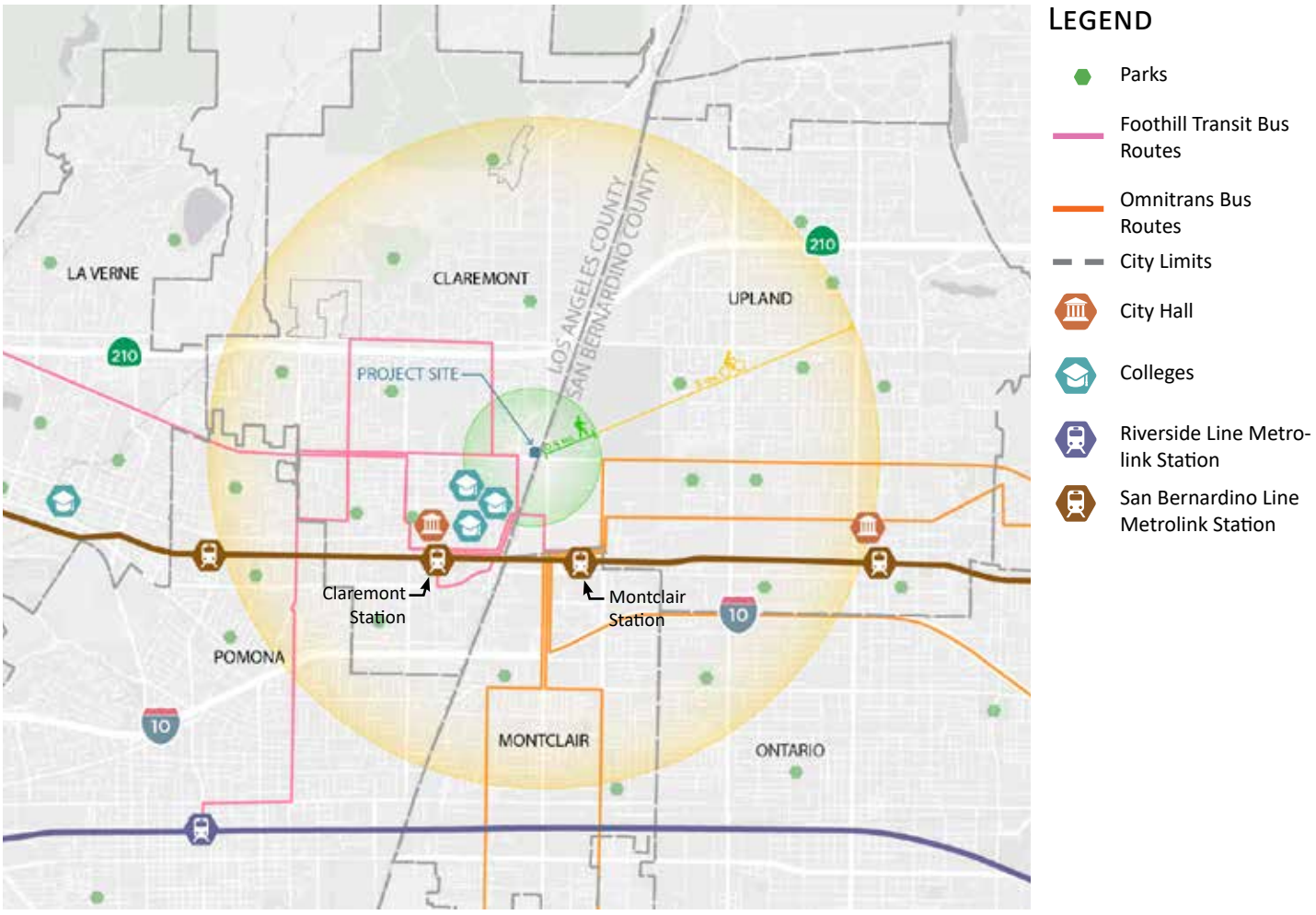

EXHIBIT 3-6: CONNECTIVITY

Being within three miles of these transit stations, it is important to provide bicycle connections to these major nodes. Similar to the woohnerfs found in the Netherlands and Belgium, multiple modes of transportation will share a single lane of travel within the road's right-of-way. The project's internal roads are designed to share both vehicular and bicycle traffic and have been planned to be as narrow as possible. They will include specific areas of textured paving, bulb-outs, and on-street parking on the main spine to encourage a pedestrian and bike-friendly environment.

The Specific Plan area abuts a Class IV Protected Bike Lane within Foothill Boulevard. This bike lane provides a connection to the Claremont Station via Class II Bike Lanes within Claremont Boulevard and First Street. Heading eastbound, Foothill Boulevard has a Class II Bike Lane across from the Specific Plana area. This bike lane provides a connection to the Claremont Station located approximately two miles to the southwest via the Class II Bike Lane within Monte Vista Avenue (refer to ***Exhibit 3-6, Connectivity*** for the location of the mass transit stations).

Pedestrian paths are provided throughout the project to connect the residents to the central open space, retail plaza and shops, and the local public pedestrian sidewalk along Foothill Boulevard. These paths promote and enhance the pedestrian experience, create strong physical connections between Planning Areas, and guide residents to community gathering spaces. All pedestrian paths will connect to adjacent public transit routes. As depicted on ***Exhibit 3-7, Walkability***, businesses within a half-mile of the project site include yoga and other fitness studios, hair salons, a coffee shop, and a craft brewery.



EXHIBIT 3-7: WALKABILITY

3.5 GRADING PLAN

3.5.1 GRADING PLAN

Currently, the project site slopes southeast to northwest with elevations ranging from approximately 1330 feet AMSL to slightly higher than 1350 feet AMSL. The on-site rubble and existing concrete pads will be cleared, and the site will be graded. Finished floor elevations for the single-family homes will range from approximately 1333 to 1343 feet AMSL, and the finished floor for the multi-family residences will range from approximately 1335 to 1355 feet AMSL as shown on ***Exhibit 3-8, Conceptual Grading Plan***.

3.5.2 GRADING DEVELOPMENT STANDARDS

- The proposed grading plan is designed to balance cut and fill within the Project area.
- Final engineering may result in modifications to the overall grading concept, but the modifications should conform to the general intent of the ***Conceptual Grading Plan***.

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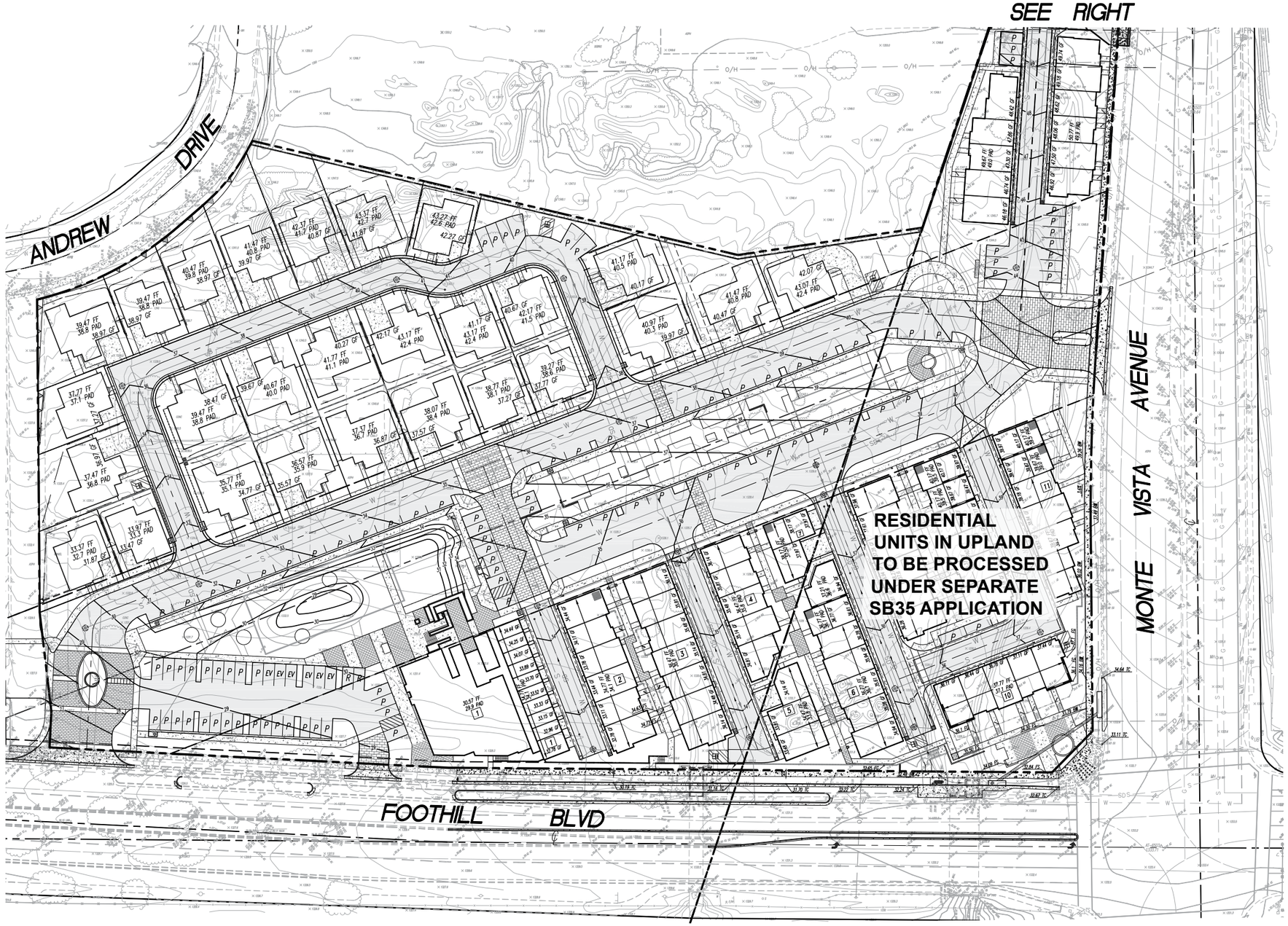

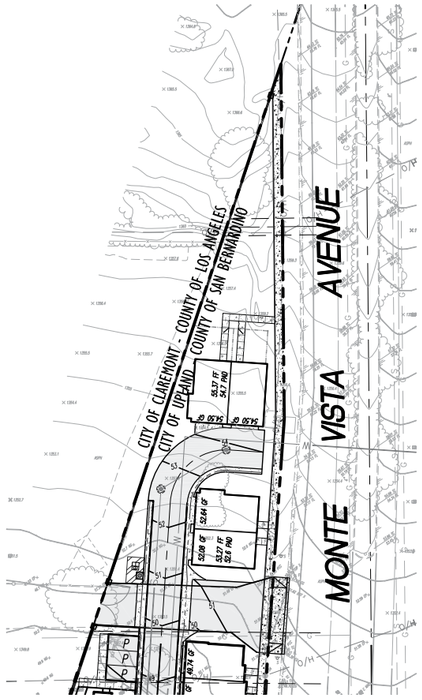



LEGEND

34.63 FS	DESIGN ELEVATION
BW	BACK OF WALK
FF	FINISH FLOOR
FG	FINISH GRADE
FS	FINISH SURFACE
GF	GARAGE FLOOR
L/A	LANDSCAPE AREA
MAX	MAXIMUM
R/W	RIGHT OF WAY
S/W	SIDEWALK
TC	TOP OF CURB

A.C. PAVEMENT
P.C.C. SURFACE
31 DESIGN CONTOUR
S PROPOSED SEWER LINE
SD PROPOSED STORM DRAIN LINE
W PROPOSED WATER LINE
PROPOSED MANHOLE
PROPOSED RETAINING WALL
PROPOSED 2:1 MAX SLOPE

EXHIBIT 3-8 GRADING PLAN

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3.6 UTILITIES AND PUBLIC SERVICES

This section identifies the service providers that are planned to service the Specific Plan area. Additional details regarding levels and adequacy of service are provided in the project's EIR.

WATER

Water service for the Specific Plan area is provided by Golden State Water Company through connections to the existing lines on-site or the surrounding streets. Other than the abutting improvements, there are no off-site improvements to water lines (see ***Exhibit 3-9, Utility Plan***). The Project has received a "will serve" letter from Golden State Water Company.

SANITARY SEWERS

The Specific Plan area will be serviced by connecting to the existing sewers within Foothill Boulevard. Other than the abutting improvements to provide connections to main sewer lines, there are no off-site improvements (see ***Exhibit 3-9, Utility Plan***).

STORMWATER DRAINAGE

The Specific Plan area will be serviced by connecting to the existing pipes or infrastructure within Foothill Boulevard. Other than the abutting improvements to provide connections to existing stormwater infrastructure, there are no off-site improvements to stormwater drainage (see ***Exhibit 3-9, Utility Plan***).

ELECTRICITY

Electrical service for the Specific Plan area is provided by Southern California Edison Company (SCE) through connections to the existing lines on-site or the surrounding streets.

NATURAL GAS

Natural gas service for the Specific Plan area is provided by Southern California Gas Company (SCG) through connections to the existing lines on-site or the surrounding streets.

CABLE, TELEPHONE, AND INTERNET

Cable, telephone, and internet services within the City of Claremont are currently provided by Frontier and/or Spectrum.

POLICE SERVICE

Police services for the Specific Plan area are provided by City of Claremont Police Department.

FIRE PROTECTION SERVICE

Fire services in Claremont are provided by the Los Angeles County Fire Department. Three fire stations are within the city limits, with the closest station located at 606 W. Bonita Avenue, which is approximately 2.2 miles from the Project.

SOLID WASTE DISPOSAL

The City of Claremont Community Services Department provides trash collection and recycling services to all residents and businesses in Claremont.

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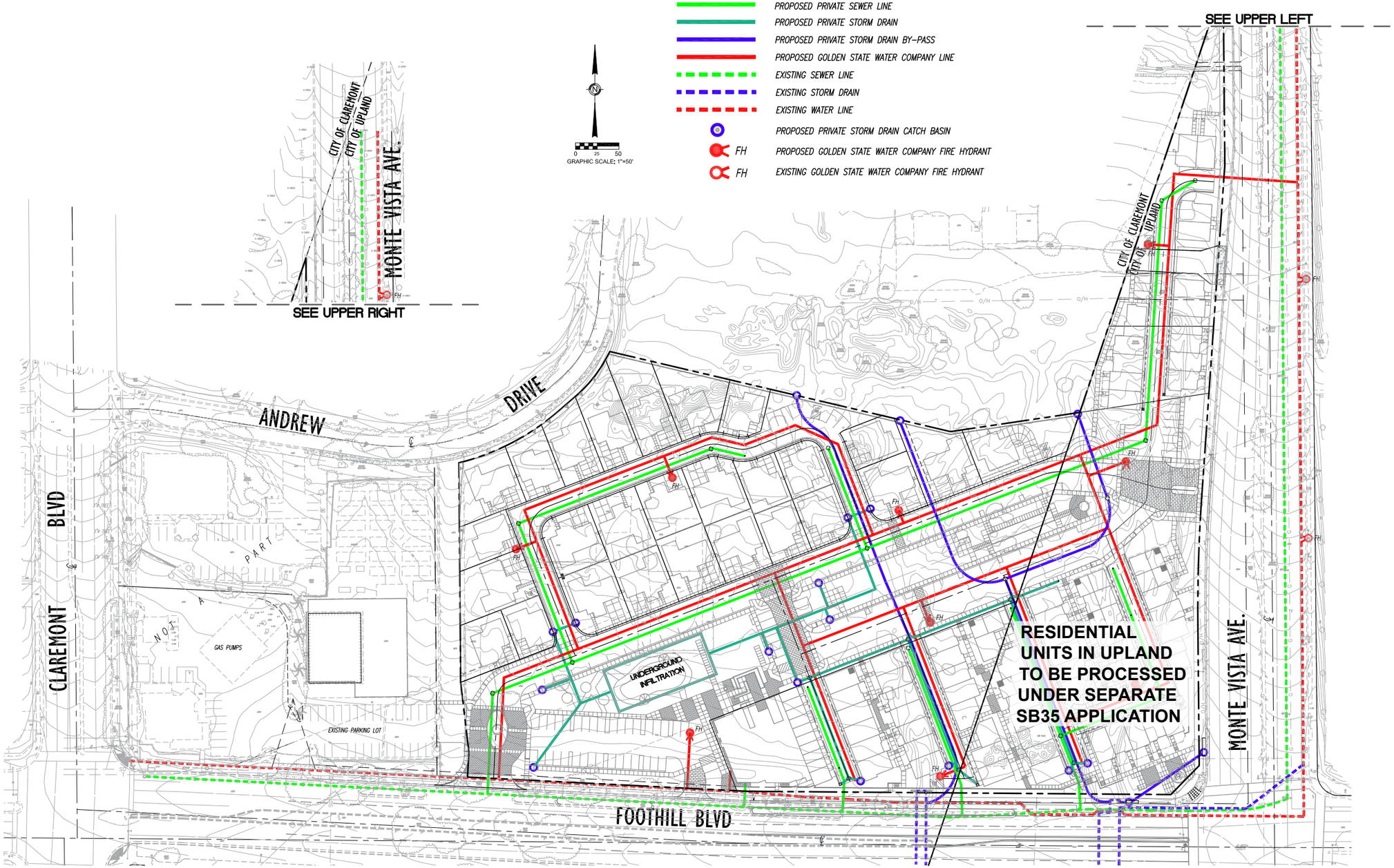

EXHIBIT 3-9 UTILITY PLAN

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4.0 DEVELOPMENT REGULATIONS

4.1 GENERAL PROVISIONS

This chapter establishes the permitted uses and development standards for the Specific Plan area. If there are conflicts between the standards contained in this Specific Plan and those found in the City of Claremont Municipal Code, the development standards in this Chapter shall supersede all provisions, standards, and requirements of the City of Claremont Zoning Ordinance. In those instances where this Chapter is silent, then the City of Claremont Zoning Ordinance shall apply for those particular issues and considerations only.

4.1.1 DEFINITIONS

Terms used in this document shall have the same definitions provided in the City of Claremont Zoning Ordinance Chapter 16.900 Glossary of Definitions as amended from time to time. Additionally, the following definitions shall apply within this Specific Plan as they are not defined in the City of Claremont Zoning Ordinance.

Lot Line, *Front*. For interior lots, the front lot line shall be that property line abutting the street. For corner lots, the front lot line shall be the shorter property line abutting the street. If any future right-of-way line has been established by a plan adopted by the City Council, this line shall be considered to be the front lot line for purposes of determining setbacks.

Lot Line, Rear. The property line opposite and most distant from the front lot line.

Lot Line, Side. Any property line which does not abut a public right-of-way, and which is not a rear lot line.

Lot Line, Street Side. For corner lots, any property line, other than the front lot line, which abuts the street shall be a street side lot line. If any future right-of-way line has been established by a plan adopted by the City Council, this line shall be considered to be the street side lot line for purposes of determining setbacks.

Measurement of Height of Fences. For the purposes of this Specific Plan, the height of a fence shall be measured the same as identified in Section 16.133.020 of the City of Claremont Zoning Code. At the date of the adoption of this Specific Plan, walls are measured from the average elevation of the existing grade within five feet of the fence, or when the fence is located between two properties, the height of the fence shall be measured from the existing grade on the higher side of the fence, provided that no fence shall exceed a height of ten feet measured from grade on the lower side of the fence, unless a higher fence is required as a condition of a conditional use permit or Architectural Commission approval of a project.

4.2 GENERAL SITE DEVELOPMENT CRITERIA

4.2.1 DEVELOPMENT INTENSITY

The Specific Plan allocates a targeted number of dwelling units and/or commercial square footage to each planning area by land use category as indicated in ***Table 4-1, Land Use Summary Table***. Decreases or increases in allocation of dwelling units and/or commercial square footage specified in ***Table 4-1*** are permitted within the Specific Plan, provided the total number of units established in this Specific Plan is not exceeded. The maximum number of residential dwelling units permitted within the Specific Plan area shall be 62 dwelling units and the maximum amount of commercial square footage is limited to 5,000 square feet. This number does not include accessory dwelling units within the Single-Family Residential District, which may also be permitted and shall be subject to Section 16.333 of the City of Claremont Zoning Ordinance. All future development plans shall be required to comply with the provisions of this section, including ***Table 4-1, Land Use Summary Table***, except as described in ***Chapter 6, Implementation***.

Table 4-1: Land Use Summary Table

LAND USES	PLANNING AREA	ACRES	DWELLING UNITS	COMMERCIAL (SQ FT)
Single-Family Residential	PA1	3.29	27	
Multi-Family Residential	PA2	0.91	20	
Mixed Use	PA3	0.9	15	5,000
Open Space Spine	PA4	1.38		
Total		**6.48**	**62**	**5,000**

4.3 PERMITTED USES

Exhibit 4-1 and ***Table 4-1*** depict the location and area of the land use categories in the Specific Plan area. The permitted uses within this Specific Plan include: Single-Family Residential, Multi-Family Residential, Mixed-Use, and Open Space, as well as those listed in ***Tables 4-2*** through ***4-5***.

The permitted use tables (***Tables 4-2*** through ***4-5***) set forth the permitted and conditionally permitted uses in the Specific Plan area. The permitted uses for the Specific Plan allow flexibility so the project can respond to changing market conditions. In the event a use is not listed or there is difficulty in categorizing a use as one of the uses listed in the permitted use tables, the use shall be prohibited unless a Finding of Similar Use is approved by the Director of Community Development pursuant to Chapter 16.339 of the City of Claremont Zoning Ordinance. In addition, a permitted use may include ancillary uses, provided the Director of Community Development determines such ancillary uses are appropriate, compatible with, and secondary to the permitted use, and are consistent with the intent of the district in which such uses are located. Uses not mentioned within these tables shall be prohibited.



EXHIBIT 4-1: LAND USE PLAN

Table 4-2: MIXED USE ZONE (PA3) PERMITTED USES	
P = Permitted Use, CUP = Conditional Use, NP = Not Permitted SUDP = Special Use & Development Permit Required	
USE	
1) Administrative/Professional	
Art studios with less than 15% sales area	P
Banks, credit unions and remote ATMs (stand-alone facilities – without drive-through)	P
Exhibit halls and galleries with 15% or less retail sales area (For galleries with more than 15% retail sales area – see art gallery under 6) General Merchandise)	P
Massage/acupressure as primary use (see also Claremont Municipal Code Chapter 5.36 and Section 16.099.010)	CUP
Massage as ancillary use to primary permitted use – less than 40% of gross floor area of business (see Claremont Municipal Code Chapter 5.36)	CUP
Recording/film studios	NP
2) Animal Services	
Pet grooming	P
Pet sales and supplies (no outdoor storage)	P
3) Alcoholic Beverage Sales	
Alcoholic sales for off-site consumption with or without tasting room	CUP
On-site sales in connection w/restaurant	CUP
Micro-breweries in connection w/restaurant	CUP
4) Educational/Instructional Uses	
Music, art, dance, gymnastic, martial arts instruction, yoga, talent/acting studio with greater than 1,500 sq. ft.	P
Music, art, dance, gymnastic, martial arts instruction, yoga, talent/acting studio with less than 1,500 sq. ft.	P
Ancillary uses to permitted primary uses	P
5) Food/Restaurants/Eating Establishments	
Bakery – primarily retail sales	P
Catering services as primary use – may include on-site dining facilities	P
Commercial test kitchen	P
Ice cream, juice, tea and candy shops	P
Restaurants/coffee shops with no drive through facilities (for entertainment permit, see Chapter 5.45 of the Claremont Municipal Code)	P

6) General Merchandise/Retail Trade	
Antiques retail sales (for antique warehouse, see warehouse distribution/ operations under 19) Warehouse/Storage)	P
Appliance, consumer electronic, computer and phone/telecommunication equipment retail sales	P
Art gallery with retail sales (If retail sales area is less than 15% – see exhibit hall and gallery under 1) Administrative/Professional)	P
Art supplies, framing	P
Beauty supplies	P
Books and magazines	P
Camera and photographic supplies	P
Clothing/shoes stores	P
Cigar/cigarette/smoke shops/electronic cigarettes as a primary use	CUP
Convenience stores	CUP
Florists	P
Food/drug and kindred products	P
Fabric stores	P
Furniture, office and home furnishings	P
Garden supply with outdoor display of plants	P
General merchandise, speciality, gift, craft items, candles, house wares, and variety (non-discount) stores	P
Hardware/home improvement stores	P
Health, herbal, botanical stores	P
Hobby, toy and game	P
Hookah lounge/smoking room	CUP
Indoor swap meets/concession malls	NP
Interior decorating, linen, and bath stores	P
Jewelry sales and repair	P
Leather goods and equipment	P
Luggage sales	P
Music, CD, tape and video sales	P
Musical instruments	P
Office supplies/stationery/cards	P
Outdoor sale or display of merchandise, or provision of services in conjunction with primary use in a building – see Chapter 16.090 of the Claremont Municipal Code for restrictions and special permit requirements	P
Pharmacies (without drive-through)	P
Shoe stores	P
Sporting goods and equipment (no gun sales)	P

7) Lodging Services	NP
8) Manufacturing/Industrial Uses	NP
9) Medical/Health Services	
Optometry related sales	P
9) Motor Vehicle Sales and Services	NP
11) Personal Services	
Barbers, hair/nail/skin-care/tanning salons and day spas	P
Body art (tattooing, body piercing, and/or permanent cosmetics)	NP
Cemeteries and mausoleums	NP
Crematory	NP
Dry cleaners/laundry – non-commercial (no chemicals on-site)	P
Fortune telling	NP
Funeral parlors	NP
Photocopying and photo developing -retail	P
Photography studios	P
Shoe repair	P
Tailor and alterations	P
12) Public Facilities/Utilities	
Public park	CUP
Public maintenance yard and other non-office uses	NP
Public utility structures	CUP
13) Recreation/Entertainment	
Cyber cafe/billiards and pool halls/game and video arcades	CUP
Golf course and driving ranges	NP
Indoor fitness studio (yoga, barre, health club, etc.)	CUP
Theatres (live stage and movie) and concert halls	NP
14) Public Assembly/Auditoriums/Meeting Halls	NP
15) Repair Services	NP

16) Residential	
Residential within mixed use development having a commercial component	P
Accessory Dwelling Units	Per Chapter 16.333 of the Claremont Municipal Code
17) Services/Non-Profit Organizations	NP
18) Telecommunications and Utilities Uses	
Commercial Antennas and Wireless Telecommunication Facilities	Per Chapter 16.100 of the Claremont Municipal Code
Utilities	P
19) Temporary and Special Uses	
Christmas tree and pumpkin sales (temporary outside sales)	SUDP
Fruit stands	SUDP
Large family day care	NP
Parking lot sale	SUDP
Temporary outdoor displays, sales, storage and provisions of services	SUDP
Temporary parking lots	SUDP
Temporary use of structures for carnivals, farmers markets, fairs, circuses & religious gatherings	SUDP
Temporary use of structures, trailers and facilities related to established uses	SUDP
20) Warehouse and Storage Uses	NP

Table 4-3 MULTI-FAMILY ZONE (PA2) PERMITTED USES	
P = Permitted Use, CUP = Conditional Use, NP = Not Permitted SUDP = Special Use & Development Permit Required	
USE	
1) Residential Land Uses	
Accessory Dwelling Unit	Per Chapter 16.333 of the Claremont Municipal Code
Accessory Structures, Non-Habitable	P
Boarding House	CUP
Condominiums/Apartments	P
Emergency Shelters	CUP
Family Day Care, Small (Up to 6 children)	P
Family Day Care, Large (7 to 14 children)	NP
Home Occupations	Per Chapter 16.327 of the Claremont Municipal Code
Live/Work Units	NP
Residential Care Facilities (6 or fewer people)	P
Residential Care Facilities (7 or more people)	CUP
Rest Home	CUP
Senior Citizen Housing	P
Single-Family Dwelling	P
Skilled Nursing Facilities	CUP
Supportive and Transitional Housing (6 or fewer)	P
Supportive and Transitional Housing (7 or more)	CUP
Townhomes (rental or for-sale)	P
2) Community Uses	
Community Gardens	CUP
Equestrian Establishments	NP
Golf Courses and Country Clubs	NP
Libraries	NP
Parks and Playgrounds	P
Educational Institutions (All)	NP
Public Safety Facilities	SUDP
3) Commercial Land Uses	
Temporary, Seasonal, and Special Events	P
4) Telecommunications and Utilities Uses	
Commercial Antennas and Wireless Telecommunication Facilities	Per Chapter 16.100 of the Claremont Municipal Code
Utilities	P

Table 4-4 SINGLE-FAMILY ZONE (PA1) PERMITTED USES	
P = Permitted Use, CUP = Conditional Use, NP = Not Permitted SUDP = Special Use & Development Permit	
USE	
Accessory Buildings and Structures (including fences and recreation courts, and accessory uses)	P
Accessory Dwelling Unit	Per Chapter 16.333 of the Claremont Municipal Code
Agriculture, Non-Commercial (e.g. crops and fruit)	P
Family Day Care, Small (Up to 6 children)	P
Family Day Care, Large (7 to 14 children)	SUDP
Home Occupations	Refer to Section 16.327 of Claremont's Municipal Code
Keeping of Animals as Pets (not for commercial purposes)	Subject to Title 6 of the Claremont Municipal Code
Parks and Playground	P
Renting of No More than One Sleeping Room per Dwelling Unit for Occupancy by No More than Two Persons	P
Residential Care Facilities (6 or fewer people)	P
Residential Care Facilities (7 or more people)	CUP
Single-Family Dwelling (one per lot for occupancy by no more than one family)	P
Supportive and Transitional Housing (6 or fewer)	P
Supportive and Transitional Housing (7 or more)	CUP

Table 4-5 OPEN SPACE ZONE (PA4) PERMITTED USES	
P = Permitted Use, CUP = Conditional Use, NP = Not Permitted SUDP = Special Use & Development Permit	
USE	
Community Center, operated by governmental agency, philanthropic organization, or private agency	NP
Public Assembly/Auditoriums/Meeting Halls	NP
Gardens	P
Parks and Playgrounds, operated by governmental agency, philanthropic organization, or private agency	P
Dog Park	P
Public Safety Facilities	CUP
Reverse Vending Machines	NP
Temporary, Seasonal, and Special Events	P, but may require a Special Event Permit
Animal Grazing	NP
Beekeeping	SUDP
Commercial Antennas and Wireless Telecommunication Facilities	NP
Utilities, Major	CUP
Utilities, Minor	SUDP
Parking, Surface	P

4.3.1 MIXED USE ZONE (PA3)

Mixed use projects are specifically allowed in Planning Area 3 as indicated in ***Table 4-2, Mixed Use Zone (PA3) Permitted Uses.*** Mixed use projects include vertical and horizontal uses that include residential uses over retail/ commercial uses within the same building, or two or more different types of land uses combined in close proximity on the same property, but within separate buildings. The Specific Plan includes one (1) four-story mixed use building. This building's commercial component shall include frontage, access, and signage for at least one tenant along Foothill Boulevard.

4.3.1 OPEN SPACE ZONE (PA4)

The Open Space zone (PA4) consists of an open space spine, providing open space amenities to the community and the general public. This area, with a 100-foot minimum width, will not include permanent structures, storage of flammable materials (e.g. gas barbecues), and photovoltaic solar canopies.

4.3.2 TEMPORARY REAL ESTATE SALES TRACT OFFICE

One (1) temporary, modular, real estate tract office, for the purpose of conducting sales of lots, condominiums, and/or townhomes within the Specific Plan area is permitted, provided such office shall not be used to conduct a general real estate business. Model homes may also serve as a temporary real estate tract office and are not limited within the Specific Plan area. The location, design, and functionality of the modular real estate tract office and model homes shall be reviewed by the Community Development Director, or designee, as part of a Special Use and Development Permit. Developments that use a temporary, modular real estate tract office shall require review before the Architectural Commission. A temporary modular real estate tract office should be located in a position to minimize its visibility from the public realm (e.g. right-of-way, on-site open space).

At the end of two (2) years from final construction of the final dwelling unit, the temporary use shall end, except that the Community Development Director may, upon a showing of need by the owner of the property, extend the permitted time for a period not to exceed one (1) additional year. After this time, the temporary, modular building shall be removed and any model homes shall be converted to permanent dwelling units. The Community Development Director, or designee, must approve with a Special Use and Development Permit, the use of the model homes and/or the temporary real estate tract office to be used for the sale of homes in other subdivisions within the City by the same developer.

4.3.3 TEMPORARY STORAGE OF BUILDING MATERIALS

Temporary storage of building materials used in the construction of a building or building project for which the owner or developer has a valid construction or grading permit is permitted during construction and 30 days from the final completion date, provided that any lot or parcel of land so used shall be a part of the building project or on the property adjacent to the construction site. Storage of materials shall be located away from the public right-of-way, and screened by a construction fence, wall, and/or landscaping. No such outside storage shall be located in the front or street side setback areas.

Temporary structures for the housing of tools and equipment or containing supervisory offices in connection with the construction may be established and must be well maintained during the construction of the project. Such temporary structures shall not be used for any temporary or permanent dwelling purposes. Temporary structures shall be required to obtain a building permit.

4.4 GENERAL DEVELOPMENT STANDARDS

The development standards establish the minimum development criteria for the Specific Plan area. ***Table 4-6, Development Standards*** sets forth the requirements that shall apply to all development within the Specific Plan area.

TABLE 4-6: DEVELOPMENT STANDARDS

STANDARD	SINGLE-FAMILY ZONE (PA1)	MULTI-FAMILY ZONE (PA2)	MIXED-USE ZONE (PA3)
Minimum Lot Area and Width	2500 SF (45' min. width)	4,000 SF (100' min. width)	20,000 SF
Setback from Foothill Boulevard	N/A	9' minimum	7' minimum to sidewalk
Minimum Front Setback to Private Drive	5'	N/A	N/A
Interior Side/Rear Setback	4'	0'	10' to residential, 0' to open space
Private Street Side/ Rear Setback	5'	0'	0'
Minimum Building Separation	8'	6'	N/A
Open Space	400 SF of private open space/unit (8' minimum dimension), and 200 SF of common open space/unit (20' minimum dimension)	200 SF of private or common open space/unit. Private open space shall have a 6' minimum dimension, and common open space shall have a 20' minimum dimension to qualify	120 SF of private or common open space/unit. Private open space shall have a 6' minimum dimension, and common open space shall have a 20' minimum dimension to qualify
Minimum Site Landscaping*	–	10%	10%
Minimum Unit/ Tenant Size	1-bedroom unit – 700 SF 2-bedroom unit – 900 SF 3-bedroom unit – 1100 SF 4-bedroom unit – 1300 SF	1-bedroom unit – 700 SF 2-bedroom unit – 900 SF 3-bedroom unit – 1100 SF 4-bedroom unit – 1300 SF	600 SF (Residential) 1,000 SF (Commercial)
Maximum Number of Stories	2	3	4
Maximum Height	32'	40'	60'
Min. Number of Parking Spaces	Residential: 2 spaces/unit (in garage)	Residential: 2 spaces/unit (in garage) + 0.5 guest spaces/unit	Residential: 1 + 0.5 guest spaces/unit Retail: 1 space/285 SF Restaurant: 1 space/120 SF Outdoor dining: 1 space/200 SF Other Uses: Per Section 16.136.010 of the Claremont Municipal Code
Maximum Wall & Fence Height	Maximum wall and fence height shall be subject to Section 16.133.020 of the CMC.		

* Landscape shall be subject to the City's water efficient landscape requirements identified in Section 16.131 of the CMC.

4.4.1 ALLOWABLE SETBACK PROJECTIONS AND ENCROACHMENTS

An encroachment is a permitted intrusion into a public right-of-way. A projection is a permitted intrusion into a setback area upon a lot or are structural, decorative, or mechanical elements that exceed the maximum height requirement. In all cases, all encroachments and projections shall comply with the California Building Code (CBC), as well as other applicable codes and regulations such as the American Disability Act and the City of Claremont Municipal Code. The permitted encroachments and projections are discussed below.

1. Cornices, eaves, belt courses, cantilevered bay windows, fireplace masonry, awnings, lighting fixtures, canopies, and similar architectural features that do not increase interior floor area of a structure may project into the required setback area no more than two (2) feet into any required setback.
2. Pools no more than three (3) feet above grade may be located within interior or rear side setback areas of any lot provided pools are no less than four (4) feet from any property line.
3. Signs may project and/or encroach into any required setback or public right-of-way, provided they are erected and maintained in accordance with the sign regulations of Title 18 of the City of Claremont Municipal Code.
4. Flags may be permitted within required front and street side setbacks, provided they are erected and maintained in accordance with the regulations of Title 18 of the City of Claremont Municipal Code.
5. Landscape elements such as benches, fountains, and public art may project and/or encroach into any setback or public right-of-way, provided they do not obstruct any path of travel or intersection visibility requirements. Intersection visibility requirements shall be per Section 16.130.050 of the Claremont Municipal Code.
6. Projections that exceed the maximum height requirement may be permitted if they are found to be compatible with surrounding development, will not create visually offensive views from the street or neighboring properties, and do not increase floor space or living space within the structure. These projections are subject to approval by the Community Development Director or his/her appointed designee. The following elements are eligible to project above maximum height requirements:
   - Penthouses or roof structures for the housing of elevators, stairways, tanks, ventilating fans or similar equipment required to operate and maintain the building.
   - Fire or parapet walls, skylights, towers, church steeples, chimneys, smokestacks, silos, water tanks or similar structures.
7. Minor structures and equipment, accessory buildings, athletic apparatus, and children's play equipment may project into the required setbacks as described in Section 16.130.020 of the City of Claremont Municipal Code.

4.4.2 PARKING STANDARDS

The parking requirements for the Specific Plan area are identified in ***Table 4-6, Development Standards.*** Additionally, a minimum of 50 and a maximum of 70 open parking spaces shall be provided throughout the project. These spaces may be located within any of the planning areas, along the open space spine, or throughout other areas of the Specific Plan area to provide guests and visitors the ability to park and enjoy this new community. These spaces may also be provided within the City of Upland portion adjacent to the Specific Plan area. Requirements within this section shall supersede those identified within the Claremont Municipal Code. If the Specific Plan is silent on an issue related to parking standards, the provisions of Chapter 16.136 of the Claremont Municipal Code shall apply.

SHARED PARKING

For parking facilities providing parking to two (2) or more uses with differing peak parking demands, reductions to the required parking standards may be permitted, per approval by the Community Development Director or their appointed designee. Said parking standard reduction shall require the submittal of a shared parking study, prepared by a qualified parking consultant firm acceptable to the Community Development Director. This shared parking study shall determine the number of parking spaces necessary for the proposed mix of uses.

If a development utilizes a parking reduction via a shared parking study, no new shared parking study shall be required once the initial certificate of occupancy has been issued so long as:

- The aggregate developed square footage is not increased;
- The proposed use does not require a Conditional Use Permit approval; or
- There is no increase in the parking demand previously analyzed in the shared parking study (e.g. retail uses are proposed to be converted to restaurant uses).

If any of the above events are to occur, the development must comply with the applicable parking requirements, or a new shared parking study and Community Development Director reapproval must occur.

BIKE STORAGE

Short-term bicycle parking (bicycle racks) shall be provided for five (5) percent of the commercial parking spaces (10 spaces minimum). A minimum of two (2) additional bicycle racks shall be provided within the Specific Plan area for visitors of the project's residents and open spaces. Bicycle racks may vary in design and capacity and shall be secure, easily accessible and identifiable, and near building entrances.

Long-term residential bicycle parking are provided within the garage of the individual units. Bicycle rack designs come in a variety of different types, including those that are mounted onto the wall, mounted above a parked vehicle, or simply stored at the corner of a garage. Furthermore, an addition storage area containing a minimum of six (6) bicycle racks shall be provided within the Mixed-Use building. Long-term bicycle storage within the mixed-use building may vary in design and shall be secure, easily accessible, and identifiable.

DOCKLESS ELECTRIC SCOOTER STAGING

If the City of Claremont formally allows for the use of dockless electric scooters, a minimum of two (2) dockless electric scooter staging areas shall be identified for the project site either within Planning Area 3 or Planning Area 4. The size of each staging area should reflect the demand for dockless electric scooter use in the area, but shall not exceed 60 square feet per staging area.

4.4.3 WALL AND FENCE STANDARDS

Walls and fences for the Specific Plan area shall comply with Chapter 16.133 of the Claremont Municipal Code.

4.4.4 SIGNAGE

Signage within the Specific Plan area shall comply with the design requirements and procedures found within Title 18 of the Claremont Municipal Code.

4.4.5 WIRELESS FACILITY STANDARDS

Wireless facilities within the Specific Plan area shall comply with the design requirements and procedures found within Chapter 16.100 of the Claremont Municipal Code.

4.4.6 INCLUSIONARY HOUSING

The Specific Plan area shall comply with and be subject to the inclusionary housing requirements identified in Chapter 16.036 of the Claremont Municipal Code, except that inclusionary units will be provided within the Specific Plan area.

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5.0 DESIGN GUIDELINES

5.1 INTRODUCTION

This Chapter contains the site planning, architectural and landscaping design guidelines for The Commons Specific Plan. These guidelines will ensure that the Specific Plan area develops as a cohesive and high-quality community, and that the design objectives and framework principles are incorporated into the built environment. This Chapter will provide future planners, architects, landscape architects, builders, and engineers general direction by which they can see the plan through to its fruition, while still allowing for enough flexibility for designers to incorporate their creative expertise into the proposed built environment.

The Design Guidelines and standards are intended to be flexible in nature while establishing basic evaluation criteria for the review of future applications as part of the development review process. The strongest level of design intent is specified by using terms such as “must,” “shall” and “prohibited.” Anything with a “must” or “shall” is required. Preferred design items are designated as a condition which is “encouraged,” “preferred,” “recommended,” “appropriate,” or as one that “should” be included. Preferred design items are considered “voluntary” and need not be included in a proposed development. If the approving body finds that the plans are consistent with the overall intent and goals of these Design Guidelines, the plans do not need to meet each and every guideline within this section.

5.2 RESIDENTIAL DESIGN GUIDELINES

Residential architecture within The Commons will embrace the “Transitional” design philosophy to achieve a distinctive identity for the Specific Plan area. All buildings should reflect tenets of modern design while incorporating key aspects of traditional architectural features. Development within the Specific Plan area shall include desirable design features such as unit orientation along well-designed streetscapes, and buildings designed with appropriate massing and scale. Roof forms, materials and colors, as well as primary design components, require careful articulation in their architectural expression.

The following guidelines, recommendations, and requirements address site planning and design elements applicable to the overall project area.



Example, Architectural Design Concept

5.2.1 ARCHITECTURAL STYLE

Transitional Style: The Transitional style refers to an updated traditional design with a contemporary twist, incorporating features that are less ornate than traditional styles, but not as basic as modern styles. In addition to bridging traditional and modern aesthetics, Transitional style homes also could blend influences from various architectural styles to create a classic, clean and balanced look. This evolving style allows for adaptable and functional designs that incorporate sustainable and advanced technology features associated with modern living. Key characteristics of the Transitional style include clean-lined form and mass, pitched and flat roofs, simple, asymmetrical façades with multiple layers of texture and color, and minimal accents exhibiting a sense of simplicity and sophistication.



Transitional Architectural Style

Identifying Characteristics:

- Simple, two- or three-story volumes with an asymmetrical façade
- Dramatic design elements, such as central building volumes and massing breaks that emphasize verticality.
- Large expanses of glass/windows, often placed asymmetrically.
- Use of natural materials.
- Flat and/or pitched roofs with varied parapets.
- Multiple layers of texture and color.

Multiple and Differing Layers of Texture and Color



5.2.2 SINGLE FAMILY RESIDENTIAL DESIGN GUIDELINES

Building Orientation and Massing

The front elevation of the house is an important element in creating a quality neighborhood. Special attention will be placed on this elevation and how it interacts with the public realm. Placing an emphasis on living spaces facing the street with variation in building massing creates a strong pedestrian-oriented street scene.

Rectangular and Angular Forms









- Building forms shall include rectangular, square or angled. Circular elements and cupolas are prohibited.
- Massing variations such as projecting rooms, shall be offset a minimum of one (1) foot.
- Garage doors shall be recessed a minimum 12 inches unless if the garage is set back less than 18 feet, where the minimum garage door recess may be reduced to a minimum of 6 inches.
- Front elevations shall emphasize the placement of living areas, entries, and windows to enhance the streetscene.
- The building's primary entryway shall be visible from a pedestrian walk or the sidewalk/street.
- To encourage varied orientation, buildings with the same floor plans shall not be plotted side by side unless the floor plan is reversed or "flipped" and have different elevation designs.
- Plans with a two-car garage door shall be set back of a minimum of 18 feet. To further reduce the visual dominance of this garage door, there shall be a forward projection with a minimum projection depth of 10 feet, measured from the garage plane.

Roof Variation

- Roofs shall avoid repetition along the street/drive, especially between elevations of the same floor plan.
- Roof pitch shall vary and be consistent with respect to the architectural style of the building. This may include the combination of both flat and pitched roofs within the same elevation style.
- A variety of roof orientations and forms (e.g. angular, flat, and parapet) are required.

Primary Entrances

All primary entrances shall provide the address or unit identification, and a landing or alcove. All primary entrances for single-family homes shall incorporate the following elements:

- The entryway shall be clearly marked.

- The entryway shall include either an overhead light fixture or a projecting overhang to help define the entry.
- The entryway shall be recessed at least 12 inches from the building façade.

Façade Articulation

Rear and side façades visible from an internal private street or the park shall be treated with a similar level of detail and articulation as the front elevation, and all front façades shall incorporate the following articulation techniques:

- Exterior elevations shall include at least three (3) high-quality materials that accentuate or correspond to variations in building massing and plane changes. Building materials may include, but are not limited to, stucco, glass, wood cladding, stone, metal, cement board, and shall be appropriate to the architectural style.
- All roof overhangs shall be 18 inches minimum, except on side yards, where the roof overhangs may be reduced to 12 inches minimum.
- Feature windows adjacent to wood cladding, stone, or cement board on front elevations and enhanced side and rear elevations shall be recessed a minimum of four (4) inches from the stucco wall planes.

Colors and Materials

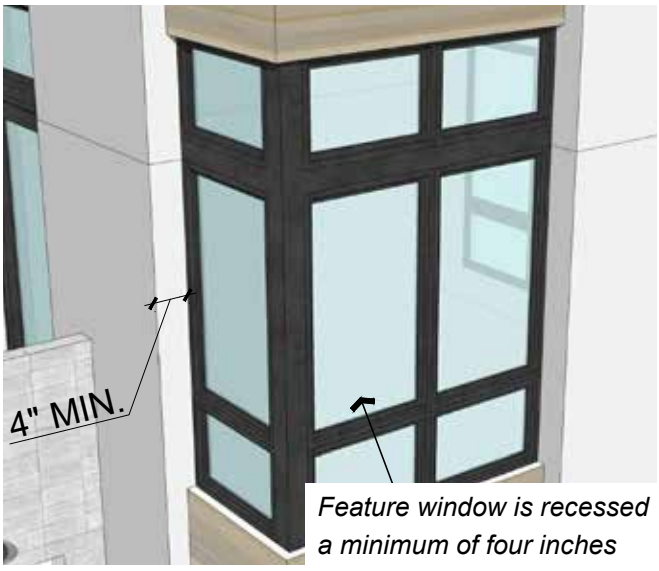
Building materials and colors shall reflect the Transitional architectural style and consist of the following combination of materials:

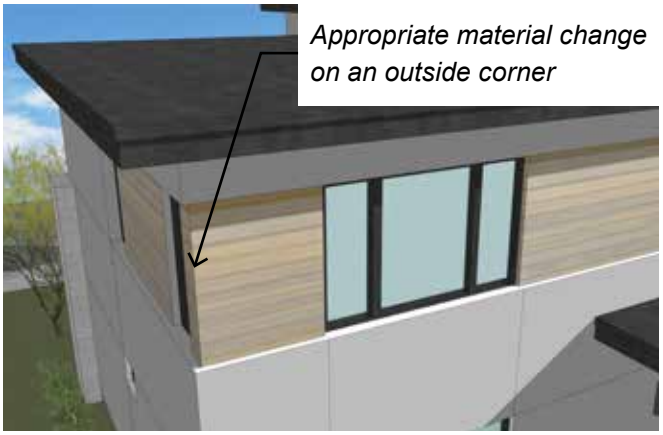
- Primary body material: stucco with wood cladding accents.
- Accent material: grey or natural-colored stone veneer.
- Garage door: solid panelled door.

The colors for the single-family residences shall be as follows:

- Body color: light to medium greys and natural colors.
- Accent color: medium to dark grey.
- Entry door color: Green or black.

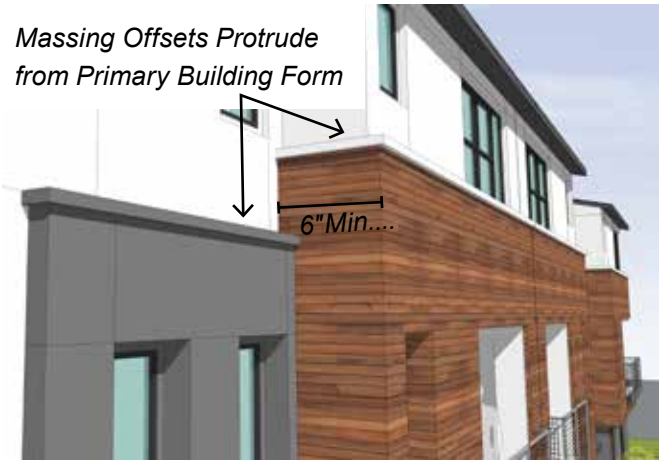








Multi-Family Residential Buildings





A single material or color shall not predominate an elevation.

Where color or material changes occur on the building, such changes shall only occur at appropriate termination points (such as inside corners) where they provide a finished appearance from the street.

5.2.3 MULTI-FAMILY RESIDENTIAL DESIGN GUIDELINES

Building Orientation and Massing

The elevations of a multi-family building are an important element in creating a quality neighborhood. Special attention will be placed on how building elevations interact with the public realm. Placing an emphasis on living spaces facing the street with variation in building massing creates a strong pedestrian-oriented street scene by introducing a visual and physical interaction between buildings and the adjacent pedestrian spaces.

- Building forms shall include rectangular or square forms, with pitched roofs to provide interesting massing breaks. Limited angular building shapes are allowed next to the right-of-way, avigation easement, or the Specific Plan boundary. Circular elements and cupolas are prohibited.
- Front elevations and elevations facing a street, drive or park shall have a massing offset of a minimum of six (6) inches (horizontally or vertically) to help break up the overall mass of a building.
- Front elevations shall emphasize the placement of living areas, entries, and windows to enhance the streetscene.

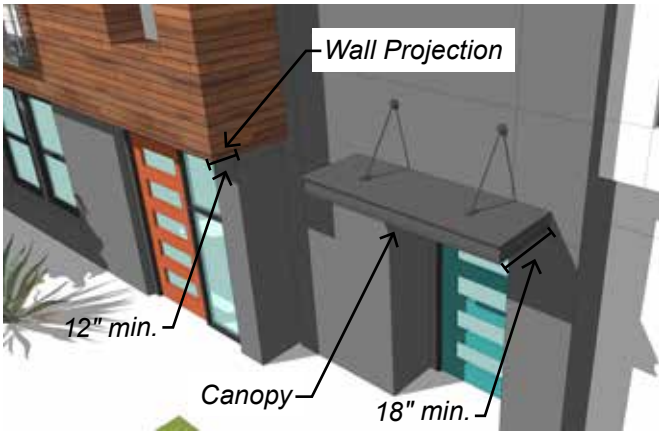
Roof Variation

- Within the building, roof forms shall vary from flat roofs with parapets and pitched roofs.
- Roof pitch should vary and be consistent with respect to the architectural style of the building.
- A variety of roof orientation and forms are encouraged.

Primary Entrances

All primary entrances for multi-family dwellings shall provide the unit identification and shall incorporate the following elements:

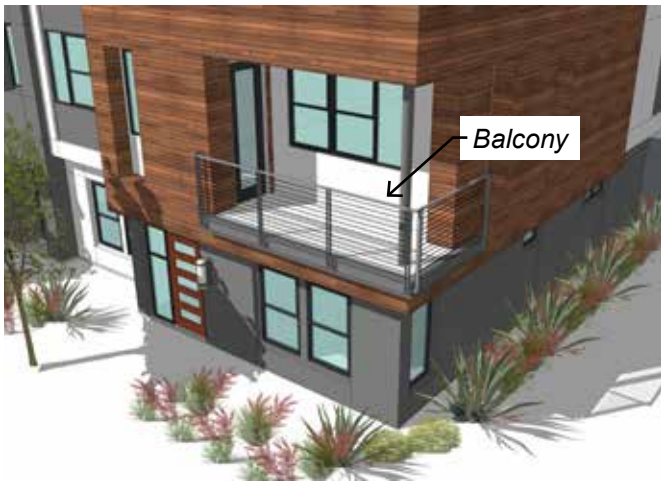
- The unit entrances shall be designed with an overhead projection such as a canopy or a wall projection with a minimum projection of at least 12 inches. When a canopy is used, the canopy shall project a minimum of 18 inches.
- The entryway shall be clearly and architecturally delineated via emphasis by building massing, material change, signage, building orientation, or some combination thereof.
- The entryway shall include either a light fixture or an overhead projection to help define the entry.

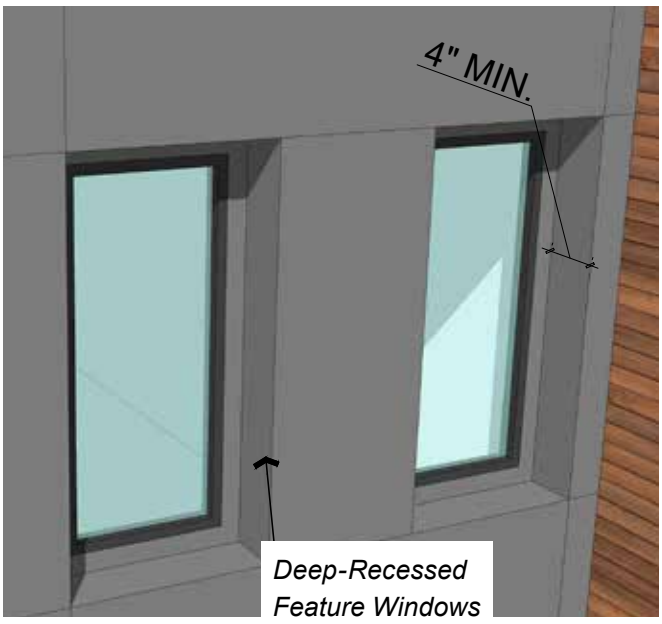


Façade Articulation

All façades of a multi-family building shall be treated with an equal level of detail and articulation as the front elevation, and all façades shall incorporate the following articulation techniques:

- Exterior elevations shall include at least three (3) high-quality materials that accentuate or correspond to variations in building massing and plane changes. Building materials may include, but are not limited to, stucco, glass, wood cladding, metal, cement board, and should be appropriate to the architectural style.
- To provide variation on building elevations, a minimum of 25 percent of the units of each multi-family building shall include a balcony with a minimum depth of six (6) feet on either the rear or front elevation.
- A minimum of one feature window shall be required on each elevation of a multi-family building. A feature window is a deep-recessed window (recessed 4 inches or more) that is used to increase facade articulation and emphasize architectural features.



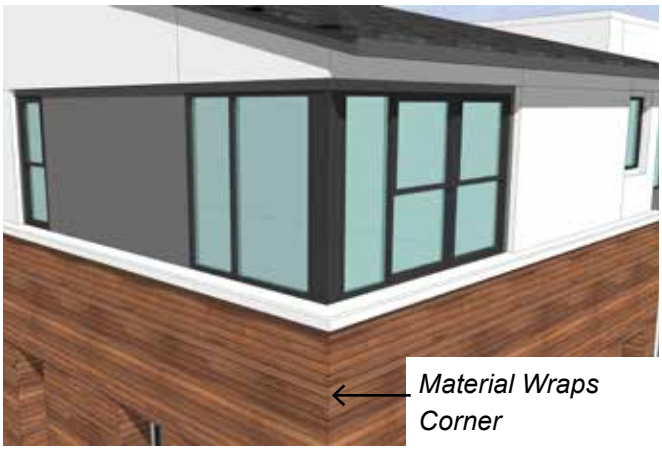




Wood Cladding



Orange Entry Door



Material Wraps Corner

Colors and Materials

Building materials and colors shall be consistent with the Transitional architectural style and consist of the following combination of materials:

- Primary body material: stucco.
- Accent material: natural or white/grey colored wood cladding.
- Garage door: solid panelled door with rectangular lites.
- Windows: high quality windows should be used throughout the development; painted vinyl windows are prohibited.

The colors for the multi-family buildings shall be as follows:

- Body color: white, off-white, or medium grey.
- Accent color: None (accent is wood cladding material described above).
- Entry door color: Orange or blue/green.

A single material or color shall not predominate an elevation.

Where color or material changes occur on the building, such changes shall occur at an inside corner (the point at which two wall planes intersect to form an interior angle on the elevation) or at an appropriate break point to complete building mass forms, so as to provide a finished appearance from the street. Color and material changes shall not occur at an outside corner. Material changes may also be used to complement architectural elements, such as projections and windows.

Materials and colors on the front elevations shall wrap the corner of the building to an inside corner on the side elevation, or to an appropriate break point if there is no inside corner on the side elevation.

5.3 MIXED-USE DESIGN GUIDELINES

Building Orientation and Massing

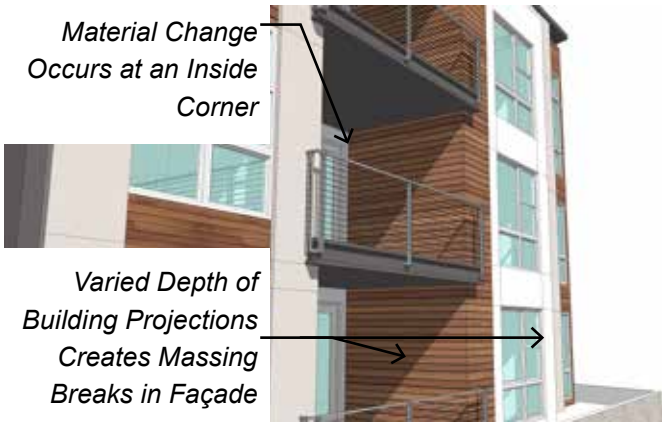
The elevations of the mixed-use building are an important element in creating a sense of place for the project.

- The dwelling units above the retail shall be set back a minimum of two (2) feet from the retail store front to visually emphasize retail uses and reduce impacts upon residential uses. The design shall include a material break to further distinguish between the retail and residential portions of the building.
- Building forms shall include rectangular or square forms, with varied flat and parapet roofs. Angular building shapes are allowed next to the right-of-way. Circular elements and cupolas are prohibited.
- All elevations shall have a massing offset of a minimum of six (6) inches (horizontally or vertically) to help break up the overall mass of a building.



Vertical Mix of Uses









Retail Façade is Primarily Composed of Glass Windows to Enhance Pedestrian Experience



Roof Variation

- Roof forms may be flat, parapet, or a combination thereof.
- Roof heights shall vary and the roof forms should be consistent with the architectural style of the building.

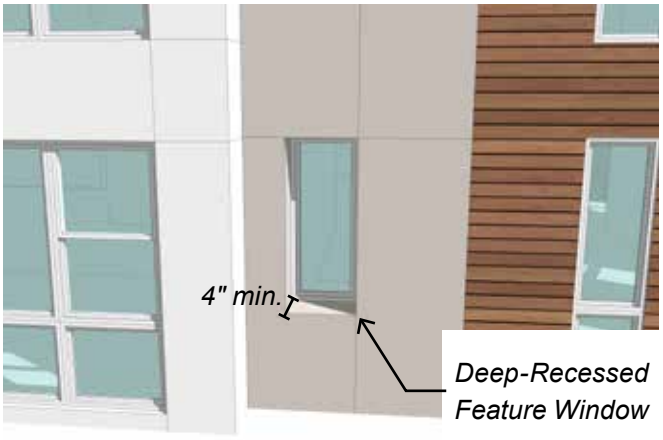
Retail Storefronts

- The mixed-use building shall have different facade treatments between the retail use at the ground floor and the residential uses above. The retail design shall consist of primarily glass storefront windows, whereas the residential component shall be similar to the multi-family materials described above. The different façade treatments help to distinguish between these uses and anchor the base of the building.
- Open views into the retail space at the storefront level enhance the pedestrian experience by providing a visual connection to the use inside the building. On upper levels, windows should continue the aesthetics of the building while serving the occupants' need for privacy.
- Retail uses along Foothill Boulevard shall have a frontage, entry door, and signage facing the street.
- The minimum ground floor retail ceiling height is fifteen (15) feet.
- Primary entrances into retail businesses shall be clearly marked, provide a sense of welcoming, and offer convenient access into the building interior.
- Large expanses of reflective, opaque, or highly-tinted glass are not permitted.
- A minimum of 1,000 square feet area devoted to benches, seating, and/or outdoor dining is required as part of the Specific Plan. This area may or may not be fenced and shall be located adjacent to the Mixed-Use building as identified in ***Exhibit 5-1, Conceptual Landscape Plan.***
- Limited outdoor displays are encouraged to promote pedestrian activity.
- A plaza adjacent to the retail uses is required and shall include seating and landscaping.

Façade Articulation

All façades of the mixed-use building shall be treated with an equal level of detail and articulation, and all façades shall incorporate the following articulation techniques:

- Exterior elevations shall include at least three (3) high-quality materials that accentuate or correspond to variations in building massing and plane changes. Building materials may include, but are not limited to, stucco, glass, stone, wood cladding, metal, cement board, and should be appropriate to the architectural style.
- Projections, overhangs, recesses, banding, and architectural details shall be used to provide shadow and articulation.
- To provide variation along the streetscene, all of the units within the mixed-use building shall include a balcony with a minimum depth of six (6) feet.
- A minimum of one feature window shall be required on each elevation of a multi-family building. A feature window is a deep-recessed window (recessed 4 inches or more) that is used to increase facade articulation and emphasize architectural features.





Colors and Materials

Building materials and colors shall be consistent with the Transitional architectural style and consist of the following combination of materials:

- Primary body material: stucco.
- Accent material: natural or white/grey colored wood cladding and light grey stone veneer.
- Garage door: solid panelled door with rectangular lites.

The colors for the mixed-use building shall be as follows:

- Body color: white, off-white, light grey, or light natural colors.
- Accent color: medium grey.

A single material or color shall not dominate an elevation.

Where color or material changes occur on the building, such changes shall only occur at appropriate termination points (such as inside corners) where they provide a finished appearance from the street.





Park Plaza includes pedestrian amenities and interfaces with Mixed-Use District



Central Park Contains Recreational Amenities and Open Spaces

5.4 PUBLIC SPACE GUIDELINES

The Commons Specific Plan area includes two main public spaces, the Park Plaza and Central Park. Details of these public spaces are depicted in ***Exhibit 5-1, Conceptual Landscape Plan***.

The Park Plaza, located at the western edge of the Specific Plan area and abutting the Mixed-Use District, includes outdoor dining, open lawn for passive play, bike racks, benches, chairs, and a water quality facility. The design includes enhanced paving and colored concrete. Low fencing may also be included within this area to designate an area for a tenant.

The Central Park spans from the Park Plaza on the west to the eastern edge of the Specific Plan area. Permanent structures are not permitted within this park. However, this park does include amenities such as a bocce ball court, maze garden, decorative paving, bike racks, benches, umbrellas, and chairs.

These public spaces shall include:

- Open spaces that are open to the public and parking for the Central Park and Park Plaza next to these areas.
- Well-lit pathways in the public space that provide safety but do not spill onto adjacent properties.
- Outdoor spaces designed with defined edges, benches, and lighting.
- Outdoor furniture, such as benches, tables, etc. shall be consistent with the architectural style of the project.

5.5 PUBLIC ART GUIDELINES

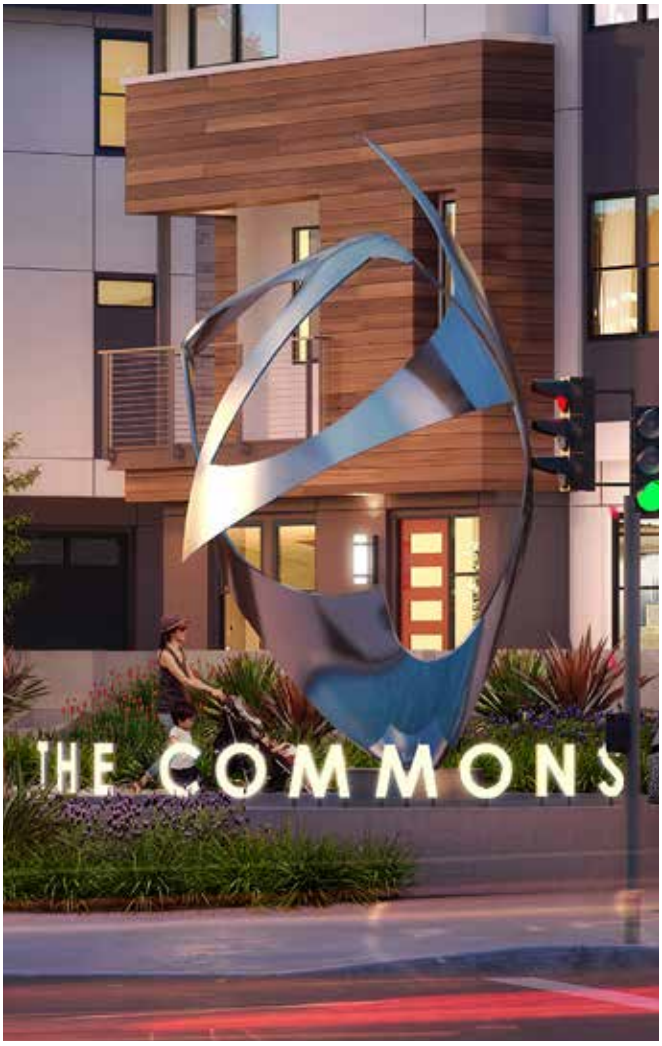
This Specific Plan requires the inclusion of public art, water features, and other decorative elements in highly visible areas such as plazas, parks, and at the primary entry along Foothill Boulevard. Elements such as murals, sculptures, and decorative water fountains will be designed to create artistic harmony between the community's buildings, landscape, and open spaces. The project is also subject to Chapter 16.148 of the Claremont Municipal Code.

The project goals of the public art are as follows:

- To add to the cultural heritage of the City of Claremont through aesthetic enhancement of the community and the surrounding neighborhoods.
- To make durable art of excellent quality available to residents, visitors, and the community-at-large to stimulate intellectual and artistic growth.
- To create focal points within the project for the enjoyment and contemplation of art.
- To enhance the stature of the City of Claremont by defining its commitment to artists and to the creative process as a vital element of urban dynamics.

The project guidelines for public art are as follows:

1. Public art may be integrated into the buildings, plazas, parks, and at the primary community entry.
2. All art used in exterior areas shall be constructed of durable, all-weather materials including, but not limited to, glass, metal, paint, wood, stone, tile, brick and other similar durable, low maintenance materials.
3. The art may be created using a variety of mediums and techniques and be as fleeting as sprays of water or as permanent as a sculpture. Examples of items qualifying as art include, but are not limited to: water features, decorative tiles, paving and mosaics, murals (including on utility boxes and walls), sculptures, decorative carvings, ornamental



Example, Artistic Sculpture Element



Example, Decorative Bike Rack

benches, special light displays, decorative bike racks, and other items of a unique and high-quality nature that embody artistic elements.

4. Each piece of art shall be designed to enhance or complement the outdoor area or building to which it relates.
5. Art may not involve advertising, the name of the project, and/or special events and activities.
6. Art should include sustainable design principles, including, but not limited to, alternative energy sources, recycled materials, low polluting and energy conserving production techniques, and renewable resources.
7. Public art should incorporate sustainable strategies, demonstrate green processes, and utilize green design, materials, theories, and techniques.
8. Art shall be placed in public right of way, commercial property, or HOA common area property and must comply with all applicable site-distance requirements.

The applicant shall have the right to choose the art pieces within the Project. The Public Art Committee shall review all art, and all public art shall be processed subject to Chapter 16.148 of the Claremont Municipal Code. Stand-alone art visible from public views such as painted murals on walls or utility boxes, decorative bicycle racks, or stand-alone art located within the public right-of-way, shall also be reviewed by the Public Works Director and/or the Community Development Director, or their designee.

5.6 LANDSCAPE DESIGN GUIDELINES

The following guiding principles set the general direction for the design of the landscaped spaces within the Specific Plan area. These guidelines are design concept guidelines only and are not intended to be used for engineering and/or construction purposes.

- Low-water use plant materials should be selected to limit irrigation needs and minimize water use, and plantings upon the site shall be designed to comply to Chapter 16.131 of the Claremont Municipal Code. Mediterranean and other local, climate-friendly plants may be used alongside native species.



Example, Low-Water Use Plants



Example, Wall Treatment

- Plant materials should be selected in a manner that complements the architectural styles and forms of the buildings. Landscape design should be integrated with building architecture and suitable to the functions of the space.
- Accent planting should be used at entries and key activity hubs.
- Canopy trees should be provided for shade and enhance building energy efficiency, especially adjacent to south and southwest facing building facades.
- Landscaping should not create a visual barrier between pedestrians and the Mixed-Use building frontage, nor views to the buildings' storefront.
- Landscaping should be provided between the building and the public right-of-way. Climbing vegetation should be considered as a screening method where limited space is available.
- Landscaping may be used to screen or separate, less-desirable areas from public view, such as trash enclosures, parking areas, storage areas, loading areas, and public utilities.
- Common open space design should maintain a balance of landscaping and hardscape.
- Pedestrian pathways of a minimum of three (3) feet in width shall be provided from the interior private street to all primary entryways and common areas, such as parks, plaza, guest parking, mailboxes, and open spaces.
- Special paving treatments should be considered at key locations by using tile, brick, pavers, textured concrete, or similar to provide distinguished direction for pedestrian access.

5.6.1 CONCEPTUAL LANDSCAPE PLAN

The intent of the landscape design concept, as shown on ***Exhibit 5-1, Conceptual Landscape Plan*** is to create a sustainable, pedestrian-friendly atmosphere that invites residents and visitors to walk and enjoy the open spaces and have connectivity within the community. The planting concept for the project is intended to provide a rich landscape that compliments the style and architectural feel of the Project, as well as take into consideration the applicable City's water conservation program.

Throughout the Project area, plazas, parks, and open spaces have been incorporated to establish a sense of place and identity and provide spaces for outdoor dining, play, and entertainment. ***Exhibit 5-2, Enlargement Plan – Park Plaza*** and ***Exhibit 5-3: Enlargement Plan – Central Park*** show detailed views of the outdoor open space areas.

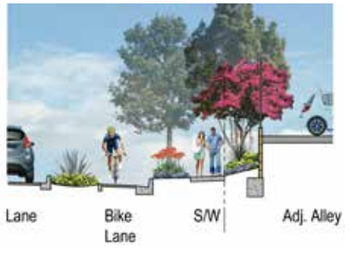
All landscape and irrigation plans will be prepared by a licensed California Landscape Architect and will be submitted to the City of Claremont for review and approval prior to starting construction.



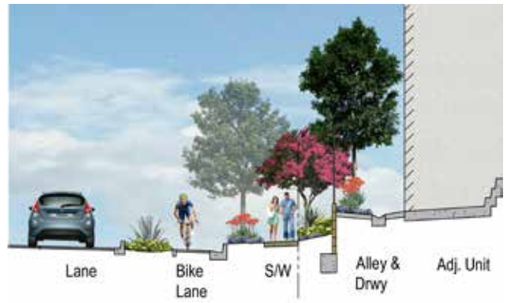




*Conceptual images (provided herein are all subject to change)



Street Section 'F1' - Foothill Blvd.



Street Section 'F2' - Foothill Blvd.
Scale: 1" = 10'





*Conceptual images (provided herein are all subject to change)

LEGEND

1. Community vehicular entry, with enhanced paving, pedestrian sidewalk and specimen trees. Refer to Entry Enlargements on L-2.
2. Community retail plaza and natural park with picnic areas, table seating and trails. Refer to Plan Enlargement on L-3.
3. Central community park, with high quality amenities and various programmed areas for local residents and visitors. Refer to Plan Enlargement on L-4.
4. Neighborhood pocket park, Refer to Plan Enlargement on L-5.
5. Community cluster mailboxes, per USPS review and approval.
6. Proposed wall, pilaster, gate, fence, per Wall & Fence Plan.
7. Proposed tree, per Planting Plan.
8. 5' wide community natural colored concrete sidewalk, with light top-cast finish and saw-cut joints.
9. 4' wide unit entry natural colored concrete walk, with light top-cast finish and saw-cut joints.
10. Accessible parking stall and striping, per Civil plans.
11. Guest parking stall.
12. Natural colored concrete driveway, with light broom finish and tooled joints.
13. Private patio / yard area, homeowner maintained.
14. Common area landscape, with drought tolerant, colorful planting; builder installed and HOA maintained.
15. Steps down to Foothill Blvd.
16. Public street improvements, per Civil plans.
17. Proposed public street sidewalk, per Civil plans.
18 Transformer to be screened with landscape, quantity and final locations to be determined.
19. Short term bike parking - metal "loop" bike ring (14"x36"x31" size, 2 bike stalls per rack ring in bronze color).
20. Water quality basin area, per Civil plans.
21. Adjacent existing nursery facility.

0 30' 60' 120'
Scale: 1" = 60'

EXHIBIT 5-1 CONCEPTUAL LANDSCAPE PLAN

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EXHIBIT 5-2: ENLARGEMENT PLAN – PARK PLAZA





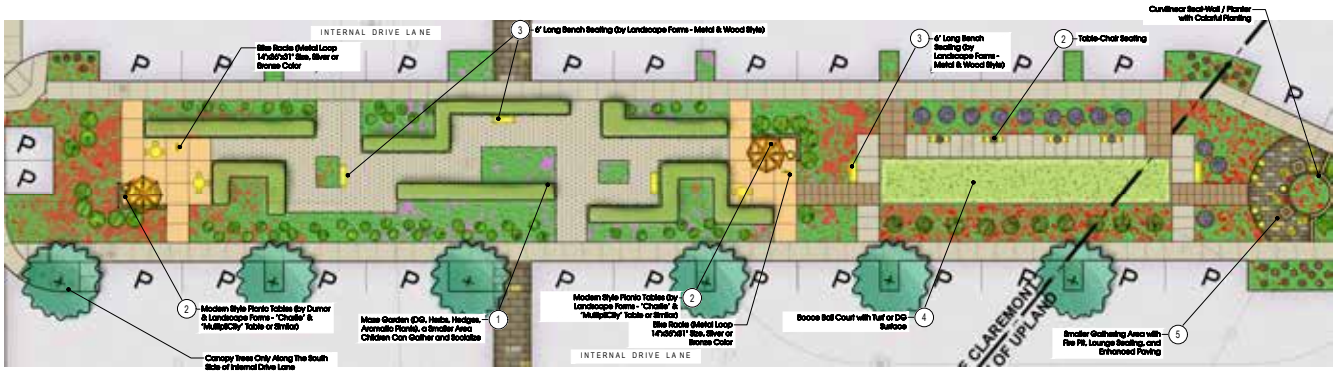

EXHIBIT 5-3: ENLARGEMENT PLAN – CENTRAL PARK

5.6.2 COMMUNITY ENTRY

The Project's primary vehicular community entry occurs on Foothill Boulevard and is designed to convey a 'sense of place' by implementing entry features that establish the driveway as a gateway into the development. The Project's Transitional architectural character and Mixed-Use development will create a unique sense of place in an area surrounded by more conventional residential and commercial developments. The landscape program will help identify the project, as well as convey a 'welcoming' feeling for both vehicular and pedestrian traffic. Landscape materials for the community entries include enhanced paving, accent trees, sidewalks, and accessible paths of travel (see ***Exhibit 5-4, Community Entry)***.

5.6.3 FENCING AND WALLS

Walls and fences are an important design feature of the community. Walls and fences should be used to help establish and reinforce the landscape theme. They provide for views in and out of a site, attenuate sound, provide security, delineate boundaries, and offer visual and physical privacy. Where such elements face public streets, they should appear consistent in style, material, and height, serving as a unifying element throughout the community and maintaining a common theme. ***Exhibit 5-5, Fencing and Walls*** illustrates the wall and fencing concept for the Project.

Perimeter project masonry walls should be no more than six (6) feet in height. Patio walls may be used in areas where privacy is desired. Patio walls and interior side-yard fencing should not exceed six (6) feet in height. Use of wood or vinyl fencing for interior side yard conditions is encouraged. Tubular steel fencing may be used in combination with masonry walls where low level screening is desired to maintain views. The height of the combination walls should not exceed six (6) feet.





*Conceptual images (provided herein are all subject to change)



COMMUNITY ENTRY

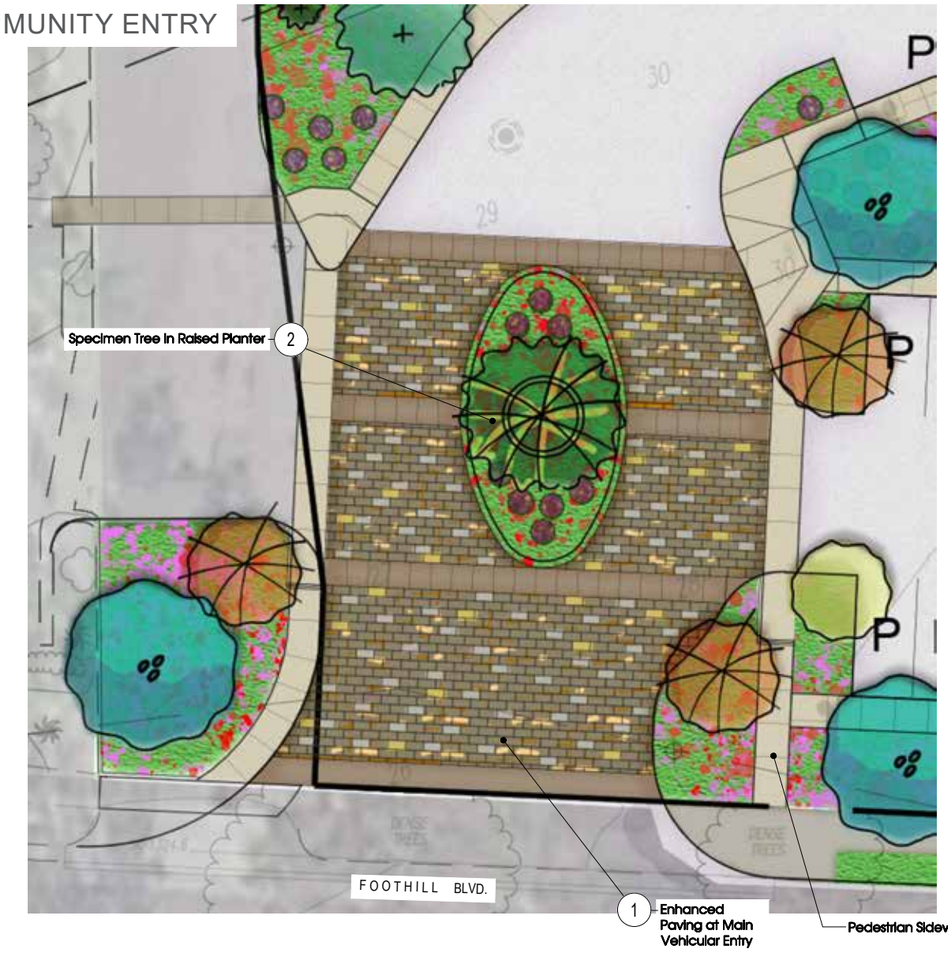

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EXHIBIT 5-4 COMMUNITY ENTRY

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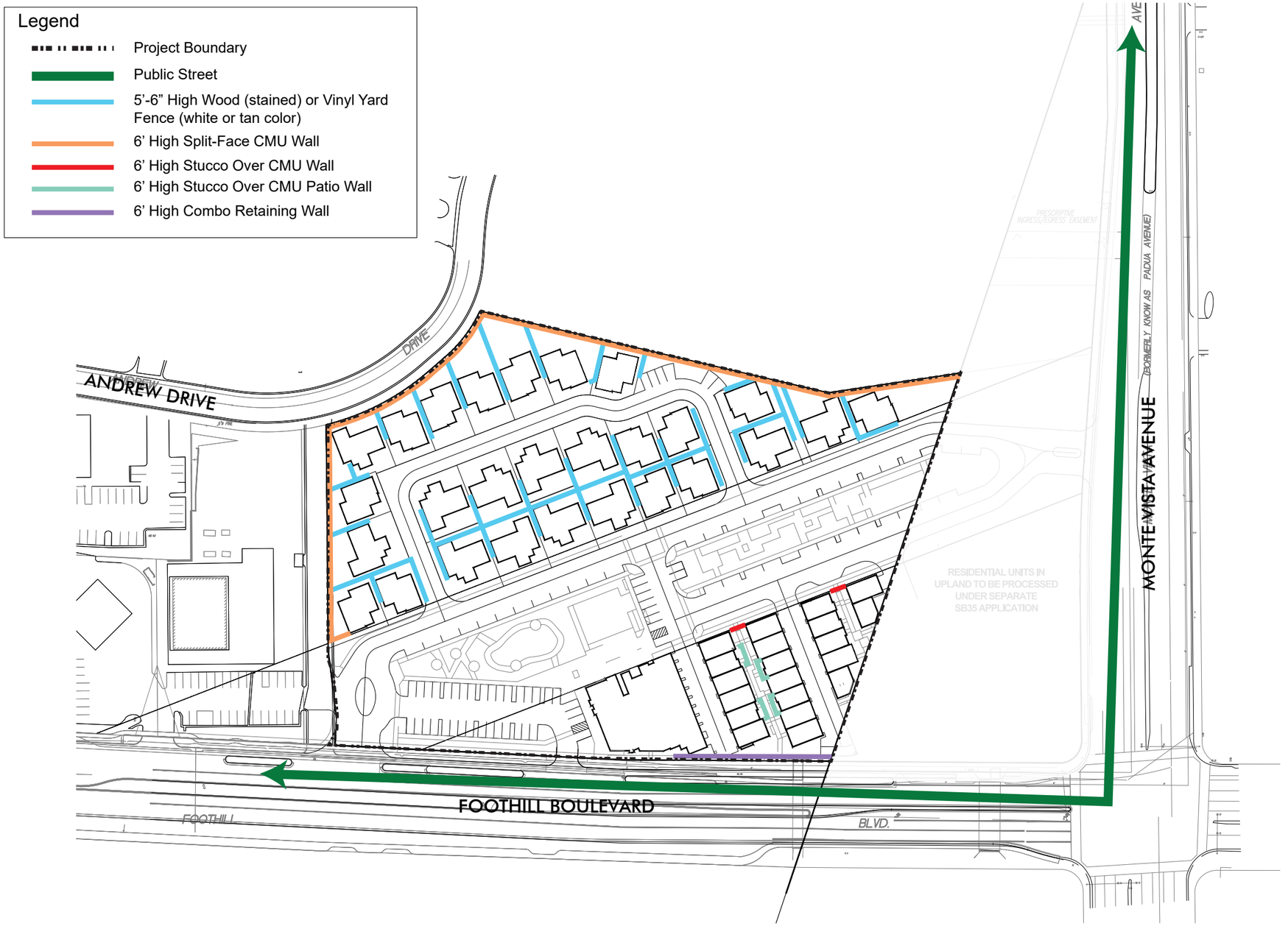

EXHIBIT 5-5 FENCING AND WALLS

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Example, Split-face CMU Wall



Example, Split-face CMU Wall



Example, Stucco over CMU Wall



Example, Stucco over CMU Wall



Example, Wood or Vinyl Yard Fence



Example, Combo Retaining Wall

Note: All images are conceptual only, materials and construction are subject to Design Review approval.

5.6.4 RECOMMENDED PLANT PALETTE

Table 5-1, Recommended Plant Palette includes the recommended species of trees and shrubs along streets, in parking areas, in open spaces, and adjacent to the buildings. In order to promote efficient water use management, the majority of plant materials meet low-water requirements.

Table 5-1 Recommended Plant Palette

TREES		
Botanical Name	***Common Name***	***Water Usage***
Acacia stenophylly	Shoestring Acacia	Low
Olive sp.	Fruitless Olive	
Magnolia g. D.D. Blanchard	S. Magnolia	Med
Sycamore racemosa	California Sycamore	Med
Tipuana tipu	Tipu Tree	Med
Koelreuteria paniculata	Golden Rain Tree	Low
Agonis flexuosa	Peppermint Tree	Low
Tristania conferta	Brisbane Box	Med
Arbutus unedo	Strawberry Tree	Low
Lagerstroemia i.x.f. 'Tuscarora'	C. Myrtle	Med
Chilopsis l. 'Burgundy'	Desert Willow	Low
Geijera parvilflora	Australian Willow	Med
Rhus Lancea	African Sumac	Low
Melaleuca q.	Paperbark Melaleuca	Med
Tristania conferta	Brisbane Box	Med
Cupressus sempervirens	Italian Cypress	Low
Podocarpus macrophyllus	Yew Pine	Med
Pinus elderica	Afghan Pine	Low
SHRUBS and GROUND COVER		
Botanical Name	***Common Name***	***Water Usage***
Anigozanthos	Kangaroo Paw	Low
Agave sp.	Agave	Low
Aloe sp.	Aloe	Low
Berberis thunbergii 'Atropurpurpea'	Redleaf Japanese Barberry	Med
Bougainvillea sp.	Bougainvillea	Low
Bougainvillea La Jolla	La Jolla Bougainvillea	Low
Buddleja 'Purple Haze'	Lo & Behold® Purple Haze Summer Lilac	Med
Buxus microphylla 'Faulkner'	Faulkner Boxwood	Med
Callistemon citrinus 'Little John'	Dwarf Bottlebrush	Low

Carex tumulicola	Berkeley Sedges	Low
Carissa m. 'Green Carpet'	Dwarf Natal Plum	Med
Chamaerops humilis	Mediterranean Fan Palm	Low
Cordyline australis 'Jel01'	Burgundy Spire™ Dracaena Palm	Med
Dasylirion longissimum	Mexican Grass Tree	Low
Delosperma cooperi	Trailing Ice Plant	Low
Dianella revoluta cvs.	Dianella - Flax Lily	Low
Dietes bicolor	Fortnight Lily	Med
Dymondia margaretae	Silver Carpet	Low
Ligustrum japonicum 'Texanum'	Japanese Privet	Med
Lonicera sp.	Chaparral Honeysuckle	Low
Nassella pulchra	Purple Needlegrass	Low
Muhlenbergia rigens	Deer Grass	Med
Pittosporum tenuifolium and cvs.	Tawhiwhi (Silver Sheen sp.)	Med
Rhaphiolepis indica 'Clara'	India Hawthorn	Med
Rosa sp.	Roses & Carpet Roses	Med
Rosmarinus p. 'Huntington Carpet'	Groundcover / Prostrate Rosemary	Low
Rosmarinus officinalis 'Tuscan Blue'	Rosemary	Low
Strelitzia reginae	Bird of Paradise	Med
Trachelospermum jasminoides	Star Jasmine	Med
Westringia sp	Westringia	Low
Xylosma congestum 'Compact'	Compact Xylosma	Med
VINES & ESPALIERS		
Botanical Name	***Common Name***	***Water Usage***
Antigonon leptopus	Coral Vine	Low
Bougainvillea 'Monka'	Bougainvillea	Low
Macfadyena unguis-cati	Cat's Claw Vine	Low
Pandorea jasminoides 'Lady Di'	White Bower Vine	Med
Trachelospermum jasminoides	Star Jasmine	Med

Note:

- This palette is a conceptual master list from which plant materials must be carefully chosen. The final landscape design shall comply with applicable water conservation measures and standards.
- Some plant material identified on this table may not be available due to soils and local climate conditions.
- In addition to the plants listed in ***Table 5-1***, other plant species may be allowed by the Community Development Director and City Building Official.

5.7 SUSTAINABILITY GUIDELINES

The Specific Plan addresses environmental sustainability in the various planning areas to provide an environmentally responsible living and shopping environment while contributing energy efficiency improvements and sustainable benefits for the community. Smart growth is a planning paradigm that advocates thoughtful and sustainable development patterns and avoids urban sprawl to conserve resources, reduce impacts, promote alternatives to single occupancy vehicle use, support livability, offer opportunities for social engagement, and achieve fiscal sustainability.

The Commons project embraces the smart growth paradigm by applying these smart growth principles throughout the Specific Plan area to create a compact, vibrant, walkable, and mixed-use community. New development in The Commons will be sustainably designed to conform to the State of California's goals for greenhouse gas reduction, conserving water and energy, and providing sustainable buildings, which in turn will reduce impacts on the environment, enhance the quality of life, and encourage a healthy lifestyle for The Commons residents.

This Specific Plan requires "Green" building practices that meet the California Building Energy Efficiency Standards and CALGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11) to reduce the impact on the environment, decrease energy costs, and create healthier living through improved indoor air quality and safer building materials. Title 24 sets forth building standard requirements including, but not limited to:

- Planning and site design;
- Energy efficiency;
- Water efficiency and conservation;
- Material conservation and resource efficiency;
- Waste reduction;
- Indoor air quality;
- Pollutant control;
- Thermal comfort; and
- Provisions for bicycle and electric vehicle parking.

With each three-year cycle, the regulations are updated with the goal of reaching zero net energy in new residential construction by 2022 (effective Jan 1, 2023) and zero net energy in new commercial construction by 2030. All new development within the Specific Plan area is required to meet the rigorous standards of Title 24. Each new building will be inspected for compliance and will include an operation manual to help end-users maintain and effectively use the sustainable building features provided.

Since the concept of sustainability is still evolving, it is anticipated that new sustainable strategies will be continually developed during the build-out period of the Specific Plan. All development within the Specific Plan area shall comply with the California Title 24 standards, the City of Claremont's General Plan, Municipal Code, and Sustainable City Plan, whichever is most stringent. In addition to meeting these standards, this Specific Plan will require all buildings to be equivalent to a LEED certified design. Both Title 24 and LEED include a menu-list of requirements. Neither LEED nor Title 24 require every efficiency item to be implemented, a certain threshold needs to be met and the developer has the option to choose which items to implement that meet the specified threshold. Below is a sampling of sustainable design strategies that may be utilized to meet these requirements.



Example, "Green" Building Practice (Solar PV)



Example, "Green" Building Practice (EV Charging Station)

5.7.1 SITE PLANNING

Elements of sustainable site design include the following:

- Provide physical linkages throughout the project that promote walking and connection to the abutting bicycle network.
- Consider the use of pervious materials for walkways, trails, driveways, and parking lots.
- Minimize the amount of paved areas for roads, parking, and patios where feasible.
- Since the design includes a mix of residential and non-residential uses, there are some efficiencies with overlapping parking demand. Hence, the parking requirements within this Specific Plan are less than those standards found within the City's code.

5.7.2 ENERGY EFFICIENCY

Most buildings can reach energy efficiency levels that exceed California Title 24 standards, yet most only strive to meet the standard. It is reasonable to strive for energy reduction in excess of that required by Title 24 standards. The following strategies are required:

- Non-residential parking for uses within the Mixed-Use zone (PA3) shall reserve a minimum of 10% of parking spaces for EV vehicles with installed and operating EV charging facilities. The percent of overall non-residential parking spaces dedicated to EV charging facilities may be reduced to 5%, if all charging facilities provided are EV Fast Charging installations.
- All residential garages shall be pre-plumbed (or pre-wired) to accommodate electric vehicle charging. Future homeowners would need to install only the appropriate charging device that fits their electric vehicle.
- Solar photovoltaic systems shall be included into the design of all residential buildings. The amount of solar panels shall be determined during the Building Permit process and will be dependent on the location of required roof-mounted mechanical and ventilation equipment. The roofs of the residential buildings

shall include flat or low-sloping roofs to allow for the greatest solar orientation possible. The minimum amount of energy produced by said solar panels shall meet all applicable requirements.

- Solar canopies for parking areas shall be subject to a Special Use & Development Permit by the Community Development Director. Solar canopies shall be prohibited within PA4. The Community Development Director may elect to forward the Special Use & Development Permit to the Architectural Commission.
- Passive design strategies can dramatically affect building energy performance. These measures may include including flat or low-pitched roofs to optimize solar exposure, solar orientation, passive solar design, and the use of natural lighting.
- Incorporate the use of Low-E windows or use Energy Star windows.
- Use a properly sized and energy-efficient heating/cooling system in conjunction with a thermally efficient building shell.
- Utilize light colors for wall finish materials.
- Install high R-value wall and ceiling insulation.
- Install high-efficiency lighting (LED, fluorescent lighting, etc.).

Development within The Commons Specific Plan is encouraged to implement some of the strategies of the Energy Star program, which is an energy performance rating system developed by the U.S. Department of Energy and the Environmental Protection Agency. Additionally, these strategies will aid the City of Claremont in achieving the community-wide sustainability targets outlined in the City of Claremont Sustainable City Plan. The program certifies products and buildings that meet strict energy-efficiency guidelines. Involvement in the Energy Star program will be completely optional at the discretion of the developer/builder.

5.7.3 MATERIALS EFFICIENCY

Select sustainable construction materials and products by evaluating characteristics such as reused and recycled content, zero or low off gassing of harmful air emissions, zero or low toxicity, sustainably harvested materials, high recyclability, durability, longevity, and local production. Such products promote resource conservation and efficiency. Using recycled-content products also helps develop markets for recycled materials that are being diverted from California's landfills, as mandated by the Integrated Waste Management Act.

- Use dimensional planning and other material efficiency strategies. These strategies reduce the amount of building materials needed and lower construction costs.
- Incorporate recycled materials, rapidly renewable materials and durable materials into building, landscape and/or infrastructure design.
- Incorporate regional or locally extracted or manufactured materials.
- Design adequate space to facilitate recycling collection and to incorporate a solid waste management program that reduces waste generation.
- Establish a construction waste recycling program with a local waste management company, with recycling no less than 60 percent of the construction waste generated by construction of the project. Excavated soil and land-clearing debris do not contribute to this requirement.
- The waste disposal company shall be responsible for providing recycle bin(s) to facilitate recycling.

5.7.4 WATER EFFICIENCY

Elements of water efficiencies shall include the following:

- Use ultra low-flush toilets, low-flow shower heads and other water conserving fixtures and appliances.
- Use state-of-the-art irrigation controllers and self-closing nozzles on hoses.
- Minimize turf areas within the community.
- Use drought-tolerant plants that require minimal or no irrigation.
- Use reclaimed water for irrigation of common areas, wherever available.

5.7.5 WATER QUALITY

The National Pollutant Discharge Elimination System (NPDES) is a permit program authorized by the United States Environmental Protection Agency to monitor and regulate pollution sources that discharge to waters within the USA. NPDES permits make sure that a state's mandatory standards for clean water and the federal minimums are being met. Projects that disturb one acre or more of land must comply with the post-construction requirements detailed in the applicable NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities.

5.7.6 LIGHTING

Proper lighting design has many benefits including energy savings, reduced sky-glow, and improved quality of life. Proper lighting design promotes safety, limits light trespass onto adjacent properties, minimizes the impact to nocturnal animals, and minimizes disruption to human's circadian rhythms to promote better sleep and healthier communities.

- All new parking lot and other security lighting shall be directed away from surrounding land uses and towards the specific location intended for illumination. State-of-the art fixtures shall be used, and all lighting shall be designed to minimize the production of glare and light spill onto surrounding uses. If light shields are necessary, they shall be painted to match the surface to which they are attached.
- Uplighted and back-lighted canopies or awnings, searchlights, flashing lights (except as used in conjunction with a security alarm system), roof-mounted lights, and any light that imitates or causes visual interference with a traffic signal or other necessary safety or emergency light are prohibited.

5.8 SIGNAGE GUIDELINES

Signage within the Specific Plan area shall comply with the design requirements and procedures found within Title 18 of the Claremont Municipal Code. In addition to the requirements found in the CMC, signage shall meet the following guidelines. In instances where the CMC and these guidelines conflict, the CMC shall prevail.

The purpose of these guidelines is to achieve a unified and cohesive overall appearance, while allowing for flexibility in signage. Controlled wayfinding and identity signage are major factors in creating and preserving the Municipal Code and meet the guidelines below.

5.8.1 GENERAL SIGNAGE GUIDELINES

- •Signs should be limited to a maximum of three (3) colors unless the use of corporate color schemes or logos dictates the use of more than three (3) colors. There should be a significant contrast between lettering colors and background colors for legibility.
- All signs shall be enhanced, including halo-lit, reverse halo-lit, externally illuminated, non-illuminated, or other acceptable “high-quality” design acceptable to the City.
- Sign conduits, transformers, junction boxes, etc. must be concealed from view.
- Encourage the use of brief messages.
- No sign shall be placed in such a manner that visibility of signs on an adjacent property is obscured.
- Signs should not extend above the eave line or parapet of the buildings on which they are located, except where such signs form an integral part of the building.
- Select sign colors and materials that contribute to legibility and design integrity.
- The sign copy shall be appropriately sized for the sign structure or wall. Signs should not be too large to overwhelm the elevation, nor should they be too small to be illegible. Sign shall not be more than 80 percent of the width of the unit frontage to which is attached.
- The sign structure shall be consistent with the architectural style of the building that it is placed on or close to.

5.8.2 MONUMENT SIGN GUIDELINES

- Use a consistent color scheme and design on all free-standing signs.
- Signs shall be constructed of permanent, durable materials.
- Monument signs should be designed with the width of the base of the sign equal to or more than the width of the sign face.
- Exposed support posts are prohibited.
- Plastic is prohibited except for use for the sign copy. Exterior grade acrylic (e.g. plexiglass) is acceptable.

5.8.3 WALL AND PROJECTING SIGN GUIDELINES

- Locate signs as close to the customer entrance as possible.
- Raceways and sign supports shall not be visible.
- Exposed neon is not a permitted for wall signs.
- Internally-illuminated box signs and banners used as permanent signs are prohibited.
- Projecting signs shall be placed perpendicular to the building wall and should not extend above building eave of a sloped roof or highest point on a flat roof.
- Projecting signs shall be attached to the building fascia or canopy with an attractive and decorative support.
- Exterior signs shall be constructed of permanent and durable materials.
- Creative signage designs and techniques are encouraged.

5.8.4 DIRECTIONAL SIGNAGE

The purpose of directional signage is to facilitate the flow of vehicular and pedestrian traffic within the Specific Plan area.

5.8.4.1 DIRECTIONAL SIGNS AND WAYFINDING PROGRAM

Directional and wayfinding signs are typically horizontal signs with individual tenant, park, or residential development names and directional arrows. Guidelines for directional signs include:

- The Project name may be located on the sign in a smaller, more understated manner to not detract from the wayfinding.
- Directional and signs with exposed unistrut supports shall be prohibited.
- Vehicular directional signs should be located at major vehicular intersections and at strategic locations. They also act as identity markers for pedestrians once they have parked their car.
- The placement of directional signs shall not limit sight lines.
- Pedestrian directional signs are highly encouraged in areas of high pedestrian activity.

5.8.5 TEMPORARY SIGNAGE

The purpose of temporary signage is to inform the public of a special event of limited duration, such as a grand opening. The guidelines below apply to temporary signage:

- Temporary signage should not be affixed onto the roof of a building, a window or landscape.
- Temporary signage material should consist of vinyl, nylon, canvas, or cloth.
- Temporary signage should be well maintained.

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6.0 ADMINISTRATION AND IMPLEMENTATION

6.1 ADMINISTRATION

The Community Development Director, or designee, shall be responsible for administering the applicable provisions of the Specific Plan in accordance with the provisions of said Specific Plan, the State of California Government Code, the Subdivision Map Act, and the City of Claremont General Plan and Municipal Code. The Community Development Director, or designee, shall be responsible for any interpretation of this Specific Plan and these interpretations may be appealed to the Planning Commission, subject to the provisions of Section 16.321 of the Claremont Municipal Code. The Director has the right to remand any interpretation up to the Planning Commission for decision. Planning Commission decisions may be appealed to the City Council, subject to the provisions of Section 16.321 of the Claremont Municipal Code.

6.1.1 APPLICABILITY

All development within the Specific Plan area shall comply with the requirements and standards set forth in this Specific Plan document and the accompanying Environmental Impact Report (EIR) and Mitigation and Monitoring Reporting Program (MMRP). Where conflicts exist between the standards contained in this Specific Plan and those found in the City of Claremont Municipal Code, the regulations and standards in this Specific Plan shall take precedence. Any area regulation, guidelines, or development standard not addressed within this Specific Plan shall be subject to the provisions of the City of Claremont Municipal Code, using the context and objectives of the Specific Plan as a guide.

This Specific Plan shall also be subject to applicable local, state, and federal regulations. Furthermore, all development within the Specific Plan area shall comply with applicable local, state and federal accessibility regulations.

6.1.2 ENFORCEMENT

The Specific Plan serves as the implementation tool for the General Plan and Zoning for the Specific Plan area. The Specific Plan addresses permitted uses, development standards, and community design guidelines. The City of Claremont shall enforce the provisions of the Specific Plan in the same manner that the City enforces the provisions of the General Plan, Municipal Code and Zoning Code.

6.1.3 SPECIFIC PLAN CONSISTENCY

Once approved, all subsequent and applicable subdivisions, land uses, site plan reviews, grading permits, local public works projects, and building permits within the Specific Plan area shall be consistent with this Specific Plan.

6.1.4 SEVERABILITY

If any section, subsection, sentence, clause, phrase, or portion of the Specific Plan, or any future amendment(s) or addition(s) hereto, is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Specific Plan, or any future amendments or additions hereto. The City Council hereby declares that it would have adopted these requirements and each sentence, section, subsection, clause, phrase, portion, or any future amendments or additions thereto, irrespective of the fact that any one or more sentences, sections, subsections, clauses, phrases, portions, or any future amendments or additions thereto may be declared invalid or unconstitutional.

6.1.5 PARCELIZATION WITHIN PLANNING AREAS

Each individual development within a Planning Area may be further parcelized into any number of sub-parcels within said Planning Area. The location of property lines for sub-parcels within each individual development is flexible as long as the minimum lot size and dimensions identified in ***Chapter 4, Development Regulations*** are maintained.

6.1.6 SPECIFIC PLAN MINOR MODIFICATIONS

Approval of The Commons Specific Plan signifies acceptance by the City of Claremont of the planning framework and development standards for The Commons. It is anticipated that minor modifications or technical adjustments to the Specific Plan text and graphics may be necessary through the life of the project. Minor modifications or technical adjustments that are deemed to be in substantial conformance with the purpose and intent of the Specific Plan and are not detrimental to the public health, safety, and welfare shall be approved by the Director of Community Development. Such minor modifications or technical adjustments may include, but are not limited to, the items identified below:

1. Slight modifications to the Specific Plan that respond to more accurate or recent data or actual on-site conditions, but which do not result in an increase in environmental impacts already assessed in the EIR for the Specific Plan.
2. Adjustments to horizontal and vertical roadway alignments to respond to actual ground conditions.
3. Adjustments to the alignment, location and sizing of utilities and facilities or a change in utility and/or public service provider may be approved by the City Engineer.
4. Minor changes to the design of the roadway cross sections, provided that the streets have adequate capacity to handle the anticipated volumes of traffic and the design changes are deemed acceptable by the City Engineer.
5. Minor modifications to the architectural or landscape design guidelines necessary to respond to actual site conditions, community expectations and preferences, provided such modifications are in substantial conformance with the design criteria specified in the Specific Plan.
6. Minor modifications to the grading plan as approved by the City Engineer.
7. Any modifications to the phasing plan if the related infrastructure is adequately in place.
8. Addition of new information or data to the Specific Plan maps, exhibits and/or text which does not change the effect of any concepts or regulations.

9. Adjustment of a Planning Area boundary, acreage designated for a Planning Area or combination of more than one Planning Area(s), provided that any use does not increase in area by more than 15 percent and that the development maximums identified in *Table 3-1, Summary Table* are not exceeded.
10. Minor modifications to parcel lines that are necessary to respond to actual site conditions or unique engineering concerns, and which do not substantially change the overall site plan concept.
11. Increases or decreases in lot sizes, so long as any change meets the minimum lot size requirements of the Project.
12. Minor adjustment to any of the development standards or regulations that are allowed under Development Regulations of the Project.

6.1.7 SPECIFIC PLAN AMENDMENTS

Amendments to the Specific Plan are any requests for changes to the Specific Plan that do not qualify as minor modifications as described above in *Section 6.1.6, Specific Plan Minor Modifications*. These may be requested by an applicant or by the City. Specific Plan Amendments shall be processed in accordance with Chapter 16.318 of the Claremont Municipal Code. At a minimum, amendments to the Specific Plan will require a public hearing before the Planning Commission, who will make a recommendation to the City Council. The City Council may approve, deny, or conditionally approve amendments to the Specific Plan.

6.1.8 VARIANCES AND MINOR EXCEPTIONS

After initial implementation of the Specific Plan, future property owners and/or business owners may want to propose future, unforeseen improvements that might not meet the development standards and design guidelines identified in ***Chapter 4, Development Regulations*** and ***Chapter 5, Design Guidelines***. Variances and Minor Exceptions to the development regulations contained in the Specific Plan with respect to landscaping, screening, site area, site dimensions, yards and projections into yards, heights of structures, distances between buildings, open space and off-street parking and loading shall be reviewed pursuant to Chapter 16.309 for Variances and Chapter 16.312 for Minor Exceptions.

6.1.9 CONDITIONAL USE AND SPECIAL USE & DEVELOPMENT PERMITS

After initial implementation of the Specific Plan, it may be necessary for individual uses, tenants, etc. to obtain a conditional use permit and/or a special use & development permit for those uses identified in ***Chapter 4, Development Regulations***. Uses subject to the approval of a conditional use permit shall be reviewed and approved by the City of Claremont pursuant to Chapter 16.303 of the City of Claremont Municipal Code. Uses subject to the approval of a special use & development permit shall be reviewed and approved by the City of Claremont pursuant to Chapter 16.306 of the City of Claremont Municipal Code.

6.1.10 APPEALS

Appeals from any determination of the Community Development Director or the Planning Commission may be made by the applicant or any person aggrieved by filing an application on forms provided by the City of Claremont and shall be processed consistent with Chapter 16.321 of the City of Claremont's Zoning Ordinance.

6.2 IMPLEMENTATION

All regulations, conditions, and programs contained in this document shall be deemed separated, distinct, and independent provisions of the Specific Plan. If any such provision is held invalid or unconstitutional by a state or federal court of competent jurisdiction, the validity of all remaining provisions of this Specific Plan shall not be affected.

6.2.1 SPECIFIC PLAN NAME

"The Commons Specific Plan" refers to this document and support information only. The marketing name of the Project may or may not be related to The Commons and may change as the Project evolves over time. The marketing name chosen by future owners/developers of the Project shall have no impact on the implementation and enforcement of this Specific Plan.

6.2.2 DISCRETIONARY ACTIONS AND APPROVALS

The City of Claremont is the Lead Agency for the purpose of California Environmental Quality Act (CEQA) compliance. An EIR that accompanies this Specific Plan considers the following discretionary actions, for which applications have been submitted to the City of Claremont. These actions are required to implement this Specific Plan.

1. Approval of a General Plan Amendment: The General Plan Land Use Map for the City of Claremont will be amended to modify the existing General Plan Land Use Designations to the proposed land use designation. Refer to *Exhibits 2.1 and 2.2* for the existing and proposed General Plan Land Use Designations.
2. Approval of a Zone Change: Change the Zoning of the property from the existing zoning designation to the proposed zoning designation. Refer to *Exhibit 2.3 and 2.4* for the existing and proposed zoning designations.
3. Approval of a Specific Plan: The Commons Specific Plan will be approved in a manner consistent with California Government Section 65451 and all applicable and pertinent sections of the City of Claremont's Municipal Code.
4. Certification of an Environmental Impact Report (EIR): The City of Claremont has determined that an EIR is required to analyze the potential environmental impacts of the Project. The EIR will include mitigation measures, as appropriate, to reduce potential environmental impacts, and will be prepared in accordance with CEQA and the CEQA Guidelines. The City of Claremont will consider certification of the EIR prior to taking action on the requested approvals. In conjunction with approval of the Project, the City of Claremont will adopt a MMRP, which will ensure implementation of the measures and conditions of the Project approval that were adopted to mitigate or avoid potentially significant effects on the environment.

5. Tentative Tract/Parcel Maps (TTMs/TPMs): TTMs and/or TPMs for the Specific Plan area will be prepared and processed through the City in accordance with Title 17 of the City of Claremont Municipal Code and in accordance with the Subdivision Map Act of the California Government Code.
6. Architecture Design Review: Review of any new construction as required by Chapter 16.300 of the City of Claremont Municipal Code to ensure a high-level of quality in the design of the Project.

6.2.3 SUBSEQUENT ACTIONS AND APPROVALS

Following adoption of the Specific Plan and associated actions, one subsequent action and approval also will be required, which is identified below:

- Approval of Sign Permits: Sign permits will be necessary to implement the identification signage for the future business(es). Sign permits for these businesses shall be processed and reviewed pursuant to Title 18 of the City of Claremont Municipal Code.

It should be noted that future permits may be required to implement portions of the Specific Plan, such as Conditional Use Permits, Special Use and Development Permits, Variances, Minor Exceptions, etc. as development of the site evolves over time. However, these permits are not necessary to implement the Specific Plan.

6.2.4 PHASING

The Specific Plan area is expected to be built out in two phases, with development and model dwellings occurring around the Open Space Spine and progress towards the edge of the Specific Plan area. The phasing sequence of the Specific Plan is described below and shown in ***Exhibit 6-1, Conceptual Phasing Plan***:

Phase 1: The western portion of PA 4 (open space spine) where the park plaza is located, portions of PA 1 (Single-Family Residential) and PA 2 (Multi-Family Residential) near the park plaza, and the entire PA 3 (Mixed-Use).

Phase 2: The eastern portion of PA 4 where the Central Park is located, and the remaining portions of PA 1 and PA 2.

It is anticipated that the entire Specific Plan site will be graded at one time. Finished lot work and internal streets/ drives will be phased along with the construction of residential units. All off-site utility connections would occur during initial grading activities.

Within each phase, the single-family homes would generally be constructed in groups of four to six units, and the townhomes would be constructed one to two buildings at a time.

Grading and construction activities is estimated to begin approximately six (6) months after adoption of the Specific Plan. Grading activities would take approximately four to six weeks. Construction of the dwellings would take up to 12 months per development phase.

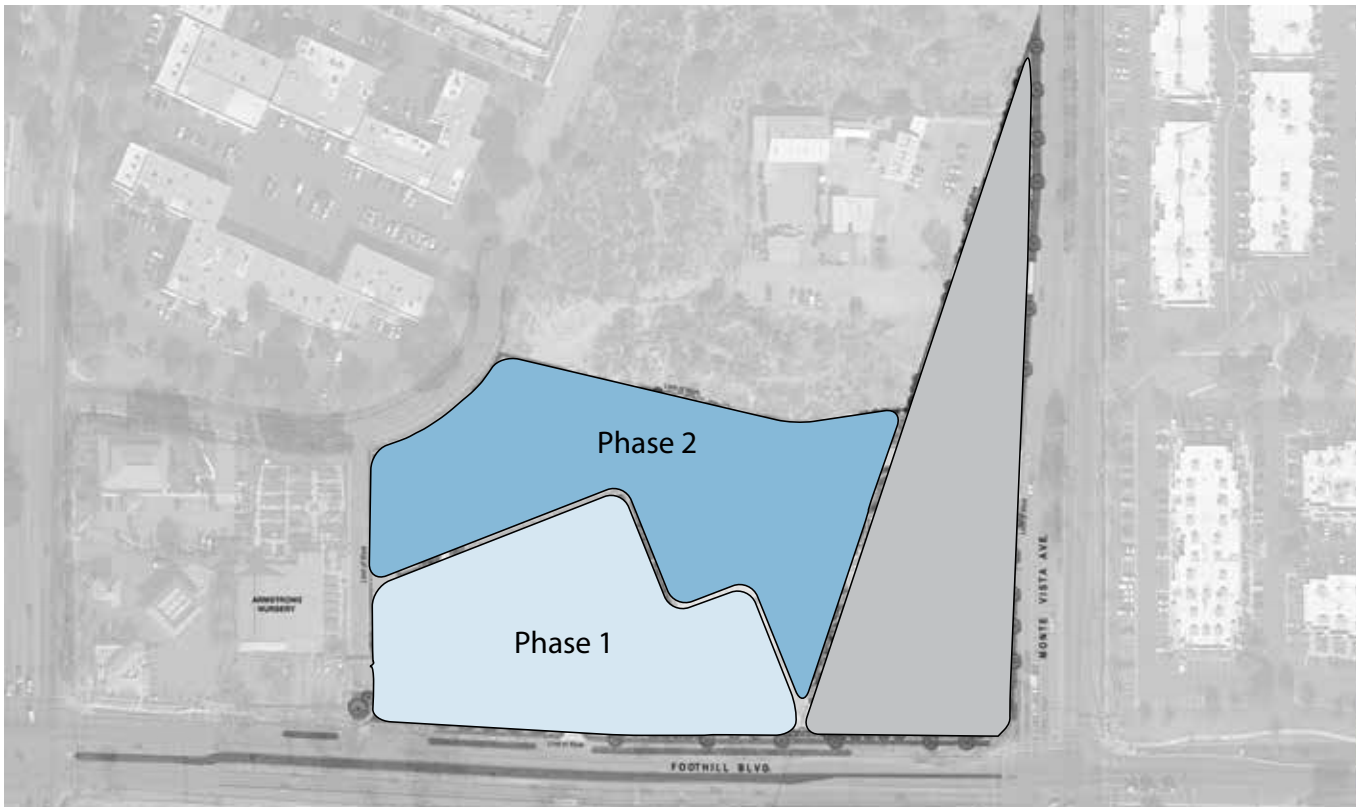

EXHIBIT 6-1: CONCEPTUAL PHASING PLAN

The phases described herein are conceptual and may occur sequentially or concurrently with one another. Phasing is subject to market and economic conditions and infrastructure timing and may vary from what is currently anticipated. All necessary infrastructure (e.g. private drives, sewers, water lines, storm drains, drainage improvements, etc.) shall be phased and installed concurrently with development.

The project master developer shall have the right to alter project phasing at any time, provided that the community is built out in an orderly fashion and necessary infrastructure, access, and public facilities are constructed to adequately serve the development.

6.2.5 FINANCING MECHANISMS

A variety of financing mechanisms are available to finance the construction, operations, and maintenance of public improvements and facilities, and public services required to implement the Specific Plan. The financing mechanisms that will be considered include, but are not limited to, the following:

- Private capital investment for the construction of public facilities.
- Community Facility District (CFD) established pursuant to the Mello-Roos Community Facilities District Act of 1982, or other special district, to provide funding for the construction of a variety of public facilities and provision of public services.
- Special assessment districts, such as those permitted by the Municipal Improvement Act of 1913, the Improvement Bond act of 1915, and the Lighting and Landscape Maintenance Act of 1972, provide methods of leveraged financing whereby a public entity determines an area in which the provision of facilities will benefit real property. A special assessment district may be created for the Specific Plan area to cover improvements such as landscaping and lighting. This financing tool can be used for public improvements that directly benefit specific properties that are assessed to pay for the improvements at no risk to public agency general funds.
- Other City programs and/or financial mechanisms.
- In certain instances, funding for on-site facilities may be tied directly to the Specific Plan project. The project master developer may pay a reasonable fair share portion of the facility in exchange for development rights. Utility connections from the main truck lines and drainage facilities are typical examples of facilities that may be funded by the developer. Such improvements will usually be required concurrent with the project development. Development funding may involve reimbursement agreement for off-site master planned facilities.

6.2.6 MAINTENANCE RESPONSIBILITIES

Table 6-1, Maintenance Responsibilities, identifies the maintenance responsibilities for various infrastructure and landscape improvements associated with the project.

Table 6-1 Maintenance Responsibilities

	Specific District	Private Owners Association	Private Entity (Property Owners)	Utility Entity
Private residential dwellings		x	x	
Common open space		x		
Restaurant/retail space		x	x	
On-site streets, drives and paths		x		
On-site water	x			x
On-site sewer and storm drain				x
On-site landscaping and irrigation		x		
Monument signs		x		
On-site exterior lighting		x		
On-site fencing and walls		x		
Electricity and natural gas facilities				x
Communications systems				x

7.0 GENERAL PLAN CONSISTENCY

In accordance with California Government Code, the Specific Plan is required to be consistent with the City of Claremont General Plan. The Specific Plan has been prepared in conformance with the goals and polices of the City of Claremont General Plan. This Section analyzes the goals and policies from the City of Claremont General Plan that are relevant to the project.

1 LAND USE, COMMUNITY CHARACTER, AND HERITAGE PRESERVATION

- **Goal 2-1: Make Claremont a model for the application of sustainable development practices.**
- **Policy 2-1.1: Encourage sustainable development that incorporates green building best practices and involves the reuse of previously developed property and or vacant sites within a built-up area.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. The Specific Plan includes both sustainable guidelines (Section 5.7) and sustainable development standards (Section 4.4.7) to ensure that the Project will include green building best practices. These guidelines and standards include a minimum requirement for EV charging stations above existing CalGreen requirements, the requirement that every building provide solar panels, and guidelines for energy-efficient construction. Since the existing site is vacant, and the surrounding area is built-up (Armstrong Nursery to the west, an existing office park to the east, a single-family development to the southeast, and an existing industrial use to the north), the Specific Plan is therefore consistent with this policy.

- **Policy 2-1.3: Encourage development that incorporates green building practices to conserve natural resources as part of sustainable development practices.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. The Specific Plan includes both sustainable guidelines (Section 5.7) and sustainable development standards (Section 4.4.7) to ensure that the Project will include green building practices. Furthermore, the Project will be required to comply with California Building Energy Efficiency Standards and CalGreen Building Standards (California Code of Regulations Title 24, Parts 6 and 11), which sets forth building standard requirements including, but not limited to, planning and site design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, waste reduction, indoor air quality and pollutant control, thermal comfort, and provisions for bicycle and electric vehicle parking. With each three-year cycle, the regulations are updated with the goal of reaching zero net energy in new residential construction by 2022 (effective January 1, 2023) and zero net energy in new commercial construction by 2030. *Combined, all developments within the Specific Plan area will recycle at least 60 percent of the construction waste generated from the construction activities, include solar panels on all buildings, and provide a minimum of 10 percent of the EV charging station for non-residential uses. All residential dwelling units will be wired for EV charging within the garages. Therefore, the Specific Plan is consistent with this policy.*

- **Policy 2-1.4: Avoid development of isolated residential areas in the hillsides or other areas where such development would require significant infrastructure investment adversely impact biotic resources and or create adverse visual impact.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses on a vacant site within a developed area along a major corridor. All utilities to service the site exist within Foothill Boulevard and no significant infrastructure investment is needed to implement the Project. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-2: Preserve the City's distinctive residential character by maintaining land use patterns that strengthen our neighborhoods.**
- **Policy 2-2.1: Provide opportunities for a variety of housing types that respond to the needs of residents of all age ranges and incomes and located in all areas of the City.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. The Specific Plan allows for up to 62 dwelling units at the edge of the City. The project includes a variety of dwelling units including single-family detached, attached for-sale townhomes, and apartments above a commercial space that may be for rent or for-sale. This mix of housing types and densities within the development will provide residential dwelling opportunities at multiple price points that are oriented towards individuals at different life stages. Specifically, the apartments will be smaller units, include single-level living (suitable for seniors), and be at the lowest price point. The townhomes would be slightly larger than the apartment and at a higher price point. Some townhomes would include a bedroom on the ground floor, which could be occupied by those not able to climb stairs. Lastly, the single-family homes would be at the highest price point and the largest units to accommodate larger families. Some of these units will also include bedrooms on the ground floor, which could be occupied by those not able to climb stairs. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-2.2: Promote neighborhood identity and conservation of individual neighborhood character.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site at the edge of the City. There are no residential dwelling units abutting or adjacent to the Project site, and therefore there is no existing residential neighborhood identity to conserve. This part of the policy is not applicable. The Project will establish a new identity in the area by developing a community with a contemporary "Transitional" architectural style. This architecture is influenced by modern architectural styles, combined with traditional elements such as pitched roofs. Details regarding this architectural style are detailed in Chapter 5, Design Guidelines. The landscape theme will also complement this architectural style for the Project. Since the Project will generate a character for the new neighborhood, the Specific Plan is consistent with this policy.

- **Policy 2-2.5: Prohibit the creation of gated streets.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site at the edge of the City and does not include a gate. Some of the pedestrian entrances along Foothill Boulevard will contain pedestrian gates; however, no vehicular gates will be included as part of the Project. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-3: Accommodate a range of land uses that meet the economic, environmental, educational, and social needs of the City while remaining sensitive to the community's residential character.**

Consistency Analysis: The need for increased accessibility to open space and housing opportunities is ever-increasing in the State of California as well as within the City of Claremont. Retail uses that involve experience and foster a sense of place are also in demand while also providing sales tax revenue to the City. The Project meets this need by providing a mix of different land uses including 62 residential dwelling units, 5,000 square feet of retail in a mixed-use setting, and 0.75 acres of open space. The open space will be open to the public and have different programming that will serve as a social magnet for the Project's residents, as well as the community at large. The project will also comply with all applicable water conservation and water quality requirements, including the use of low-water trees and shrubs and by providing water quality basins, thereby providing an environmental benefit to the City. The City will also receive increased property tax revenue from the project, as well as sales tax revenue from the 5,000 square feet of retail. The allowable retail uses within the Specific Plan have been carefully selected to those uses that would be consistent with the desired character and/or generate sales tax revenues for the City. With no residential uses adjacent to Specific Plan area, the project will be sensitive to existing residential character of Claremont. Therefore, the Specific Plan is consistent with this policy.

Goal 2-5 Maintain and enhance Claremont's unique character.

- **Policy 2-5.1: Insist on excellence in architectural design of new construction in City**

Consistency Analysis: Chapter 5 of the Specific Plan includes design guidelines that address architecture, landscaping, and other public realm elements to ensure the Commons will develop as a high-quality mixed-use community with a distinct and identifiable architectural character. The desired character (Transitional architectural design) is unique to the City and would provide a new gateway into the City. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-5.3: Continue to require public art as part of new development projects**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City that will comply with the City's Public Art requirements as described in Section 5.5, Design Guidelines. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-6: Create activity nodes as important destination areas, with an emphasis on public life within the community.**

Consistency Analysis: The Specific Plan includes pedestrian amenities, parks open to the public, attractive streetscapes, shade trees, lighting, and 5,000 square feet of retail/restaurant uses. These amenities are organized in and around the Park Plaza, an open space area situated in between the mixed-use building and the single-family homes, as well as the Central Park: an open space spine situated in between the single-family and townhomes. These open spaces are carefully designed to serve as destination areas where people may gather to participate in retail or recreational activities. Therefore, the Specific Plan is consistent with this policy.

- **<u>Goal 2-7: Create distinctive gateways at all entry points into Claremont.</u>**
- **Policy 2-7.1: Encourage the use of public art, paved crosswalks, and landscaping to mark entries into the City.**

Consistency Analysis: The Specific Plan area is at the easterly entry to the City along Foothill Boulevard. The Project includes a unique Transitional architectural style as well as a proposed mixed-use building that will feature as a backdrop for the entry gateway statement. Elements of the Project's landscaping design guidelines are described in Sections 5.4 and 5.6. Furthermore, the Specific Plan includes art guidelines in Section 5.5 to provide guidance for the installation of murals, mosaics, etc. as the Project evolves over time. The Specific Plan's Conceptual Landscape Plan (Exhibit 5-1) depicts a landscape treatment along Foothill Boulevard that includes street trees, accent trees, and other plantings to complete the entry theme. The combination of the Project's architectural and landscaping theme will contribute to a unique entry statement to the City. Therefore, the Specific Plan encourages art and landscape to mark this entry into the City.

- **<u>Goal 2-9: Make roads comfortable safe accessible and attractive for use day and night.</u>**
- **Policy 2-9.1: Provide crosswalks and sidewalks along streets that are accessible for people with disabilities and people who are physically challenged.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Currently, the site only has a partial sidewalk along Foothill Boulevard that ends before the County line and a sidewalk along Andrew Drive at the rear. The proposed project includes the installation of a sidewalk along the entirety of Foothill Boulevard, plus street trees, which will be required to meet all accessibility requirements in order to promote usability for all people, including those with disabilities. The sidewalk along Andrew Drive will be maintained. Furthermore, the project will include accessible paths of travel to the retail building, the parks, and accessible units throughout the Specific Plan area. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-9.2: Provide lighting for walking and nighttime activities where appropriate.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Existing site lighting is limited to street lighting for Foothill Boulevard. Lighting will include pedestrian-mounted fixtures located throughout the Park Plaza and Central Park, building-mounted fixtures throughout the buildings within the Specific Plan area, and decorative sconces at select locations. All proposed internal sidewalks and sidewalks along the public rights-of-way will be lit per adopted City standards, including Section 16.154.030 of the Claremont Municipal Code. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-10: Maintain and expand where possible the system of neighborhood connections that attach neighborhoods to larger roadways.**
- **Policy 2-10.1: Provide sidewalks where they are missing and provide wide sidewalks where appropriate with buffers and shade so that people can walk comfortably**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Proposed improvements include public sidewalks. Currently, the site only has a 5-foot wide partial sidewalk along Foothill Boulevard that ends before the County line and a 5-foot wide sidewalk along Andrew Drive at the rear. The proposed project includes the continuation of the 5-foot wide sidewalk along the entirety of Foothill Boulevard as well as the planting of street trees. Specifically, a minimum of 19 new trees will be planted along the sidewalk adjacent to Foothill Boulevard in Claremont with an additional 12 trees in Upland, providing shade for the pedestrian. The sidewalk along Andrew Drive will be maintained. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-11 Promote community identity and local history by encouraging context-sensitive design and development.**

Consistency Analysis: The architecture theme for the Project has been carefully selected to represent an upscale blend of modern and traditional architectural, inspired in part by the Kravis Center and the Kube at the Claremont Colleges. This design is intended to provide a unique identity to the community, as well as function as a gateway into the Project from the east. Furthermore, the site plan also includes placing the higher-density uses closer to Foothill Boulevard, with the lower-density uses further away from Foothill Boulevard and closer to the undeveloped area to the north. Also, the retail use and mixed-use building is located closer to Foothill Boulevard to also act as a buffer from the proposed single-family homes. Surrounding uses include an industrial use, vacant land, and an Armstrong Garden Center (nursery), which are not sensitive uses that necessitate special contextual treatments. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-12: Create distinctive places throughout Claremont.**
- **Policy 2-12.2: Provide benches, streetlights, public art, and other amenities in public areas to attract pedestrian activities**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City that will provide art, benches, streetlights, and other amenities. Art, which is required per Chapter 16.148 of the Claremont Municipal Code and Chapter 5.5 of this Specific Plan, will be provided. Chapter 5, Design Guidelines also indicates that benches, chairs, and other amenities such as a bocce ball court are located through the Project. The design guidelines indicate that at least 15 sets of tables and 10 benches will be provided throughout the public park areas. Streetlights will be provided per adopted City requirements and it is anticipated that 20 pedestrian-scaled light fixtures will be provided throughout the open spaces and other pedestrian areas. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-12.3: Encourage new developments to incorporate drought tolerant and native landscaping that is pedestrian friendly, attractive, and consistent with the landscaped character of Claremont.**

Consistency Analysis: The Specific Plan landscape design guidelines incorporate guidelines that include the use of drought tolerant and native species and to create a pedestrian friendly atmosphere. Low-water use and plantings, as identified in the Specific Plan's plant palette in Table 5-1, will be selected to meet or exceed applicable water conservation requirements (including Section 16.131.040, Landscape Water Use Standards). Accent plantings and canopy trees are indicated in the Conceptual Landscape Plan (Exhibit 5-1) and will contribute to the pedestrian streetscene by providing both visual interest and walkway shade. Furthermore, the proposed design minimizes the use of turf throughout the Specific Plan area. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-12.4: Encourage all new development to preserve the natural topography of a site and existing mature trees.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. The site consists of a gentle slope of approximately three percent from north to southwest and does not consists of any hills or topographic features. The proposed grade will maintain the same general drainage of the site (from the north to the southwest). The site itself does not have any trees, though there are approximately a half-dozen eucalyptus trees within the Foothill Boulevard right-of-way. Although some of these trees may be removed to implement the Specific Plan, these trees will be replaced by over 50 newly installed trees, including new street trees. Therefore, the Specific Plan is in substantial conformance with this policy.

- **Policy 2-12.7: Encourage streetscape design programs for commercial frontages that create vibrant places which support walking, bicycling, transit, and sustainable economic development.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Specifically, the Project includes up to 5,000 square feet of new retail uses along Foothill Boulevard within the City. As shown on Exhibit 5-1, Conceptual Landscape Plan, the Specific Plan will provide a sidewalk along the entire Foothill Boulevard frontage, where it does not currently exist. The sidewalk will include new street trees adjacent to Foothill Boulevard, as well as accent trees and plantings on the other side of the sidewalk, creating a vibrant pedestrian environment. This exhibit also depicts the location of the bicycle racks to store bicycles when visiting the retail component.

Although no transit stops abut the Specific Plan area, there are two bus stops and two transit centers within close proximity. Foothill Transit route 292 stops approximately 600 feet west of the Specific Plan area and provides direct service to the Claremont and Pomona Transit Centers. Omnitrans route 66 stops approximately a half-mile east of the Specific Plan area and provides direct service to the Montclair and Fontana Transit Centers. The Claremont and Montclair Transit Stations are located approximately 1.4 miles southwest and 1 mile southeast of the Specific Plan area, respectively. The Project adds new sidewalks, pedestrian connections, and bicycle connections to the greater multi-modal network, enhancing access to these transit stops and stations. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-12.8: Encourage the design and placement of buildings on lots to provide opportunities for natural systems such as solar heating and passive cooling.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. All buildings are located so not obstruct another building's access to sunlight. Also, the buildings are oriented on an access so that all sides of the house would get solar exposure at some point during the day. Furthermore, each house includes flat or low-sloping roofs and are angled to maximize solar orientation. The plan strategically varies building placement and locates trees throughout the Project to promote passive cooling. These strategies are also located with this Specific Plan (see Section 5.7.2) to further reinforce this policy. Therefore, the Specific Plan is consistent with this policy.

- **Goal 2-13: Achieve a city-wide network of streetscapes that are interesting and attractive.**
- **Policy 2-13.1: Maintain and enhance the City's collection of street trees and improve Claremont's image of a "City with trees."**

Consistency Analysis: The site itself does not have any trees, though there are approximately a half-dozen trees within the Foothill Boulevard right-of-way. These trees are predominately Eucalyptus trees and are inconsistently placed, not indicative of a pedestrian-friendly streetscene. Although some of street these trees may be removed to implement the project, the plans include at least 3 new street trees closest to Foothill Boulevard and 16 new accent trees on the other side of the sidewalk to provide shade for pedestrian. Therefore, the Specific Plan is in substantial conformance with this policy.

- **Goal 2-15: Revitalize and enhance the Foothill Boulevard Corridor into a place that supports walking, bicycling, transit, and sustainable economic development.**
- **Policy 2-15.1: Provide new opportunities in the Foothill Boulevard Corridor for mixed-use residential, retail, commercial, and civic uses.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Specifically, the Project includes up to 5,000 square feet of new retail uses and up to 62 dwelling units within the Foothill Boulevard corridor. This mix of uses and recreational opportunities promote walking and biking as viable means of sustainable transportation due to the potential for reduced overall vehicular trips. Section 3.4, Circulation Plan, the Specific Plan includes direct pedestrian, bicycle, and vehicular connectivity to Foothill Boulevard and internally with the residential component of the Project. Furthermore, improvements to the existing sidewalk (inclusive of new street trees) further enhances this connection. Additionally, the Specific Plan includes sustainable requirements and guidelines, including providing EV charging stations for 10 percent of the non-residential parking spaces, providing solar panels on every building, including a large, natural water retention basin, and compliance with all applicable requirements of CalGreen. The project also develops a vacant lot, which will increase property tax revenue. Sales tax revenue will also increase since the Project includes 5,000 square feet of new retail uses. Therefore, the Specific Plan is consistent with this policy.

- **Policy 2-15.2: Make Foothill Boulevard a distinct place that lets people know when they have entered or exited the City**

Consistency Analysis: The proposed Project is at the entry to the City along Foothill Boulevard from the east. The Project includes a proposed mixed-use building that will feature as an architectural statement for the entry gateway to announce the arrival into the City. Design guidelines for this mixed-use building are described in Section 5.3. Therefore, the Specific Plan is consistent with this policy.

2 COMMUNITY MOBILITY

- **Goal 4-3: Establish and maintain a comprehensive system of pedestrian ways and bicycle routes that provides viable options to travel by automobile.**
- **Policy 4-3.1 Promote walking throughout the community. Install sidewalks where missing and make improvements to existing sidewalks for accessibility purpose. Particular attention should be given to needed sidewalk improvement near schools and activity centers.**

Consistency Analysis: The Project includes a mix of residential, commercial, and open spaces uses within an existing vacant site within the City. Specifically, the Project includes up to 5,000 square feet of new retail uses and up to 62 dwelling units within the Foothill Boulevard corridor. As described in Section 3.4, Circulation Plan, the Project includes direct pedestrian, bicycle, and vehicular connectivity to Foothill Boulevard and internally with the residential component of the Project. Furthermore, improvements to the existing sidewalk (inclusive of new street trees) further enhances this connection. Currently, the site only has a partial sidewalk along Foothill Boulevard that ends before the City limit and a sidewalk along Andrew Drive at the rear. The proposed project includes the installation of a sidewalk along the entirety of Foothill Boulevard. The sidewalk along Andrew Drive will be maintained. Therefore, the Specific Plan is consistent with this policy.

3 OPEN SPACE, PARKLAND, CONSERVATION AND AIR QUALITY

- **Goal 5-9: Provide a variety of park facilities that meet the diverse needs and interests of the community.**
- **Policy 5-9.1 Develop a high-quality network of parks and open spaces that meet the needs of families, young adults, senior, children, and disable individuals.**

Consistency Analysis: The Project promotes a sense of place and unique neighborhood character, catering to young professionals, families, educators, and empty nesters. The Project features a walkable community linked via large Central Park open to the public and oriented to promote social interaction among residents, visitors, and employees, and will bolster the City's network of parks by contributing new recreational space that is easily accessible. The proposed conceptual landscape program includes elements include a more passive Central Park, which is designed with walking trails, benches, and a bocce ball court that is envisioned to be used more by adults and seniors. The Park Plaza includes a large turf area next to the mixed-use building that is intended to be used more by families and children. Paths within the park will include accessible walkways so disabled individuals may access the parks. Therefore, the Specific Plan is consistent with this policy.

4 HOUSING

- **Goal 8-3: Provide opportunities throughout the City for adequate and affordable housing in a wide range of housing types to meet the needs of all socioeconomic segments of the community.**

Consistency Analysis: The Project provides a range of housing types from single-family housing to townhome and "flat" multi-family housing targeted for young professional families, educators, and empty nesters. The Project also includes a commercial component as a means of providing neighborhood-serving retail near housing to facilitate a pedestrian-friendly environment. The Project will include affordable housing on-site that meets the provisions of the City's Inclusionary Housing Ordinance. The housing will be distributed throughout the Specific Plan area. Therefore, the Specific Plan is in substantial conformance with this policy.

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APPENDIX J-1:

Cable Airport Comprehensive Airport Land Use Plan, West Valley Planning Agency Airport Land Use Commission, December 9, 1981

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CABLE AIRPORT COMPREHENSIVE AIRPORT LAND USE PLAN

ADOPTED

DECEMBER 9, 1981

West Valley Planning Agency
Airport Land Use Commission

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SECTION 1

1.0 INTRODUCTION

1.1 Purpose/Scope

This land use plan intends, for the 20 year future of Cable Airport, to safeguard the general welfare of the inhabitants within the vicinity of the airport and to assure the safety of air navigation. Specifically, the plan seeks to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures affect navigable airspace.

This plan shall generally address only those areas and issues which are affected by, or affect, aircraft operations.

1.2 Assumptions

The following assumptions regarding the existence and continued growth of Cable Airport underlie the development of this plan:

1. Cable Airport is and will continue to be a Basic Utility

Stage II Airport. (Runway load capacity will remain at 12,500 lbs.)

2. The effective length of Runway 24 will remain 3,600 feet.

3. In 1977 Cable Airport had 325 based aircraft and an estimated 140,000 annual operations. The projected capacity of 460 based, licensed, aircraft and 209,000 annual operations will not be reached before 2000 (Table 1).*

4. The flight practices at Cable Airport will remain basically the same. A left-hand pattern will be utilized with approximately 90 percent of all operations taking off in a westerly direction. The vast majority of westerly takeoffs will begin the left-hand pattern within the first 3,000 feet after end of runway (approximately intersection Claremont and Foothill Boulevards) to approximately intersect the San Antonio Flood control channel.

* Cable Airport is forecast to reach operational saturation at 209,000 operations in 2000. Therefore, the 20-year projection for operations is the same (209,000).

5. That the implementation and enforcement of an active noise abatement program by the airport operation and technological changes in aircraft, noise, engine design/baffling, will ensure that current airport noise contours will not be significantly expanded so as to expand any area of incompatibility.

6. That the "Airport Master Plan" for Cable Airport containing projections of the physical plant, land use, number and type of aircraft operations to the year 2000 and all relevant data pertaining thereto, and including environmental effects thereof, was reviewed by all affected local government. Further, that in the event of any major assumptions or projections made in this airport land use plan are beginning to be inconsistent with the approved master plan, said land use plan will be amended to reflect the master plan assumption or projections.

1.3 Authority

Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for San Bernardino County to formulate a comprehensive land use plan for

the area surrounding each public airport* within San Bernardino County.

1.4 Legislative Requirements

Section 21675 of the Public Utilities Code of the State of California specifies that the comprehensive land use plans will:

> "... provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission plan shall include a long-range master plan that reflects the anticipated growth of the airport during at least the next 20 years. This plan shall not be inconsistent with the State Master Airport Plan.** In formulating a land use plan, the commission may develop height restrictions on buildings, may specify use of land, and may determine building standards, including soundproofing adjacent to airports, within the planning area."

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* Private airports which are licensed to serve the public are considered public airports for purposes of this section.

** The State has not yet prepared the State Master Airport Plan. Reference new legislation.

SECTION 2

2.0 THE AIRPORT

2.1 Existing Airport Facilities

Two hard-surfaced runways are currently available for fixed-wing aircraft operations. Runway 6-24 is the primary runway. It measures 3,600 feet (threshold to threshold) with an overrun of 135' on the East end and 176' on the West, by 75 feet. There is a non-precision instrument approach procedure to runway 06 (West end). The airport is classified as a Basic Utility II; runway is designated to accommodate 95 percent of propeller aircraft under 12,500 lbs. A second runway (Runway 01-19) is available for use during strong northwesterly wind conditions. However, because the runway is used so infrequently the runway aprons are also used for aircraft parking. Runway 01-19 measures 1,340 feet by 50 feet.

2.2 Airport Activity and Aviation Forecast

Cable Airport has grown from three based aircraft in 1945 to 325 based aircraft in 1977, and estimated 140,000 annual operations.

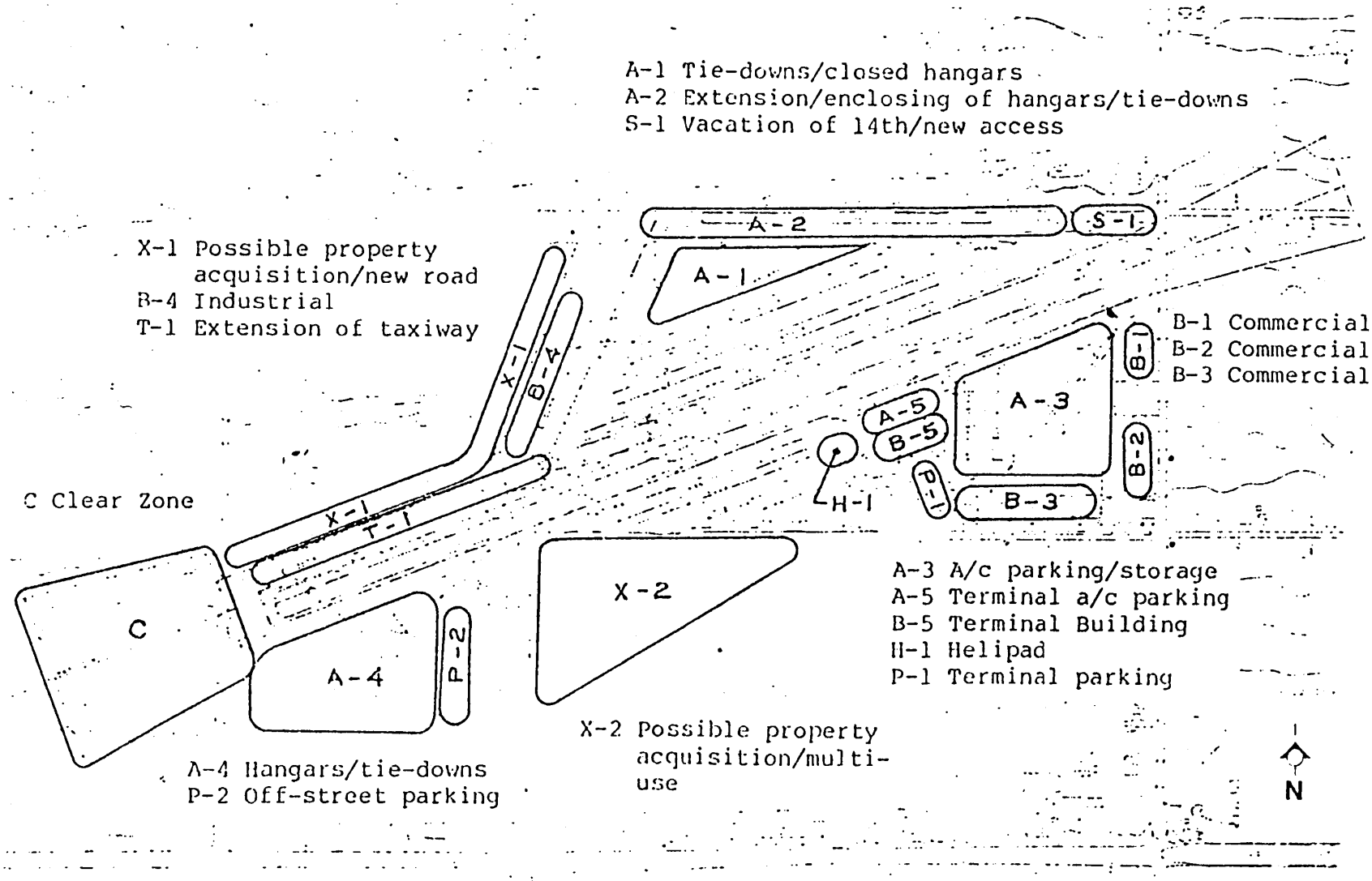
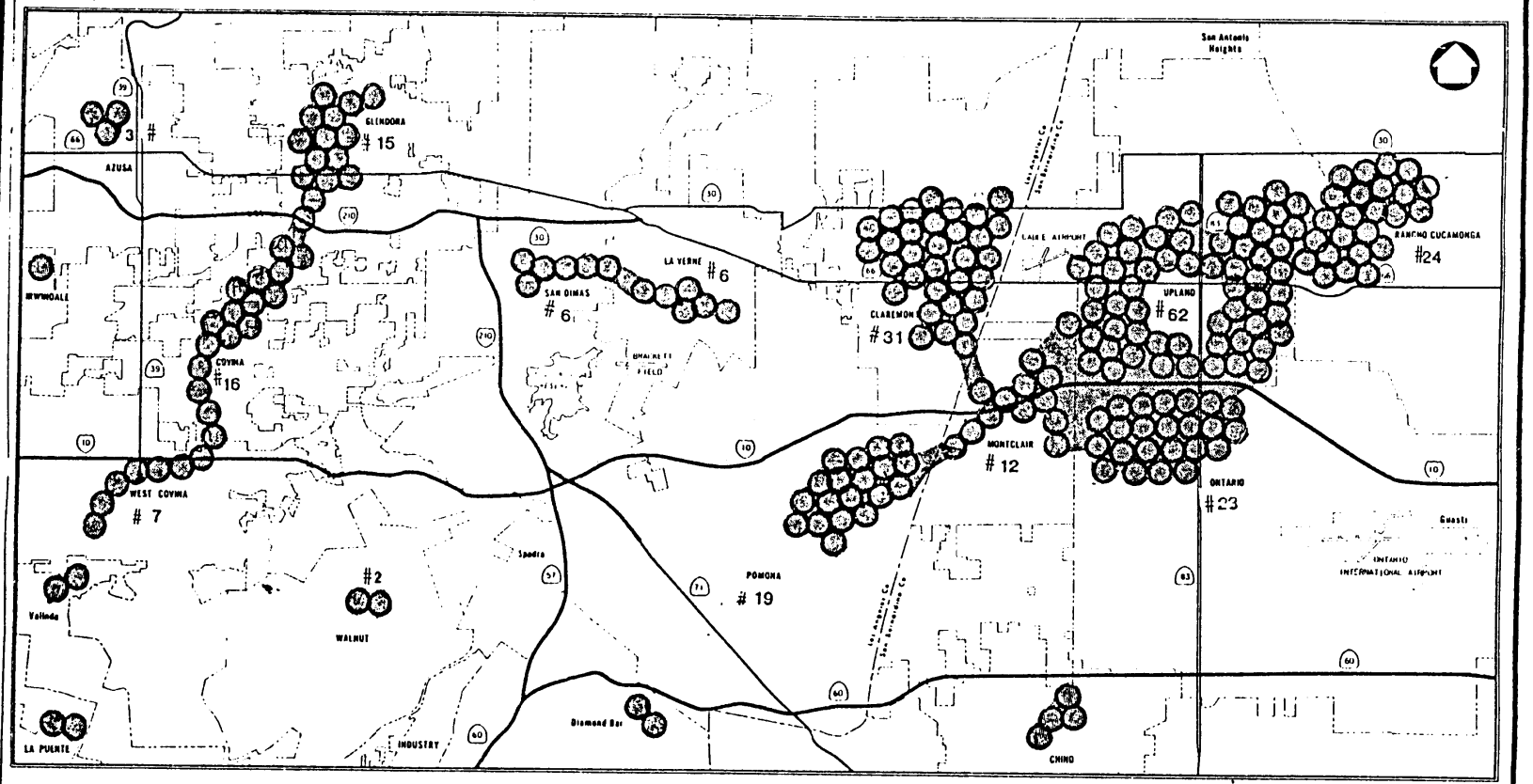


Figure 1 - Cable Airport Master Plan Areas

The future growth and aviation activity at Cable Airport has been projected on the basis of historical trends in the airport usage and on the basis of regional projections in a service area which was established by plotting the ownership patterns of based aircraft at Cable Airport (see Figure 2, Service Area, Cable Airport). The largest concentration and ownership of based aircraft are in the communities of Upland (62 based aircraft) and Claremont (31 based aircraft). The total of the aircraft ownership within the service area does not account for all of the based aircraft at Cable Airport. This is explained by the fact that the remaining based aircraft ownership is dispersed in a number of communities outside of the service area. The year 2000 projection for Cable Airport is for 460 based aircraft and 209,000 annual operations (see Table 1). This projection recognizes the interrelationships of Cable, Chino, Ontario International and Brackett Airports in providing for the general aviation demand for the entire service area. In 1960, Cable Airport provided for 45.3 percent of the total based aircraft within the service area. However, the Year 2000 projection shows that Cable Airport's share of the service area based aircraft will diminish to 24.7 percent (see Table 2). These projections reflect the relative growth potential of each of these airports taking into consideration the adequacy of facilities, public



LEGEND: GENERAL LOCATION OF BASED AIRCRAFT

= City of residence of aircraft owner

[#] = Total number of aircraft owners residing in city

SUBJECT: Figure 2

SERVICE AREA - CABLE AIRPORT

Date: 2-15-79 Scale: 1" = 2 mi.

Table 1

BASED AIRCRAFT AND OPERATIONAL FORECAST FOR CABLE AIRPORT

Items	1977	1980	1985	1990	1995	2000
Based Aircraft	325	350	390	420	445	460
Annual Operations (in 1,000's)	140	170	185	196	205	209
Local Operations	120	146	158	167	174	175
Itinerant operations	20	24	27	29	31	34

Note: Aircraft Mix:

Single Engine	(93%)
Multi-engine	(7%)
Business Based Aircraft	(8% of above)

Table 2

BASED AIRCRAFT AT CABLE AIRPORT AS PERCENT OF SERVICE AREA

Year	Cable Airport	Chino Airport	Ontario Airport	Brackett Airport	Total	Cable Percent Service Area
1960	155	51	56	80	342	45.3
1965	212	112	75	189	588	36.1
1970	300	193	75	248	816	36.8
1975	320	297	22	320	959	33.4
1980	350	385	63	400	1,198	29.2
1985	390	546	70	597	1,603	24.3
1990	420	610	60	600	1,690	24.8
1995	445	675	50	600	1,770	25.1
2000	460	750	50	600	1,860	24.7

Table 3

ANNUAL OPERATIONS IN SERVICE AREA OF CABLE AIRPORT
(in thousands)

Airport	1960	1965	1970	1975	1980	1985	1990	1995	2000
Cable	30.0	30.5	74.0	95.0	170.0	185.0	196.0	205.0	209.0
Chino	10.0	100.0	162.7	190.0	260.0	301.0	319.0	374.5	417.0
Ontario	38.1	79.4	91.0	152.0	120.0	150.0	150.0	150.0	150.0
Brackett	132.2	171.5	221.9	217.8	300.0	299.0	300.0	300.0	300.0

Source: 1. FAA 5010
2. FAA Aviation Forecast--Los Angeles
3. Staff Estimated Forecast
4. FAA--Terminal Area Forecast

Table 4

BASED AIRCRAFT IN SERVICE AREA OF CABLE AIRPORT

Airport	1960	1965	1970	1975	1980	1985	1990	1995	2000
Cable	155	212	300	320	350	390	420	445	460
Chino	51	112	193	297	385	546	610	675	750
Ontario	56	75	75	22	63	70	60	50	50
Brackett	80	189	248	320	400	597	600	600	600
Totals	342	588	816	959	1198	1603	1690	1770	1860

Source: 1. DOA Planning SAC
2. FAA 5010
3. Airport Owner/Managers and Estimates Forecasting

versus private ownership, and local attitudes about growth of the airport and associated environmental and land use implications. On a regional service area basis, a correlation can be drawn between the growth in overall population and the growth in based aircraft (see Table 2). The service area currently has a population of approximately 498,783 persons and a total of 1,198 based aircraft (1980 projection). This results in a ratio of one based aircraft per 416 persons. The year 2000 projection is for 573,100 persons and 1,860 based aircraft resulting in a ratio of one based aircraft per 308 persons, indicating a slightly greater emphasis on general aviation in the service area. The reliability of this forecast can be evaluated by comparing projected growth in the service area based aircraft with that of the United States as a whole. In the 1975 and the 1980 projection, the service area accounts for 0.59 percent of the nation's general aviation aircraft.

2.3 Airfield Capacity

The Federal Aviation Administration has adopted a methodology for calculating airfield capacity based on the airfield's configuration, aircraft mix, weather conditions, touch-and-go traffic and other factors. The capacity calculations, expressed in terms of PHOCAP (Practical Hourly Capacity), assume that reasonable and practical amounts of aircraft delay are acceptable.

Applying the referenced methodology results in a weighted hourly capacity of 90 per hour VFR (Visual Flight Rules) practical annual capacity is computed to be 209,000 operations. When compared to operations forecasts it can be seen capacity will be reached in the year 2000.

2.4 Aircraft Storage Capacity

The year 2000 projection for Cable Airport is for 460 licensed based aircraft. The adopted Cable Airport Master Plan indicates sufficient storage spaces will exist to accommodate this projection. Demands for covered hangar spaces appear to already exceed supply.

2.5 Airport Layout Plans

This plan is based on the fact that the effective length of the runway is 3,600 feet and that there are no plans for extension of the runway lengths. (Figure 1) Indicates the Airport Master Plan Development Areas.

SECTION 3

3.0 PLANNING AREA BOUNDARIES

3.1 Purpose

The planning area boundaries (See Figure 3) delineate the area of influence for the Cable Comprehensive Airport Land Use Plan. These boundaries were established by analyzing normal flight patterns, approach and take off surfaces and noise and safety regulations. The planning area is comprised of clear zones, safety areas and noise impact zones. The Clear Zones and Safety Areas are defined in Section 5.3 of this document. Safety area 2 is concerned with height restrictions. Any major change in land uses within the planning area can affect or be affected by airport operations.

All proposed major land use changes or increases in structural height within the planning area boundaries shall be reviewed by the local jurisdiction's land use planners with respect to the policies and standards contained in the Cable Comprehensive Airport Land Use Plan. The Airport Land Use Commission (ALUC) shall be notified by the local jurisdiction of any pending decision on all proposed major changes in land use or increase in

structural height within the planning area boundaries. The Executive Officer or his designated appointee is empowered to review all major land changes or increases in structural height on behalf of the ALUC. If, in the determination of the Executive Officer, a proposed action or regulation affecting a major land use change is inconsistent with the Comprehensive Airport Land Use Plan, because structures would be permitted to exceed the height regulations contained in FAR Part 77 or are located within 75 feet of the centerline of the runway extended within Safety Area 1 or are located within the published flight pattern of cable airport, the ALUC shall schedule, advertise and hold a public hearing to determine whether or not the proposed action is in the best interest of the airport and adjacent area. If it is determined that the action would be harmful, then the sponsoring public agency shall be so notified to reconsider it's action. The sponsoring public agency proposing the action or regulation, however, may then overrule the Airport Land Use Commission and requirements of the Comprehensive Airport Land Use Plan after such hearing by a four-fifths vote of its governing body. In effect, the sponsoring public agency shall be the public agency with final decision-making authority over the proposed use.

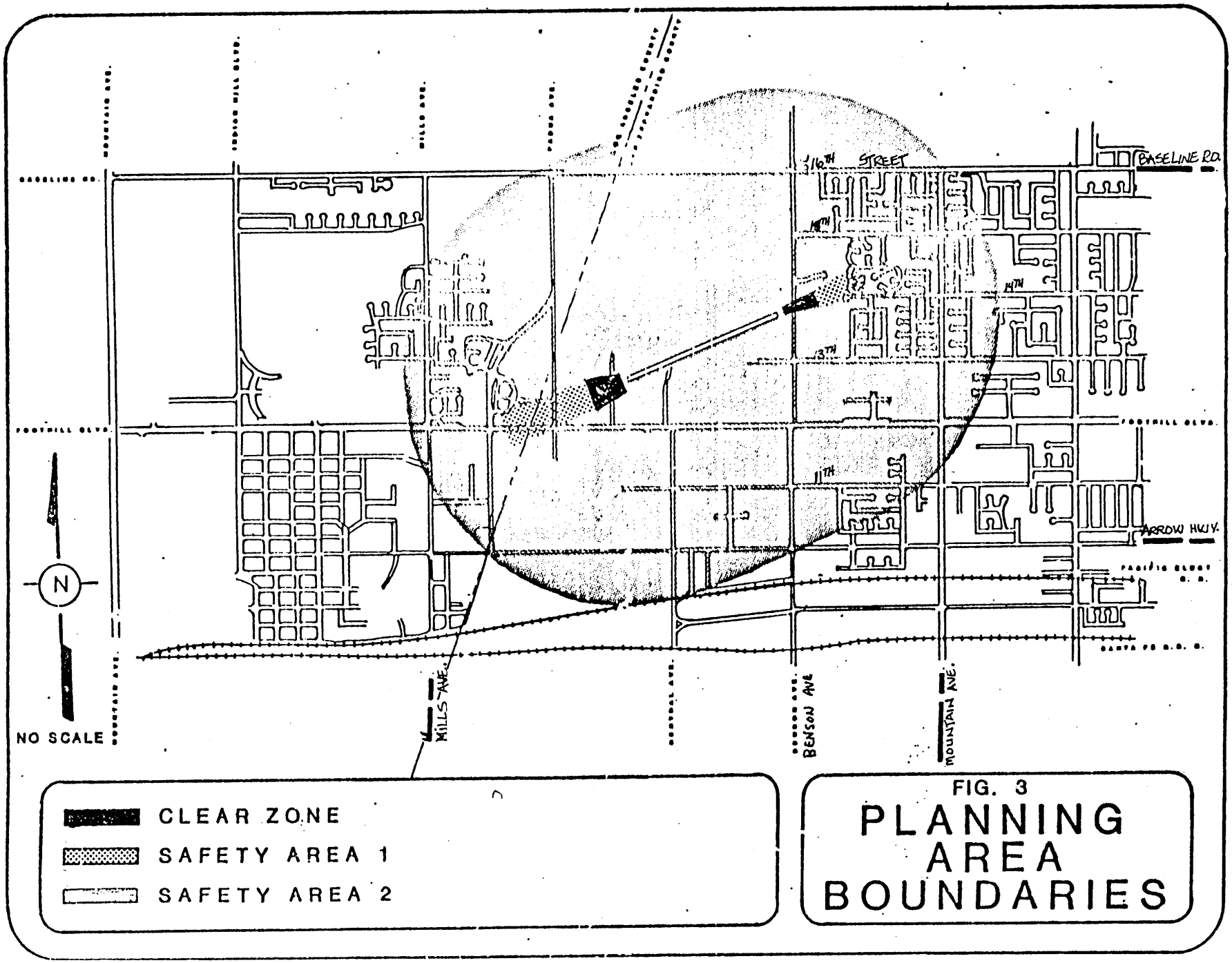


FIG. 3
PLANNING AREA BOUNDARIES

3.2 Major Land Use Changes

Major changes in land use shall be defined as any new use or addition to an existing use within the planning area boundaries which will permit or encourage any of the following:

a. Uses not compatible with the land use policies and standards of this plan regarding noise, height or safety restrictions and airport operations.

b. Uses that increase the level of risk to lives or property beyond the range of "acceptable" due to the impact of a single aircraft accident.

3.3 Criteria for Approval

It is recommended that the approval of any major change in land use should include an environmental assessment of the level of potential risk to the public health and safety resulting from a single aircraft accident at that location.

SECTION 4

4.0 LAND USE POLICIES

The land use policies contained in this section are intended to guide all future land use decisions within the planning boundaries of Cable Airport.

4.1 Noise Elements

The objective of the noise element is to plan for an appropriate range of land uses within areas impacted by noise emanating from airport operations which uses would not be substantially adversely affected by such nuisances and/or disturbances.

Finding: That the California State Airport Noise Law establishes limitations on airport noise within residential neighborhoods. For enforcement purposes, the legislation is directed at the airport operator. However, implicit in the State Noise Law is a statement of public policy that 65 dBA CNEL is the maximum acceptable noise level for residential neighborhoods. Within the 60-65 CNEL noise level the State Law requires that residential development be acoustically insulated to reduce

interior noise level to no greater than 45 dBA CNEL in any habitable room. Furthermore, single noise events can create significant disturbances, depending upon the time of day or night the event occurs. Single noise events can be disturbing to sensitive land uses such as hospitals and schools.

Policy:

1. Accept the CNEL method of rating noise and planning for compatible land uses.

2. Establish the 65 dBA CNEL noise contour as the maximum acceptable noise level for residential neighborhoods.

3. Recognize the significance of single noise events as they affect sensitive land uses such as hospitals and schools.

4. Plan in such a manner that new residential and certain institutional uses which are sensitive to noise are located outside the "high noise areas". (See Section 6.0, High Noise Areas.)

5. Seek remedial solutions to any existing noise problems. (Remedial solutions can be accomplished as part of an

overall noise abatement program. Typically, noise abatement programs consider location of run-up activities, hours of operations, aircraft mix, and flight practices.)

4.2 Airport Height Restrictions (Obstructions)

To ensure the safe passage of aircraft in, out and around the airport by safeguarding and preserving navigable airspace.

Findings:

1. Federal Aviation Regulations Part 77 (FAR Part 77) set forth criteria for describing the navigable airspace requirement for each airport. The criteria establish various imaginary surfaces above which an operating aircraft should have complete freedom from obstructions.

2. FAR Part 77 requires that notice of construction of a possible obstruction to navigable airspace be given the Federal Aviation Administration (FAA). However, the FAA cannot enforce compliance. It is the responsibility of the local agencies to assure that the area around the airport be kept free of obstructions.

3. Objects which penetrate above the imaginary surfaces described in FAR Part 77 can impair flight safety and can ultimately result in the closure of an airport.

Policy:

1. Recommend that no structure be erected or object be placed, or allowed to grow which would protrude into the imaginary surfaces as established by FAR Part 77.

4.3 Airport Safety Element

To minimize the level of risk to people and property from accidents involving aircraft.

Findings:

1. Thirty percent of the fatal accidents occur during landing, takeoff, or in the immediate vicinity of the airport (NTSB, Annual Review, GA, 1974, page 29-30).

2. Approximately 50 percent of accidents involving civil aircraft occur within airport boundaries. Approximately 15 percent occur outside of airport boundaries and within one

mile of the airport. (See Airport Accidents in Vicinity of Airports, January 2, 1973.)

3. Of near airport accidents, approximately 60 percent are concentrated within narrow lands at both ends of the runway (approach surface). Forty percent are randomly distributed throughout the remaining areas. (See Airport Accidents in Vicinity of Airport, January 2, 1973.)

4. Within the approaches and takeoff areas to the airport larger land parcels provide more design alternatives for building layouts compatible with the accident potential.

Policy:

1. Designate clear zones and safety areas within the planning area boundaries (see Section 5) and develop land use criteria for these.

2. Discourage uses which are not compatible with airport operations or which concentrate large numbers of people within the planning area boundaries.

3. When feasible within the planning area boundaries, encourage the provision for open space corridors along the extended centerline of the airport runway.

4. Within the planning area boundaries, discourage the subdivision of large land parcels until a specific use including building layouts and design, is proposed.

4.4 Surface Traffic Circulation Element

To ensure that roadways providing access to the airport are adequate to serve the needs of the airport, and that uses abutting roadways providing access to the airport are compatible with the noise, dust and traffic flows generated by the airport related traffic.

Finding: The planned road system around Cable Airport is adequate to accommodate existing and projected traffic volumes. The improvement/construction of Central Avenue northerly from Foothill Boulevard will provide a second major access to the airport.

Policy:

1. Plan for adequate vehicular access to the airport for both existing and projected traffic flows.

2. Plan in such a manner that airport traffic is directed away from sensitive land uses (residential and certain institutional uses).

SECTION 5

5.0 CLEAR ZONES AND SAFETY AREAS

Clear zones and safety areas are a critical part of any comprehensive airport land use plan. The clear zones as designated herein conform to the definitions in Federal Air Regulations, Part 77 and FAA Advisory Circular 150/5300/4B entitled Utility Airports Air Access to National Transportation.

5.1 West End Configuration

The criteria for defining the configuration of the West End Clear Zone and safety areas (see Figure 4) takes into consideration that the terrain west of the end of runway 24 slopes below the elevation of the runway and that ninety percent of all takeoffs at Cable Airport are in a westerly direction (toward Claremont). Approximately 90 percent of all westerly takeoffs utilize a left hand turn pattern to approximately intersect the San Antonio Flood Control Channel. The point at which the aircraft begins the left turn pattern varies greatly, depending upon many factors, such as the air temperature, type of plane and pilot's preferences. However, generally the vast majority begin their left hand turn pattern within the first 3,000 feet of the end of

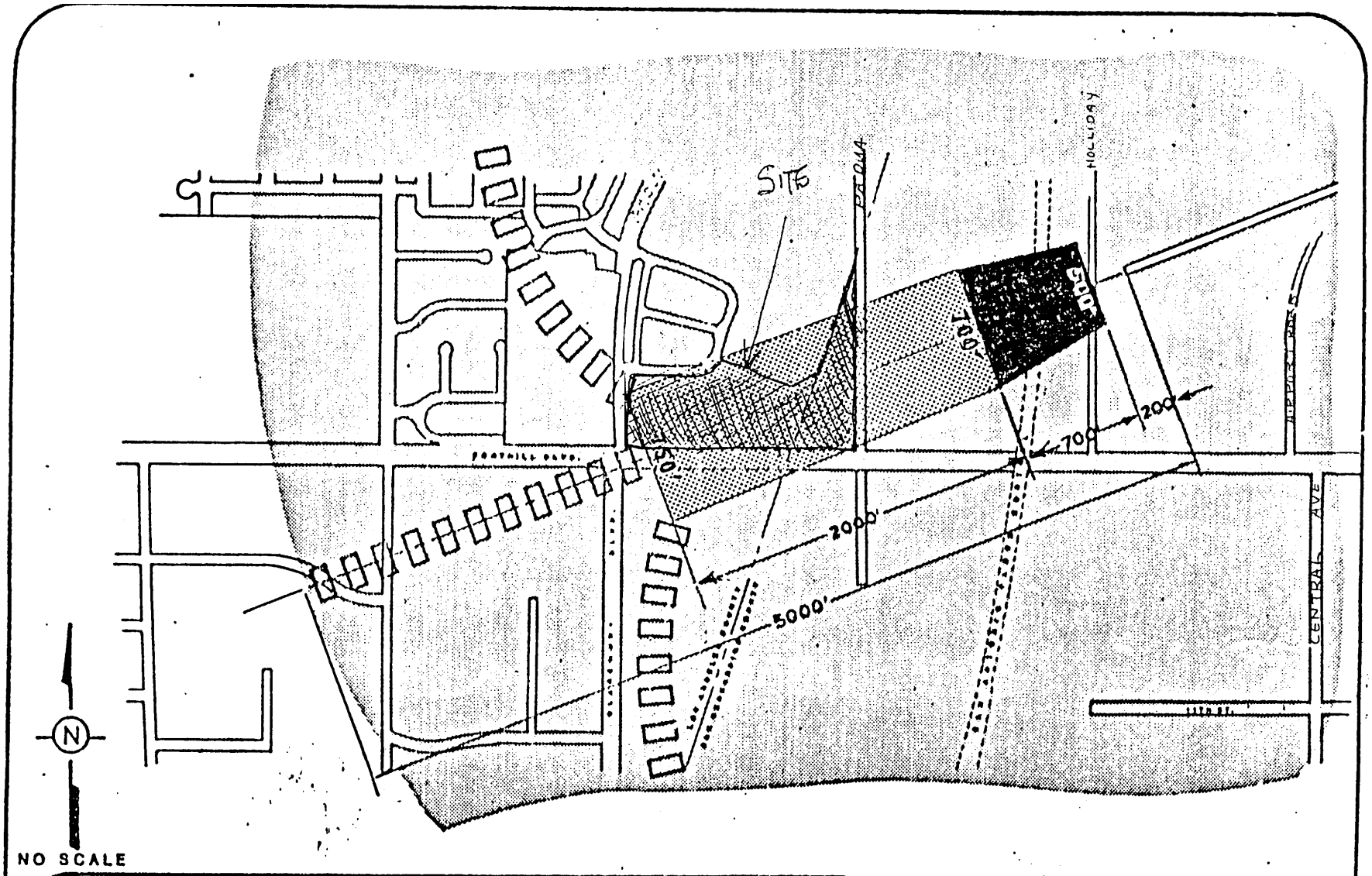


FIG. 4

WEST END

CLEAR ZONE & SAFETY AREAS

the runway. This relates approximately to the intersection of Claremont and Foothill Boulevards. This flight practice also coincides with the approximate alignment of the published flight pattern for Cable Airport.

The West End Clear Zone starts 200 feet west of the effective length of the runway. Beginning with a width of 500 feet and expanding to 700 feet wide, the fan shaped zone is centered on the extended centerline of the runway for a distance of 700 feet in a southwesterly direction.

The West End Safety Area 1 then continues from the west end of the clear zone from a width of 700 feet expanding to 750 feet wide at the distance of 2,000 feet along the extended runway centerline.

Safety Area 2 is that remaining area not contained in Safety Area 1 or the Clear Zone within a 5,000 foot radius of the effective length of the runway.

5.2 East End Configuration

The East End Clear Zone starts 200 feet east of the effective length of the runway. Beginning with a width of 250 feet and expanding to 450 feet wide, the fan shaped zone is centered on

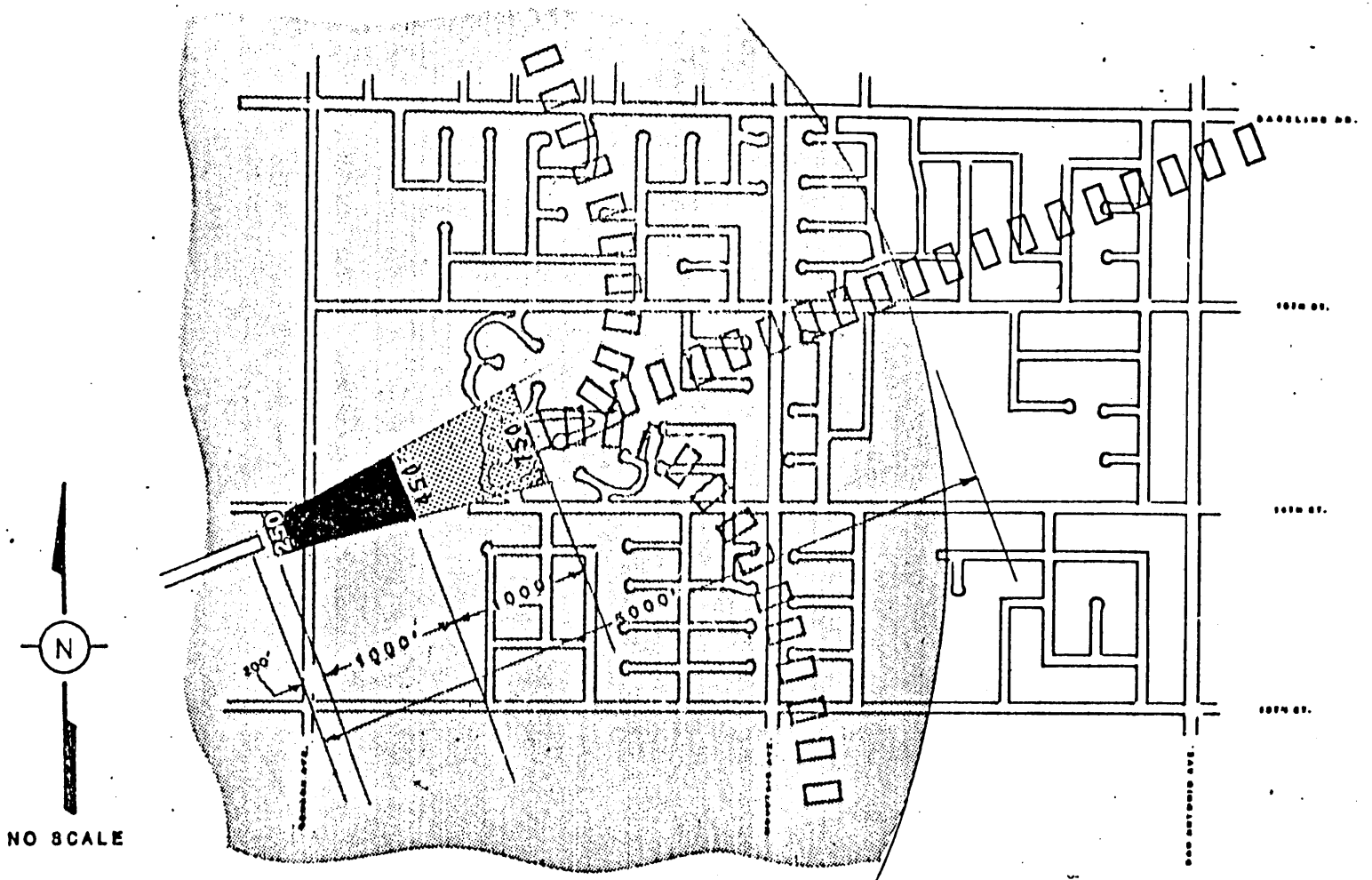


FIG. 5

EAST END

CLEAR ZONE & SAFETY AREAS

the extended centerline of the runway for the distance of 1,000 feet in a northeasterly direction.

The East End Safety Area 1 then continues from the east end of the Clear Zone from a width of 450 feet expanding to 750 feet wide at the distance of 1,000 feet along the extended runway centerline.

Safety Area 2 is that remaining area not contained in Safety Area 1 or the Clear Zone within a 5,000 foot radius of the effective length of the runway.

5.3 Land Use Standards

This section contains standards which define land uses which are not compatible within the Clear Zones and Safety Areas. The objective of clear zones and safety areas is to ensure that land uses around the airport will minimize the risk to lives and property and will be compatible with airport operations. However, if it can be determined that a specific land use, which does not conform to the land use standards contained in this Plan, can be mitigated to ensure reasonable safety to lives and property on the ground and aircraft operation, such a use may be

approved subject to the following findings being made by a majority of the Airport Land Use Commission.

Findings:

1. That the use is not contrary to the best interest of the airport and adjacent area.

2. That the level of risk to lives and potential for destruction of property due to a single aircraft accident is within the range of "acceptable". (The concept of acceptable risk is the basis for all planning. No quantifiable definition of acceptable can be given. Acceptable risk should be defined on the basis of the values of the Airport Land Use Commission and local communities. The testimony given at public hearing is a factor to be used in establishing local values regarding acceptable risk.)

The area of impact of a single aircraft accident will vary depending on the type of aircraft, air speed and angle of descent at the time of crash impact.

Clear Zones--Extreme Crash Hazard

The severe potential of loss of life and property damage due to accidents proscribes most land uses in this zone. Also, the

close proximity to aircraft operations limits land uses which would endanger such operations. Only open space and agricultural uses are normally acceptable here provided that such uses do not produce smoke, or attract birds. All permanent structures (not necessarily including roads or railroads) are considered not compatible.

Safety Area 1--Significant Crash Hazard

Potential loss of life and property due to aircraft accidents is sufficient to require restriction of density and intensity of use restrictions in this area. The following uses are considered not compatible: hazardous installations such as oil or gas storage, new residential development (excluding reconstruction of an existing structure) and institutional facilities. No buildings or structures shall be located within 75 feet of the extended centerline of runway within this area. Any new use which would result in large concentrations of people (more than 100 persons) shall be subject to review and approval of the Airport Land Use Commission. Because of the proximity to aircraft operations, structures in this area should not reflect glare, emit electronic interference, or produce smoke so as to endanger aircraft operations.

Safety Area 2--Moderate Crash Hazard

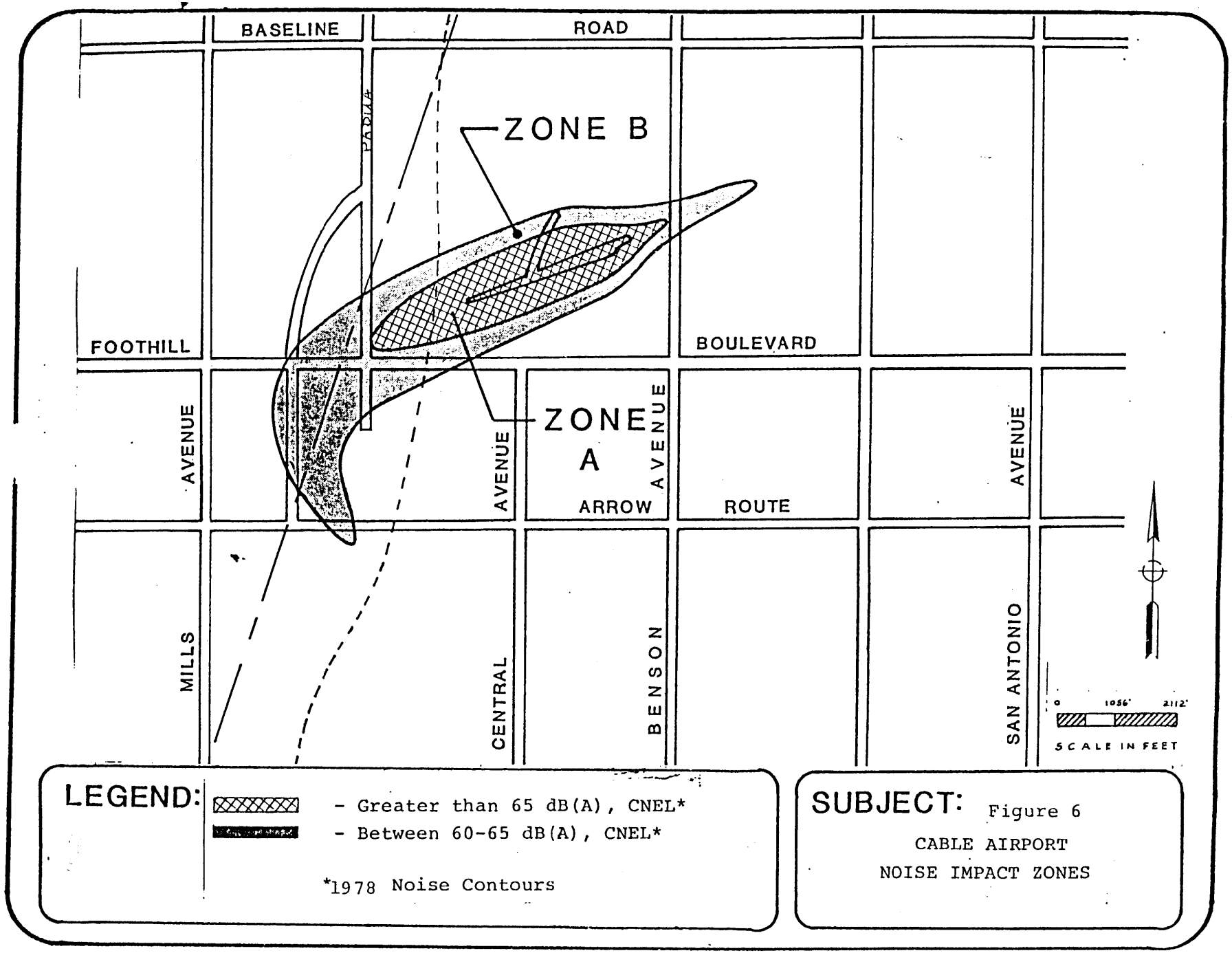
No structure shall be constructed or object permitted within Safety Area 2 that would penetrate the airport imaginary surfaces as defined in Federal Aviation Regulations Part 77. Because of the proximity to aircraft operations, structures in this area should not reflect glare, emit electronic interference, or produce smoke so as to endanger aircraft operations.

SECTION 6

6.0 HIGH NOISE AREAS

Within California the CNEL method of noise evaluation has been adopted as the basis for noise standards for California airports (State airport noise law). This method of noise evaluation considers the types of aircraft; involves the averaging of all aircraft noise events, during a 24-hour period with penalties being imposed for evening and night-time noise events. The results of this method of noise calculations are noise contour lines (See Figure 6). The State noise law imposes a limitation of 65 CNEL in decibels as the maximum allowable noise level for residential communities after January 1, 1986.

The CNEL method of noise evaluation is most applicable when applied to major airports in urban areas. For small Basic Utility airports such Cable Airport, the size of the aircraft and frequency of operations may not result in a significant noise contour. Nevertheless, single noise events, particularly during night-time, early morning or weekends, may result in disturbances and complaints. This is particularly true when the airport is adjacent to suburban residential neighborhoods or other noise sensitive uses such as hospitals, churches or schools. Unfortunately, no acceptable standards for single noise impacts have yet been established.


BASELINE
ROAD
PADILLA
ZONE B
ZONE A
FOOTHILL
BOULEVARD
AVENUE
AVENUE
AVENUE
AVENUE
ARROW
ROUTE
MILLS
CENTRAL
BENSON
SAN ANTONIO
0
1056'
2112'
SCALE IN FEET
LEGEND:
- Greater than 65 dB(A), CNEL*
- Between 60-65 dB(A), CNEL*
*1978 Noise Contours
SUBJECT: Figure 6
CABLE AIRPORT
NOISE IMPACT ZONES

6.1 Methodology

The extent of noise impact is designated by the following letters:

Zone A--High noise impact (greater than 65 dB, CNEL).

Zone B--Moderate noise impact (between 60 dB and 65dB, CNEL).

6.2 Noise Areas/Land Use Standards

Noise Impact Zone A--High Noise Impact
(greater than 65 CNEL)

Noise impact in this zone is sufficient to warrant restrictions on residential uses and require sound attenuation on some other uses. All residential units are unacceptable in this area. Institutional uses such as schools, hospitals, libraries and other such noise sensitive uses are also unacceptable in this zone. Commercial, industrial and recreational uses are acceptable in this zone provided that commercial and industrial structures are sufficiently sound attenuated to allow normal work activities to be conducted. For example, a noisy industrial plant may require no attenuation, whereas professional offices may require considerable attenuation.

Noise Impact Zone B--Moderate Noise Impact
(greater than 60 CNEL)

Noise impact in this area is sufficient to require sound attenuation or sound insulation as required by the California

Noise Insulation Standards. Additionally, single noise events in this area may create serious disturbances to many inhabitants, particularly given the suburban residential character of the area. Residential units are unacceptable in this area unless it can be conclusively shown that such units are sufficiently sound attenuated to limit interior noise to 45 dB CNEL.

Institutional uses such as schools, hospitals, libraries and other such noise sensitive uses are also unacceptable in this zone unless it can be shown that adequate protection against exterior noise has been included in the design and construction together with a central air conditioning system and all windows are permanently sealed (45 dB CNEL).

APPENDIX A

SPECIAL AIRPORT RELATED OBSERVATIONS/RECOMMENDATIONS

The following are general observations of Cable Airport and its surrounding area:

1. Cable Airport is a privately owned and operated airport which serves the public convenience. The fact that the airport serves the public supports a certain degree of public control of lands around the airport to ensure compatibility.

2. The cities of Claremont and Upland and the Claremont Colleges have been concerned about the unrestrained growth in operations which has occurred over a period of years.

3. The Claremont Colleges are greatly concerned over the existence of Cable Airport and its potential effects on the colleges and proposals for new construction and improvements.

4. Growth pressures within the cities of Claremont and Upland have continued to push urban development closer to the airport. The resolution of these pressures with the recommendations contained in this plan and with the use of sound planning principles may have a strong bearing on the future of Cable Airport.

5. The Southern California Association of Government (SCAG), Regional Transportation Plan defines Cable Airport as regionally significant. The primary service area, communities with 10 or more based aircraft at Cable Airport (see Section 2.2, Airport Activity and Aviation Forecasts, Figure 2, Cable Airport Service Area) for the airport includes the communities of Upland, Claremont, Rancho Cucamonga, Ontario, Montclair, Pomona, Glendora and Covina.

The following are special airport related recommendations of the Steering Committee affecting the continued existence and operation of Cable Airport:

1. A public entity such as San Bernardino County, which represents a large segment of the regional interests in Cable Airport should be granted an option for acquisition of the airport should the current airport owners abandon or decide to transfer title to the airport.

Explanation:

The City of Upland currently retains first right of refusal should the airport owners decide to abandon or transfer title to the airport. However, should the airport be discontinued, the impacts would affect

an area much larger than just the City of Upland (see Figure 2, Cable Airport Service Area). Therefore, it is felt that other affected communities should retain an option to ensure the continued existence of the airport.

Furthermore, this plan recommends the use of the public police powers to ensure a surrounding environment compatible with the existence of the airport. It is felt that if land use restrictions are going to be placed on surrounding private property holdings for the benefit of the airport, the responsible public entities also have a responsibility to ensure the continued existence and operation of the airport for the benefit of the public at large.

2. In view of the fact that the State Legislature mandates the adoption of a Master Plan which will place land use restrictions on private properties in the environs of the airport for purposes of airport protection, it is recommended that the State of California bear the financial responsibility for purchase of all properties directly affected by said Plan.

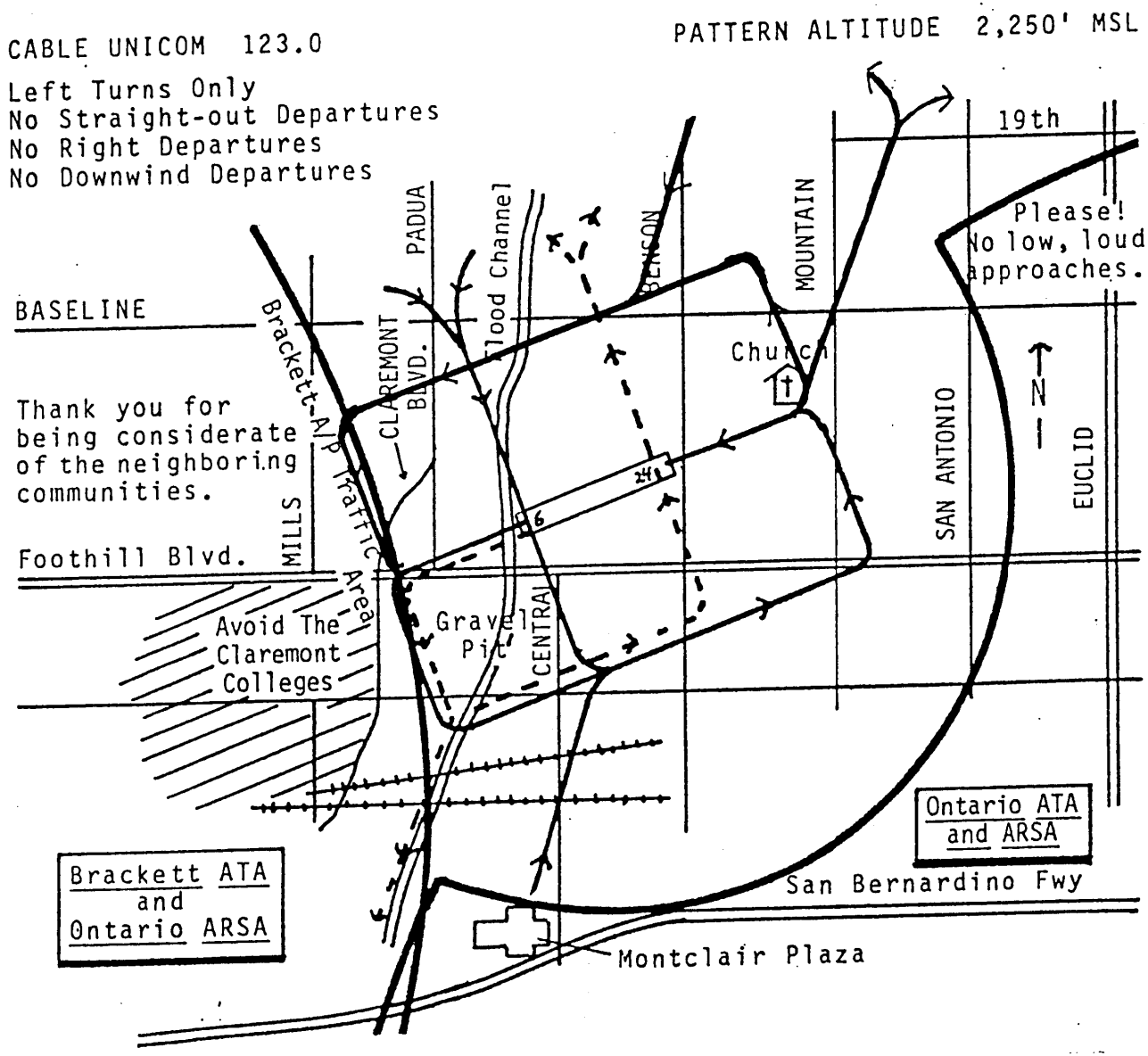
3. That when the minimum criteria is met, the Airport Land Use Commission recommend to the FAA, San Bernardino County Airport Commission and to the California Division of Aeronautics that a manned control tower be required to be provided at Cable Airport

in the immediate future and that the airport operator be required to implement an approved noise abatement program to assist in ensuring the public safety and freedom from unwarranted noise nuisance emanating from airport operations.

4. That a Master Plan for Cable Airport containing projections of the physical plant, land use, number and type of aircraft operations and all relevant data and projections thereto, to the year 2000, and including environmental effects thereof, be reviewed and approved by the City of Upland, and reviewed by all directly affected municipalities prior to adoption of any plan for land uses in the environs of said airport. Further, that in the event any major assumptions or projections made in this plan are determined to be unacceptable to such jurisdictions, this Plan shall be so amended as to ensure consistency with the approved airport Master Plan.

5. That the Airport Land Use Commission recommends to the San Bernardino County Airport Commission that they request the State Division of Aeronautics implement a noise monitoring program at Cable Airport. Said program to establish existing CNEL noise contours (greater than 60 CNEL), and to ensure that future noise levels will not substantially exceed existing levels.

CABLE AIRPORT VFR NOISE ABATEMENT ARRIVALS AND DEPARTURES RUNWAY 24



APPENDIX J-2:

Cable Airport Master Plan, AECOM, May 2012

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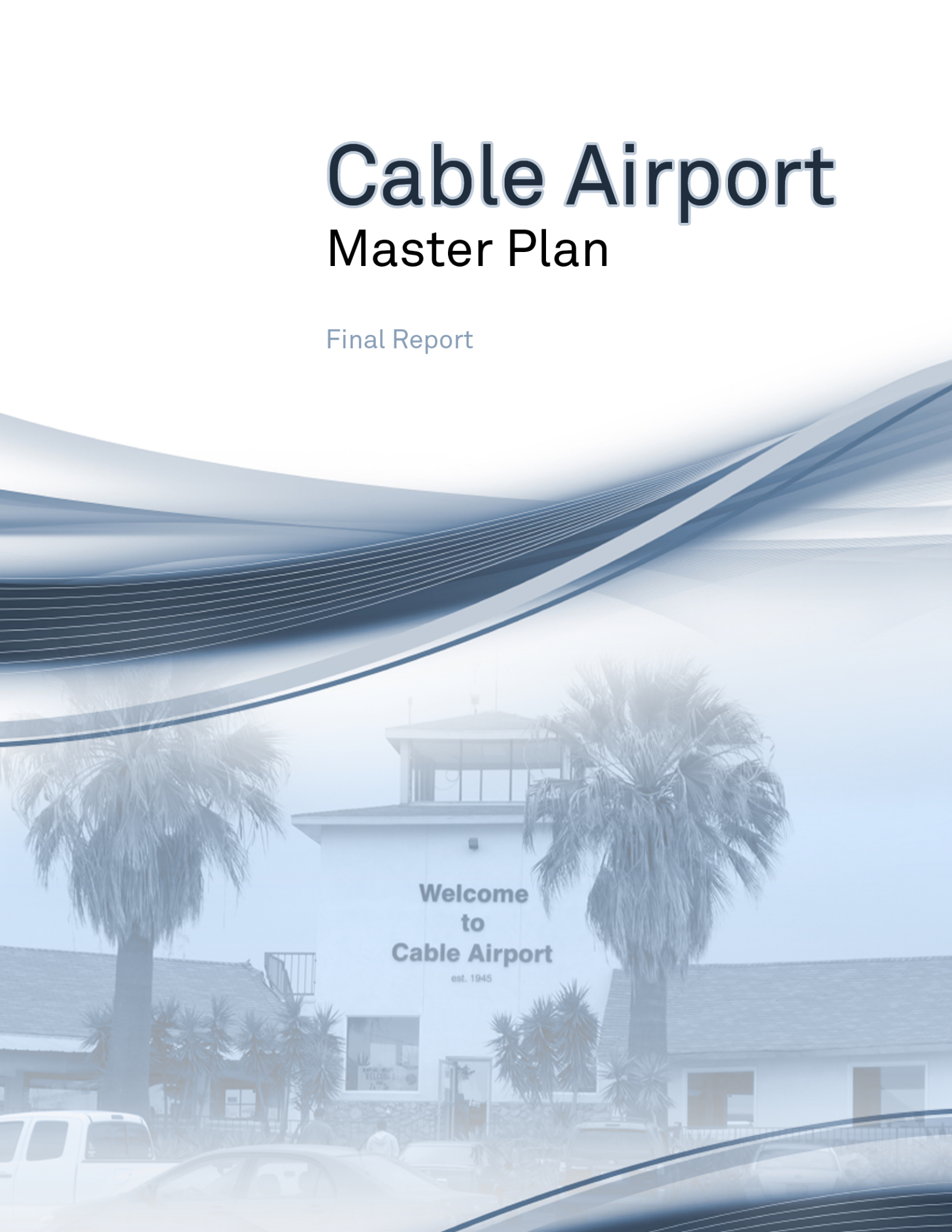
Cable Airport
Master Plan

Final Report



Cable Airport Master Plan Update

FINAL REPORT

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Parsons Brickerhoff
and
Arellano Associates

May 2012

In memory of William Briggs Blanchard
1933 - 2010

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Chapter 1

Introduction





Chapter 1
Introduction

INTRODUCTION

Cable Airport is a 109-acre privately owned public facility that serves the aviation needs of the City of Upland and surrounding areas of San Bernardino, Los Angeles, Orange, and Riverside Counties. The airport is owned and operated by the Cable Land Company and is the "world's largest family-owned, public-use airport." In order to determine the potential of the airport and specific opportunities for improving facilities, a planning grant from the FAA Airport Improvement Program (AIP) was issued to fund this airport master plan. While AIP grants are typically only available to publicly owned facilities, since Cable Airport is designated as a reliever airport to Ontario International, it is considered an important component of the National Aviation System and is included in the National Plan of Integrated Airport Systems (NPIAS) making it eligible for AIP grant funding. In March 2010, a contract was awarded to AECOM Technical Services, Inc. (AECOM) of Ontario, California to prepare a master plan for Cable Airport.

This document comprises the Final Report for the airport master plan that documents the research, analysis, and findings of this study. During the course of this study, an Interim Report was issued which documented the initial elements of the work program including inventory, forecasts of aviation demand, and facility requirements. The Interim Report was a working document and is superseded by the Draft Final Report. The Draft Final Report was superseded by this document – the Final Report. The Final Report expands upon data presented in the Interim and Draft Final Reports and is a complete documentation of the master plan process including concept development, the airport layout plans, costs and funding considerations, and an environmental overview.

PURPOSE AND SCOPE OF STUDY

The main objective of this study is to prepare an airport master plan to determine the extent, type, and schedule of development needed to accommodate future aviation demand at the airport. The recommended development shall be a 20-year program and presented in the following three planning periods: Phase 1 (2011-2015); Phase 2 (2016-2020); and Phase 3 (2021-2030). The recommended development should satisfy aviation demand, be feasible for the Cable Airport business plan, and provide community development and other transportation modes. Above all else, the plan must be technically sound, practical, and economically feasible. The following objectives shall also serve as a guide in the preparation of the study:

- To provide an effective graphic presentation of the ultimate development of the airport.
- To present the pertinent backup information and data which were essential to the development of the airport master plan.
- To describe the various concepts and alternatives which were considered in the establishment of the proposed plan.

- To provide a concise and descriptive report so that the impact and logic of its recommendations can be clearly understood by the community the airport serves and by those authorities and public agencies that are charged with the approval, promotion, and funding of the improvements proposed in the master plan.

- To ensure reliability and safety of airport operations.

- To meet FAA design standards as much as is feasible, while sustaining the business enterprise of the airport, and accommodating the surrounding community with the most positive impacts.

THE PLANNING PROCESS

A transportation planning study, such as this, is accomplished by following some fundamental, sequential steps that are briefly stated as an overview of the work to be accomplished. The initial step involves taking inventories of existing facilities and systems, documenting existing conditions, and coordinating activities with other agencies. Next, an assessment of air traffic demand is undertaken and forecasts are prepared and then translated into a listing of required facilities. Once this list is determined it is possible to compare requirements with existing facilities to identify deficiencies. Alternative development concepts that satisfy the deficiencies are then developed and evaluated so that a recommended concept is identified. Once identified, the preferred alternative will then be detailed and examined in terms of a staged development plan.

It should be noted that the airport master plan focuses on the airport and the planning of facilities within its property boundary. The evaluation of off-airport areas is considered to the extent that acquisition of land is required for airport use, or that off-airport areas are impacted by airport noise or height restrictions. The airport master plan is not intended as a comprehensive general development plan for the area surrounding the airport or community. However, it can be coordinated or incorporated into other community development programs.

PLANNING ISSUES

A Technical Advisory Committee (TAC) was established for the project for the purpose of monitoring the progress of work and providing input to the study. The first TAC meeting was held at the airport on July 26, 2010. The purpose of the first meeting was to identify planning issues and solicit the Committee's "vision" for the airport. Appendix A contains a list of TAC members. A summary of the issues identified are provided below.

- Determining design aircraft and meeting FAA design standards. The master plan should identify a design aircraft and identify solutions to any potential deviations from FAA design standards.
- Building Restriction Line (BRL). The correct location of the BRL will be identified through this master plan.
- Integration of planned aviation and commercial developments. Planned aviation and commercial developments will be integrated into the report and plans of the master plan.
- Enhance airport entrance and terminal area. The terminal building is old and suggestions have been made to enhance the terminal area. In addition, the master plan will investigate reconfiguring the airport entrance and improving the area north of the airport entrance road (West 13th Street). Potential development of the area north of West 13th Street will be considered in the master plan.
- Land acquisition. Areas of potential land acquisition will be identified in the master plan to enhance safety and aviation related use on the airport.
- Landside access. Most fixed base operators (FBOs) do not have direct landside access. This issue will be addressed in the master plan.
- Consider adjacent communities. When addressing issues on and around the airport, consideration will be given to adjacent communities.

A second TAC meeting was conducted on November 16, 2010. This meeting presented to the TAC information contained in the Interim Report and also presented preliminary concepts to accommodate forecasted demand at the airport. During this meeting the TAC noted the following important considerations:

- Land acquisition. Some areas of land noted to be acquired contain mineral resources which require special analysis and may be classified as a significant impact.
- Terminal area expansion. Potential site and drainage/grading issues were brought up with the concepts shown. ADA requirements are also to be met in terms of slopes.

A third and final TAC meeting was conducted on April 27, 2011. During this meeting the Draft Final Report was presented to the TAC including the recommended development concept for the airport. As a result of this meeting minor changes were made to the recommended concept and reflected in the final Airport Layout Plan developed. Changes included removing the potential acquisition of the Bongiovanni property south of the airport and a potential realignment of 13th Street.

AIRPORT VISIONING WORKSHOP

As part of the first TAC meeting, a Visioning Survey was conducted of TAC members. Table 1-1 provides a synopsis of the responses to the Visioning Survey completed by TAC members at the meeting. Input was obtained from the TAC with respect to airport role, expected growth in airport activity, and the need for services and facilities. The degree of importance of these items is shown in Table 1-1.

GOALS AND OBJECTIVES

Planning can be defined as a rational process for formulating and meeting desired goals and objectives that properly express the benefits that such a plan will produce for its users. Goals are defined as desired ends relating to the physical, social, or economic context as to how the airport should develop and how it should be operated. It should be pointed out that goals might not entirely be attainable. Objectives, on the other hand, are specific and attainable actions, which lead to the attainment of goals. The goals and objectives serve as a foundation used to guide the planning process. They can also be used to rate the merits of alternative plans.

The following goals and objectives were developed based on the planning team's master planning experience and the discussion of issues at the first TAC meeting.

The overriding goal of the Cable Land Company is to serve the aviation community, meeting FAA design standards as much as is feasible, perpetuating the business enterprise of the airport, and considering the surrounding community. As a private corporation, the airport sponsor does not have a general fund or other source of money to subsidize airport operations. Therefore, it is imperative that funds are carefully invested into improving the airport and aviation services while allowing the corporation to maintain financially sustenance, ultimately enabling the airport to remain open to the public. Goals listed below all serve to support this primary and overriding goal while realizing all funding has to come from the airport itself.

GOAL NO. 1 – Function: The airport should accommodate based aircraft owners, recreational users, business aviation, and needs of existing and anticipated tenants.

Objectives:

1. Provide through planning, an orderly and timely development of facilities adequate to meet future air transportation needs.
2. Develop the role of the airport in terms of its specific capabilities and demand.
3. Accommodate those classes of general aviation aircraft operations consistent with the airport role.
4. The plan should be expandable and flexible.

Table 1-1
AIRPORT VISIONING SURVEY RESULTS

Airport Role (Types of Use)	Future Importance		
	Limited Importance	Somewhat Important	Very Important
Personal / Recreational		2	5
Pilot Training		3	4
Business / Corporate	1	3	2
Government (Law Enforcement, etc.)	1	1	5
Emergency / Medical Transport		1	6
Future Charter / Commercial Flights	4	2	1

Growth in Airport Activity	Expected Growth		
	Little Growth	Moderate Growth	High Growth
Based Aircraft	3	4	
Takeoffs and Landings	1	6	
Flight Instruction	1	6	
Special Events	3	4	
Future Charter / Commercial Flights	6	1	

Airport Services and Facilities	Future Needs		
	Limited Importance	Somewhat Important	Very Important
Additional T-hangars (42' wide by 34' deep)	1	1	3
Small Box Hangars (less than 45' wide)	1	3	1
Large Box Hangars (45' wide or greater)	2	2	1
Additional Tie-downs	2	3	
Additional Transient Parking	1	4	
Pavement Resurfacing		2	5
AWOS / SuperAWOS	1	1	2
Expanded Security Program	2	1	3
Pilot Shop	2	3	
Pilot Lounge	2	3	
Flight Planning Area		5	
Meeting / Waiting Area		5	1
NAVAIDS / Instrument Approach / Visual Aids		3	3
FBO Services	1	1	4
Flight Instruction		2	4
Aircraft Maintenance		3	3
Aircraft Fueling		2	4
Café		2	5
Historic Preservation / Museum		4	3

Unique or Other Services you feel the Airport is well positioned to provide?
- Area for community events
- Platform or center for catastrophic emergency
- Business hub for aviation and non-aviation users
- Recreation or flying for non-pilot public
- A base for more emergency operations – helicopter rescues, fire fighting

Table 1-1 (cont'd)
AIRPORT VISIONING SURVEY RESULTS

What do you see as the main challenges and opportunities for the airport?
- Encroachment into safety zones
- Noise impacts
- Provides an area that has and will continue to provide for Boy Scouts, Civil Air Patrol and emergency services
- One challenge is to maintain a viable airport but yet be compatible with future growth in the City
- Increased intensification of surrounding urban area
- Controlling noise
- Accident prevention
- Proximity to adjacent development
- Keeping air traffic under control to the extent they can – as it relates to existing and proposed uses
- Safety of residential near or adjacent to airport landing path (east of Benson)
- Future encroachment by surrounding community
- Meeting of current design standards; acquiring lands to meet these standards, i.e. RPZ or safety requirements – fee or avigation easements

Other thoughts/comments?
- Airport has the potential to become venue for public events. If land south of airport could be purchased, a city "convention center" type arena could be built boosting not only airport operations but City revenue.
- Provide updated information on airport to surrounding cities to incorporate into their specific plans; lands that meet compatibility surrounding the airport.
- Be in contact with city planners to know what is coming that the airport may need to be aware of.

Source: AECOM analysis.

GOAL NO. 2 – Safety: The operation of the airport related to all aspects of air transportation for the users, operators, and general public should be safe.

Objectives:

1. Minimize exposure to risk.
2. Conformance with FAA regulations and airport design standards to the extent practicable.
   - FAA Advisory Circular 150/5300-13, Airport Design (latest version)
   - FAR Part 77, Objects Affecting Navigable Airspace which forms the basis for zoning regulations to prevent obstructions to air navigation.

GOAL NO. 3 – Efficiency and Economy: The airport should maintain financial self-sustenance and promote economic development.

Objectives:

1. Maximize best possible use of existing facilities.
2. Make best use of airport property for aviation and related development through application of appropriate airport design standards.
3. Maximize the ability to implement the plan.
4. Consider use of property not needed to accommodate long-term aviation demand for other revenue producing uses.
5. Identify means of local funding requirements, including revenue from possible non-aviation uses of airport property.
6. Minimize costs to users and operators.

GOAL NO. 4 – Environment: The airport should be developed and operated with a minimum of adverse effects on the social and natural environment.

Objectives:

1. Develop new airport facilities and correct deficiencies in existing aviation facilities to conform to Federal and State environmental regulations.
2. Utilize green technologies to the extent practical and economical.

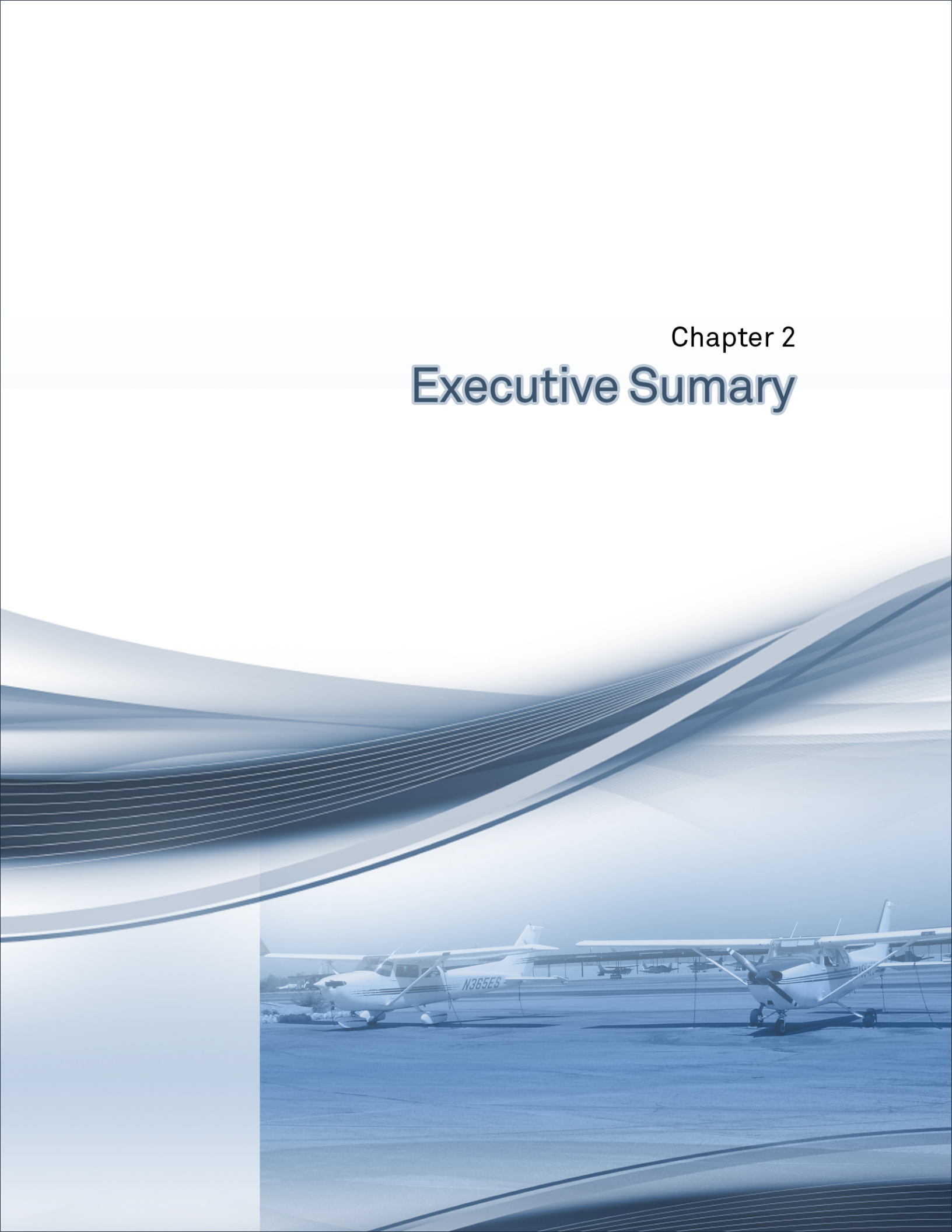
GOAL NO. 5 – Local Compatibility: The airport should be developed in agreement with proposed land use plans.

Objectives:

1. The plan should provide information for off-airport land use planning and control to facilitate updating of the City of Upland General Plan and assure compatibility with operations.

Chapter 2

Executive Sumary





Chapter 2
Executive Summary

INTRODUCTION

The findings, conclusions, and development recommendations of the master plan are highlighted in this executive summary. It should be noted that the development recommendations contained in this report are based upon projected traffic levels and attainment of these levels. It cannot be overemphasized that where development is recommended based upon demand or traffic levels, it is ***actual***, not forecast, demand that dictates the timing of construction. However, for planning purposes, a schedule must be provided and this schedule is based upon the development concept requirements and the forecasts of traffic presented in Chapter 4.

It is also important to point out that the schedule of improvements proposed in this plan is contingent upon the availability of Federal, Cable Land Company, and third party investment funds, and necessary environmental studies and documentation. While improvements will eventually be scheduled for specific years in this master plan, it must be remembered that it is the programming of the Airport Improvement Program by the FAA that will determine the timing of projects eligible for FAA funding assistance. Development projects at Cable Airport must be reconciled with the development priorities of other airports in the region. In terms of projects not eligible for FAA monies, the implementation will depend on the availability of Cable Land Company funds and other priorities. Thus, the implementation of the recommendations will depend upon FAA programming and funding availability, completion of required environmental studies and any applicable mitigation, as well as the attainment of the projected traffic levels.

The following subsections highlight the forecast of aviation demand, the findings of required facilities, along with the sequencing of development recommendations and a summary of capital costs. Details on the various master plan elements can be found in subsequent chapters of this report. Chapter 3 describes the existing airport and conditions. The forecast of aviation demand and the translation of the future demand into a list of required facilities can be found in Chapters 4 and 5, respectively. Chapter 6 documents alternatives that were considered, evaluation of the alternatives, and recommended alternative for Cable Airport. Chapter 7 shows proposed projects in their respective phases and the airport plans that were prepared. Cost and funding of the proposed projects is shown in Chapter 8 and an environmental overview of potential impacts these proposed projects may have is included in Chapter 9. A list of Technical Advisory Committee (TAC) members is included in Appendix A. To assist the reader, a glossary and list of abbreviations used in this report is contained in Appendix B. Appendix C contains a questionnaire that was distributed to owners of based aircraft and transient users at the airport. Appendix D contains the Cable Airport Aircraft Noise Technical Memorandum.

AIRPORT ROLE

The airport will continue to serve in its present role as a Reliever Airport and significant changes in this role

are not expected. The airport primarily serves small, personal use aircraft (single and twin engine), and helicopters. Therefore, the applicable airport reference code is B-I, small airplanes exclusively. Changes to the type of aircraft served are not expected.

FORECASTS OF AVIATION DEMAND

Aviation demand forecasts are projections of air traffic levels at an airport. In the case of Cable Airport, a general aviation airport, the forecasts focus on the number of aircraft based at the airport, and the number of operations (takeoffs and landings). A range of forecasts was prepared reflecting potential activity and are defined as Baseline, Low and High Growth scenarios.

Historical and projected based aircraft are graphically presented in Figure 2-1. The forecast of based aircraft (by aircraft type) is presented in Table 2-1 for the three forecast scenarios that were considered. A based aircraft is one that is permanently stationed at an airport, usually by some form of agreement between the aircraft owner and the airport management. This forecast value is useful in developing projections of aircraft activity, as well as determining future needs of certain airport elements. As seen, the number of based aircraft is projected to increase from present levels of 360 to 404 in the year 2030 of the Baseline Forecast; the High Growth Forecast projects 454; and the Low Growth Forecast projects 360 based aircraft. For the purposes of this master plan the Baseline Forecast was selected and used as the basis of facility planning and associated studies.

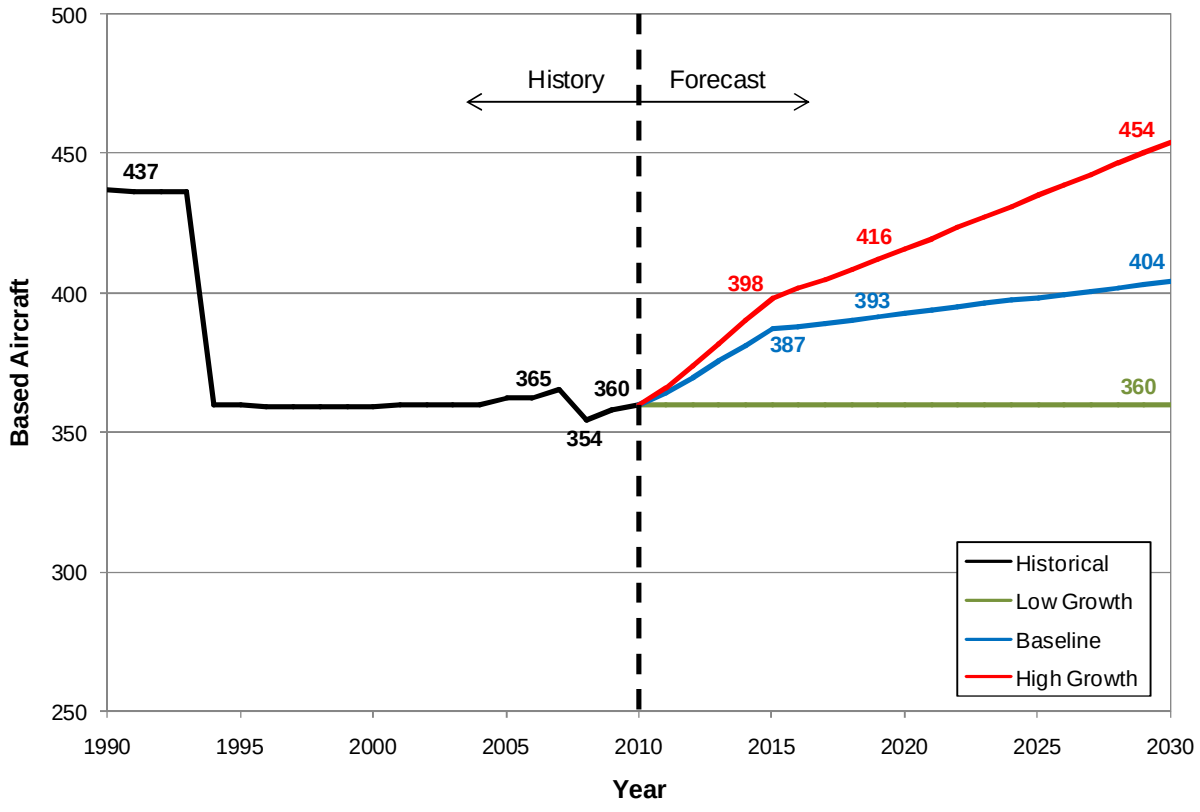


Figure 2-1
Historical and Forecast Based Aircraft

Baseline and High Growth scenarios include an allowance for based aircraft relocating from Rialto Municipal Airport. Rialto will close with capacity reallocated to San Bernardino International Airport. However, since San Bernardino is a towered, Part 139 airport, it is assumed that a percentage (approximately 25 percent) of recreational pilots will move to Cable instead of San Bernardino due to their proximity to Cable.

Table 2-1
BASED AIRCRAFT FORECAST – CABLE AIRPORT 2009-2030

		Forecast		
	Actual	**2015**	**2020**	**2030**
CMA	3,284	3,424	3,571	3,888
Cable Airport				
Low Growth	358	360	360	360
Baseline	358	387	393	404
High Growth	358	398	416	454
Cable % CMA				
Low Growth	10.9%	10.5%	10.1%	9.3%
Baseline	10.9%	11.3%	11.0%	10.4%
High Growth	10.9%	11.6%	11.6%	11.7%

Source: AECOM analysis.

Aircraft operations are projected to increase from present levels of approximately 41,200 to 103,300 by the year 2030 under the Baseline Forecast; 146,100 under the High Growth Forecast; and remain at 41,200 for the Low Growth Forecast. Itinerant operations are projected to be approximately 20 percent of total operations. Table 2-2 presents the forecast of annual aircraft operations due to their proximity to Cable.

Table 2-2
FORECAST AIRCRAFT OPERATIONS

Year	**Itinerant**	**Local**	**Total**
2009	8,200	32,800	41,000
Low Growth Forecast			
2015	8,200	33,000	41,200
2020	8,200	33,000	41,200
2030	8,200	33,000	41,200
Baseline Forecast			
2015	11,600	46,500	58,100
2020	14,600	58,200	72,800
2030	20,700	82,600	103,300
High Growth Forecast			
2015	13,300	53,000	66,300
2020	18,100	72,600	90,700
2030	29,200	116,900	146,100

Source: AECOM analysis.

DESIGN AIRCRAFT

Based on aircraft operations data gathered from May 2009 to April 2010, it was estimated that Cable Airport had approximately 41,000 operations. The break-down of aircraft by their airport reference code showed that Cable Airport serves predominantly aircraft classified as B-I, small airplanes exclusively. In addition, based aircraft located at Cable reflected a similar mix of small aircraft. These two factors lead to the conclusion that Cable Airport be categorized with an airport reference code of B-I, small airplanes exclusively for this master plan.

FACILITY REQUIREMENTS

Chapter 5 presents the projection of facility requirements deemed necessary to accommodate the Baseline Forecast of aviation demand through the year 2030. Listed below are the findings and conclusions of the analysis.

Airfield Capacity

- Hourly VFR and IFR capacity are 98 and 28 operations, respectively.
- Annual service volume is estimated to be 216,000 annual operations.
- Airfield (runway) capacity is sufficient to accommodate forecast operations.

Airfield Facility Requirements

- Based on data recorded at Ontario International Airport, the existing runway provides 99.53 percent coverage for a 10.5 knot (12 mph) crosswind which meets the FAA recommendation of 95 percent wind coverage. It is recommended that a full time weather station be installed at Cable Airport to confirm that a crosswind runway is not required, as Ontario International Airport has different predominant winds and meteorological conditions. However, it is noted that if needed, the current airport is unable to accommodate a crosswind runway.
- Runway safety area (RSA), runway obstacle free zone (OFZ), and runway object free area (ROFA) extend off airport property and are compromised by objects such as airport roads, public roads, and fences.
- Measures should be taken to keep runway protection zones (RPZs) that extend beyond airport property clear.
- The existing thresholds of Runways 6 and 24 are displaced 106 and 158 feet, respectively. Runway 6 has a landing length of 3,758 feet and Runway 24 has a landing length of 3,706 feet. Based on current FAA threshold siting criteria, the thresholds are properly located.
- FAA design standards require 150-foot separation from the runway centerline to taxiway centerline. Taxiways A and B are too close to the runway and should be moved to meet FAA requirements.
- Standard taxiway safety areas and taxiway object free areas are provided.
- Airfield signage should be expanded to include holding position signs, runway exit signs, taxiway designation signs, runway distance remaining signs, and location signs that have been removed.
- The building restriction line (BRL) is located 200 feet from the runway centerline on either side, compliant with FAA design standards.

Airspace and Navigational Aids

- It is recommended that an AWOS or SuperAWOS be installed at the airport. Preliminary locations for the AWOS wind sensor could include on the rotating beacon tower, Hangar 40, Hangar 42, and hangar buildings near the terminal building. A SuperAWOS can be installed on a fixed structure outside of the runway and taxiway object free areas.

Terminal and Support Area Requirements

- The existing terminal facilities should be expanded by approximately 2,350 square feet should operations increase as forecast. A total of approximately 5,000 square feet may be required should Baseline Forecast demand levels materialize.

- The existing aircraft parking apron is capable of meeting requirements for transient tie-downs through the year 2030. However, transient apron space should be allocated for special event parking, such as the annual Cable Air Show.

- Pavement conditions on the south apron are in poor condition and should be rehabilitated in the short-term.

- New individual hangars should be provided for based aircraft. Considering the Baseline Forecast, this results in the need for 41 new T-hangars or small box hangars. Furthermore, existing hangars that have deteriorated in condition should be replaced by new hangars.

- Large box hangar space is projected to increase by approximately 16,000 square feet to meet long-term requirements. The master plan should provide adequate space for additional large box hangars.

- Approximately 5,000 square feet of additional aircraft maintenance space should be provided should the Baseline Forecast be realized.

- Auto parking is adequate to accommodate the 133 parking spaces estimated to meet Baseline Forecast requirements. Currently there are 173 auto parking spaces available, which exceeds the forecast.

- Adequate space currently exists for anticipated airport maintenance facilities.

- The existing Avgas and Jet A fuel storage capacity is adequate for the master plan period.

Table 2-3 summarizes the terminal and support area requirements. As previously indicated, these are based on the Baseline Forecast.

Ground Access

- Two highways and local streets provide adequate ground access for Cable Airport's traffic needs.

Security

- Cable Airport currently meets or exceeds all recommended security measures and should continue to strive to meet security requirements to the extent practical.

Airport Land Requirements

- A small corner of the property bordering the airport on the south side in addition to a portion of the property north and west of the airport should be acquired to provide full safety areas and building restriction line clearances on airport property.

CONCEPT DEVELOPMENT

During the course of the master plan a technical report was developed which documented three airfield alternatives, three terminal alternatives, and an airside (hangar) alternative. Airfield concepts focused on

Table 2-3
SUMMARY OF TERMINAL AND SUPPORT AREA REQUIREMENTS

Item	Existing	2015	2020	2030	2030 Deficiency
GA Terminal (square feet)	2,670	2,820	3,550	5,020	2,350
Transient Apron (number of aircraft/area in square yards)					
Single engine/Multi-engine	16/5,340	5/1,825	8/2,725	12/3,925	0
Turboprops/Business jets	0 acft.	0	0	0	0
T-hangars and Small Box Hangars (spaces)	358	381	386	395	41
Large Box Hangar Space (square feet)	90,400	92,020	95,260	106,240	15,840
Based Aircraft Tie-downs (number of aircraft)	66	0	0	0	0
Auto Parking (spaces)	173	75	94	133	0
Fuel Storage (gallons)					
Avgas 100LL	12,000	12,000	12,000	12,000	0
Jet A	12,000	12,000	12,000	12,000	0
Aircraft Maintenance	35,750	38,550	39,150	40,340	4,590
Airport Maintenance	22,200	22,200	22,200	22,200	0

Source: AECOM.

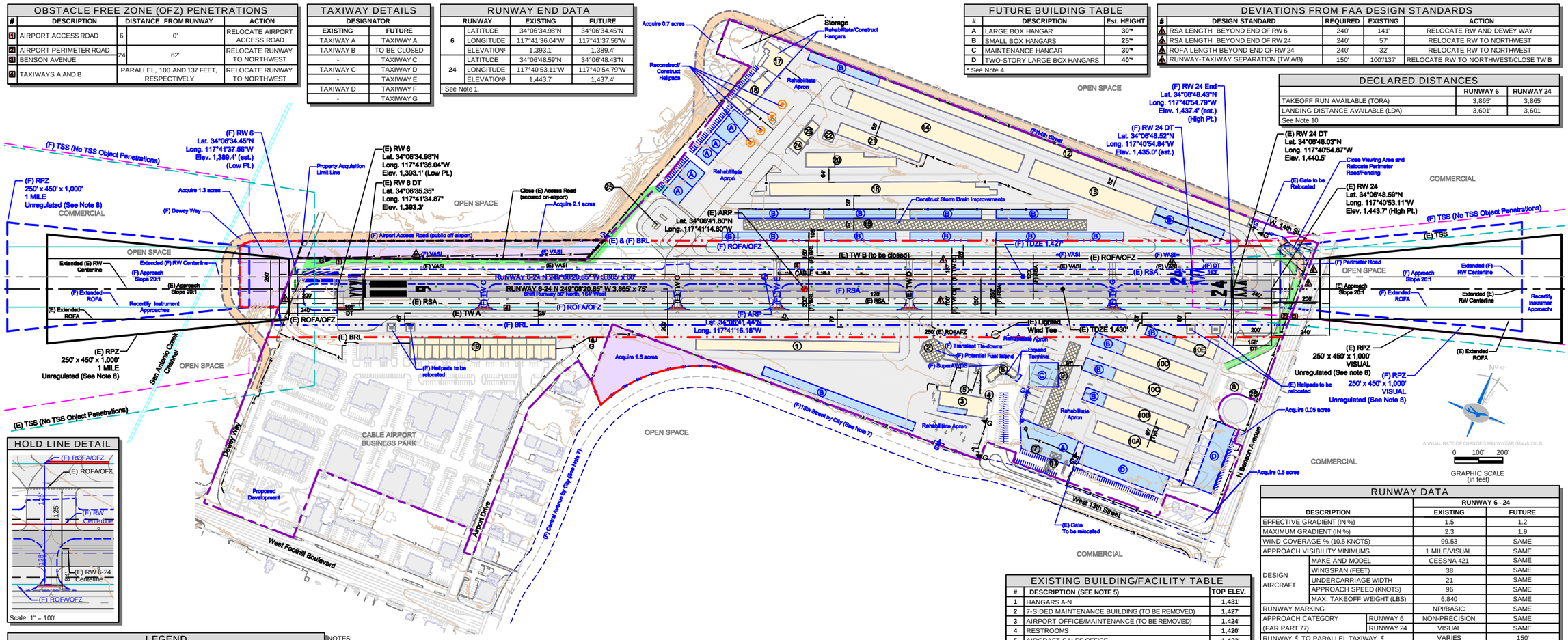
improving runway safety area conditions while maximizing the landing length of the runway. The recommended terminal alternative is a combination of the most beneficial aspects of all three terminal alternatives and focuses on meeting forecast demand. The airside (hangar) alternative incorporates planned projects and includes proposed hangar locations to meet forecast demand.

The airfield, terminal, and airside development concepts were combined to form the basis of the Airport Layout Plan (ALP). The ALP is depicted on Figure 2-2 and presents the overall development concept plan for Cable Airport as recommended in the master plan. This plan was based on the recommended development concept defined in Chapter 6 and input from the airport and TAC members. Key recommendations are as follows:

- The centerline of Runway 6-24 will be shifted north by 50 feet and translated 164 feet west. This shift and translation provides standard runway-taxiway separation from the Taxiway A and increases the full landing length of the runway.
- Taxiway A will be extended to serve the full length of the new runway location.
- Taxiway B will be closed.
- The Airport Access Road and Dewey Way will be relocated to provide full safety areas on the Runway 6 end.
- The Perimeter Road will be relocated to improve safety conditions on the Runway 24 end.
- The viewing area will be closed or relocated.
- The 14th Street gate will be reconfigured.
- The terminal and an FBO hangar in the terminal area will be expanded.
- Land will be acquired to provide for enhanced safety areas.
- Facilities such as new hangars and maintenance facilities will be constructed based on demand.
- The seven-side maintenance hangar, shade hangars, and T-hangars will be removed.
- Provide an aircraft sales office to relieve congestion near the restaurant.

AIRPORT PLANS

The master plan includes a set of airport plans including the Airport Layout Plan (ALP), Airport Airspace Drawing, Inner Portion of the Approach Surface Plan, On-Airport Land Use Plan, and Exhibit "A" – Property Map. A reduced version of the ALP is depicted in Figure 2-2. Reduced versions of the drawings are presented in Chapter 7 – Airport Plans.



OBSTACLE FREE ZONE (OFZ) PENETRATIONS

#	DESCRIPTION	DISTANCE FROM RUNWAY		ACTION
1	AIRPORT ACCESS ROAD	6	0'	RELOCATE AIRPORT ACCESS ROAD
2	AIRPORT PERIMETER ROAD	24	62'	RELOCATE RUNWAY TO NORTHWEST
3	BENSON AVENUE			
4	TAXIWAYS A AND B		PARALLEL, 100 AND 137 FEET, RESPECTIVELY	RELOCATE RUNWAY TO NORTHWEST

TAXIWAY DETAILS

DESIGNATOR	
EXISTING	FUTURE
TAXIWAY A	TAXIWAY A
TAXIWAY B	TO BE CLOSED
-	TAXIWAY C
TAXIWAY C	TAXIWAY D
-	TAXIWAY E
TAXIWAY D	TAXIWAY F
-	TAXIWAY G

RUNWAY END DATA

RUNWAY	EXISTING	FUTURE
6	LATITUDE	34°06'34.98"N	34°06'34.45"N
	LONGITUDE	117°41'36.04"W	117°41'37.56"W
	ELEVATION[1]	1,393.1'	1,389.4'
24	LATITUDE	34°06'48.59"N	34°06'48.43"N
	LONGITUDE	117°40'53.11"W	117°40'54.79"W
	ELEVATION[1]	1,443.7'	1,437.4'

[1] See Note 1.

FUTURE BUILDING TABLE

#	DESCRIPTION	Est. HEIGHT
A	LARGE BOX HANGAR	30'*
B	SMALL BOX HANGARS	25'*
C	MAINTENANCE HANGAR	30'*
D	TWO-STORY LARGE BOX HANGARS	40'*

* See Note 4.

DEVIATIONS FROM FAA DESIGN STANDARDS

#	DESIGN STANDARD	REQUIRED	EXISTING	ACTION
⚠	RSA LENGTH BEYOND END OF RW 6	240'	141'	RELOCATE RW AND DEWEY WAY
⚠	RSA LENGTH BEYOND END OF RW 24	240'	57'	RELOCATE RW TO NORTHWEST
⚠	ROFA LENGTH BEYOND END OF RW 24	240'	32'	RELOCATE RW TO NORTHWEST
⚠	RUNWAY-TAXIWAY SEPARATION (TW A/B)	150'	100'/137'	RELOCATE RW TO NORTHWEST/CLOSE TW B

DECLARED DISTANCES

	RUNWAY 6	RUNWAY 24
TAKEOFF RUN AVAILABLE (TORA)	3,865'	3,865'
LANDING DISTANCE AVAILABLE (LDA)	3,601'	3,601'
See Note 10.		

HOLD LINE DETAIL

Scale: 1" = 100'

LEGEND

DESCRIPTION	EXISTING	FUTURE
AIRPORT BOUNDARY		
AIRFIELD PAVEMENT (RW/TW AND APRON)		
BUILDING RESTRICTION LINE (BRL)		
FUTURE LAND TO BE ACQUIRED	NONE	
ULTIMATE LAND TO BE ACQUIRED	NONE	
RUNWAY OBJECT FREE AREA (ROFA)/ OBSTACLE FREE ZONE (OFZ)		
RUNWAY SAFETY AREA (RSA)		
RUNWAY PROTECTION ZONE (RPZ)		
BUILDINGS		
BUILDINGS TO BE REMOVED	NONE	
GROUND CONTOURS		SAME
AIRPORT REFERENCE POINT (ARP)		
THRESHOLD SITING SURFACE		
ON-AIRPORT FENCE		
ROAD		
SECURED ON-AIRPORT ROAD		
ROTATING BEACON		
MONUMENT		SAME
HOLDLINE		
RUNWAY LIGHTS		
RUNWAY END THRESHOLD LIGHTS		
HELIPORTS/HELIPADS		
LIGHTED WINDSOCK		SAME

NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88 feet above MSL.
2. There are no Threshold Siting Surface (TSS) penetrations.
3. Hangar layouts shown are conceptual to depict potential future capacities. Future configurations will be determined based on demand and final design.
4. All future elevations are estimated.
5. Building heights have been estimated using non-survey techniques. Top elevations should be verified using survey methods.
6. Monument protection is unknown.
7. As depicted on the City of Upland General Plan.
8. Runway 24 RPZ is over an area that is proposed to be a secured detention pond that inhibits public access according to the City of Upland. Runway 6 RPZ is over open space and commercial areas. No changes in land uses in these areas are anticipated.
9. Section corners are located at the intersections of Foothill Boulevard and Benson Avenue and Foothill Boulevard and Monte Vista Avenue. See Sheet 6 for locations.
10. Declared distances are applied to the existing runway and will not be applied to the future runway. FAA approval is required.
11. The change to the runway location will require an amendment to the current Instrument Flight Procedures. The ADO will need to contact the Flight Procedures Office to coordinate the desired publication date and any changes to that date.
12. Object existence was verified through a field visit. These object elevations are estimated. A survey is required prior to the runway relocation and threshold siting.

AIRPORT DATA

DESCRIPTION		EXISTING	FUTURE
AIRPORT ELEVATION (MSL)		1,444'	1,437'
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	34°06'41.80"N	34°06'41.44"N
	LONGITUDE	117°41'14.60"W	117°41'16.18"W
NAVAIDS (i.e. ILS, BEACON)		BEACON/GPS	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		92.4° (July)	SAME
AIRPORT REFERENCE CODE		B-I, SMALL	SAME
GPS AT AIRPORT		YES	SAME

FAA APPROVAL

Approved conditionally _____ MAY – 8 2012

Subject to comments contained in our letter dated: MAY – 8 2012

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By _____
Manager - LAX/ADO

EXISTING BUILDING/FACILITY TABLE

#	DESCRIPTION (SEE NOTE 5)	TOP ELEV.
1	HANGARS A-N	1,431'
2	7-SIDED MAINTENANCE BUILDING (TO BE REMOVED)	1,427'
3	AIRPORT OFFICE/MAINTENANCE (TO BE REMOVED)	1,424'
4	RESTROOMS	1,420'
5	AIRCRAFT SALES OFFICE	1,423'
6	TERMINAL BUILDING	1,451'
7	FLIGHT SCHOOL ANNEX (TO BE REMOVED)	1,412'
8	CIVIL AIR PATROL	1,434'
9	HANGARS 401-419 (TO BE REMOVED)	1,429'
10A	HANGARS 1-16	1,425'
10B	HANGARS 17-32	1,430'
10C	HANGARS 33-48	1,430'
10D	HANGARS 49-64	1,435'
10E	HANGARS 65-69	1,440'
11	CAF BUILDINGS (TO BE REMOVED)	1,412'
12	HANGARS 200-238	1,458'
13	HANGARS 239-269	1,458'
14	HANGARS 270-277	1,458'
15	OPEN HANGARS 80-149 (TO BE REMOVED)	1,451'
16	HANGARS 150-199	1,454'
17	HANGAR 40 - UPHOLSTERY SHOP	1,458'
18	HANGAR 42 - PAINT SHOP	1,465'
19	HANGARS Q-Z	1,415'
20	HANGARS 308-314	1,465'
21	HANGARS 301-307	1,465'
22	HANGAR 300	1,460'
23	HANGARS 315-316	1,457'
24	COVERED WASH RACK	1,453'
25	FUEL SELF SERVICE ISLAND AND RESTROOM	1,424'
26	BOY SCOUTS OF AMERICA BUILDING	1,437'

RUNWAY DATA

DESCRIPTION		RUNWAY 6 - 24 EXISTING	RUNWAY 6 - 24 FUTURE
EFFECTIVE GRADIENT (IN %)		1.5	1.2
MAXIMUM GRADIENT (IN %)		2.3	1.9
WIND COVERAGE % (10.5 KNOTS)		99.53	SAME
APPROACH VISIBILITY MINIMUMS		1 MILE/VISUAL	SAME
DESIGN AIRCRAFT	MAKE AND MODEL	CESSNA 421	SAME
	WINGSPAN (FEET)	38	SAME
	UNDERCARRIAGE WIDTH	21	SAME
	APPROACH SPEED (KNOTS)	96	SAME
	MAX. TAKEOFF WEIGHT (LBS)	6,840	SAME
RUNWAY MARKING		NPI/BASIC	SAME
APPROACH CATEGORY (FAR PART 77)	RUNWAY 6	NON-PRECISION	SAME
	RUNWAY 24	VISUAL	SAME
RUNWAY ℄ TO PARALLEL TAXIWAY ℄		VARIES	150'
TAXIWAY ℄ TO FIXED OR MOVABLE OBJECT		44.5'	SAME
TAXIWAY OBJECT FREE AREA WIDTH		89'	SAME
TAXIWAY SAFETY AREA WIDTH		49'	SAME
TAXIWAY WINGTIP CLEARANCE		20'	SAME
RUNWAY ELEVATIONS (NAVD 88) (See Note 4)	TOUCHDOWN ZONE (TDZ)	1,430'/NONE	1,427'/NONE
	HIGH POINT	1,443.7'	1,437.4'
	LOW POINT	1,393.1'	1,389.4'
	END POINT (RUNWAY 6/24)	1,393.1'/1,443.7'	1,389.4'/1,437.4'
LINE OF SIGHT REQUIREMENT MET		YES	SAME
RUNWAY LENGTH		3,865'	SAME
RUNWAY WIDTH		75'	60'
RUNWAY/TAXIWAY PAVEMENT MATERIAL		ASPHALT	SAME
APPROACH SLOPE		20:1	SAME
PAVEMENT STRENGTH (S/D/DT) (000 LBS)		12.5	SAME
RUNWAY LIGHTING		MIRL	SAME
NAVIGATIONAL AIDS		BEACON/GPS	SAME
VISUAL AIDS		VASI/BEACON	SAME
RUNWAY SAFETY AREA	LENGTH[1]	141'/57'	240'
	WIDTH	120'	SAME
RUNWAY OBJECT FREE AREA	LENGTH[1]	141'/32'	213'/240'
	WIDTH	250'	SAME
OBSTACLE FREE ZONE	LENGTH[1]	141'/32'	200'
	WIDTH	250'	SAME
RUNWAY CENTERLINE TO HOLD LINE		VARIES	125'

[1]Length beyond stop end of runway

Figure 2-2
Airport Layout Plan

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COST AND FUNDING CONSIDERATIONS

Implementation of the recommended development plan will require the expenditure of approximately $66 million during the 20-year planning period. The master plan capital improvement program will be funded from various sources including the FAA, airport revenues, and third-party investments. Table 2-4 lists the proposed projects and Table 2-5 summarizes the program cost and funding sources.

Table 2-4
SUMMARY OF RECOMMENDED IMPROVEMENTS

Project	Timing
Phase 1 (2011 - 2015)	
1 Acquire Bongiovanni Property - 1.6 Acres	2011
2 Install SuperAWOS	2011
3 Acquire Holliday Rock Property - 2.1 acres	2011
4 Close Taxiway B and Apply Declared Distances	2012
5 Remove Shade Hangars	2012
6 Relocate Airport Access Road	2012
7 Construct Individual Hangars	2013
8 Remove T-Hangars	2013
9 Construct Maintenance Hangar	2014
10 Remove Maintenance Hangar	2015
11 Construct Large Box Hangar	2015
Phase 2 (2016 - 2020)	
12 Relocate Helipad on North and Rehabilitate Apron	2016
13 Construct Individual Hangars	2017
14 Expand Terminal	2018
15 Reconfigure 14th Street Entrance and Relocate Perimeter Road	2020
16 Relocate Transient Tie-downs	2020
Phase 3 (2021 - 2030)	
17 Construct Large Box Hangars	Long-Term
18 Expand FBO Hangar	Long-Term
19 Demolish Terminal Area Buildings	Long-Term
20 Construct Large Box Hangar and Relocate Airport Beacon	Long-Term
21 Expand Terminal Auto Parking	Long-Term
22 Acquire Holliday Rock Property - 1.3 Acres	Long-Term
23 Relocate Dewey Way	Long-Term
24 Translate and Relocate Runway and Taxiways	Long-Term
25 Recertify Approaches	Long-Term
26 Construct Individual Hangars	Long-Term
27 Construct Additional Large Box Hangars	Long-Term/As needed
28 Acquire Additional Land - 1.3 acres (Total)	Long-Term/As needed
29 Construct North Side Road	Long-Term/As needed
30 Construct Benson Hangar	Long-Term/As needed
31 Rehabilitate or Reconstruct Hangars 40 and 42	Long-Term/As needed

Source: AECOM analysis.

Table 2-5
SUMMARY OF CAPITAL IMPROVEMENT COSTS
(thousands of 2011 dollars)

	Public	Private			
Phase	**FAA**	**Airport**	**Third Party**	**Total**	**% Total**
1 (2010 - 2015)	$ 6,634,882	$ 1,092,409	$ 18,381,697	$ 26,108,988	39.6%
2 (2016 - 2020)	$ 717,682	$ 191,993	$ 649,500	$ 1,559,175	2.4%
3 (2021 - 2030)	$ 6,380,361	$ 1,299,179	$ 9,483,000	$ 17,162,540	26.0%
As needed	$ 390,019	$ 4,550,189	$ 16,234,617	$ 21,174,825	32.1%
Total	$ 14,122,944	$ 7,133,770	$ 44,748,814	$ 66,005,528	100.0%
% Total	21.4%	10.8%	67.8%	100.0%	

Source: AECOM analysis.

As seen in Table 2-5, $14.1 million, or 21 percent, of the program is funded through FAA grants. Third-party investments account for 68 percent or $44.7 million of the program cost. The airport will fund $7.1 million (11 percent).

Phase 1 costs account for approximately 40 percent of the total program and includes 3.7 acres of land acquisition; construction of individual, box, and maintenance hangars; and the relocation of the Airport Access Road. Phase 2 costs include approximately $1.6 million (approximately 2 percent) and include costs for individual hangar construction, terminal expansion, transient tie-down relocation, reconfiguration of the 14th Street entrance, relocation of the Perimeter Road outside of safety areas, and relocation of helipads to the north. The largest phase is Phase 3, which accounts for 58 percent of total costs ($38 million). The main costs in Phase 3 are hangar construction, the runway and taxiway translation and shift, and land acquisition.

It was assumed that all projects that are eligible for FAA funding will receive 90 percent funding from the FAA. Figure 2-3 graphically depicts the location of the recommended improvement projects in each of the three development phases. Project costs, along with the airport's share of funding sources of projects are also illustrated on the figure.

ENVIRONMENTAL OVERVIEW

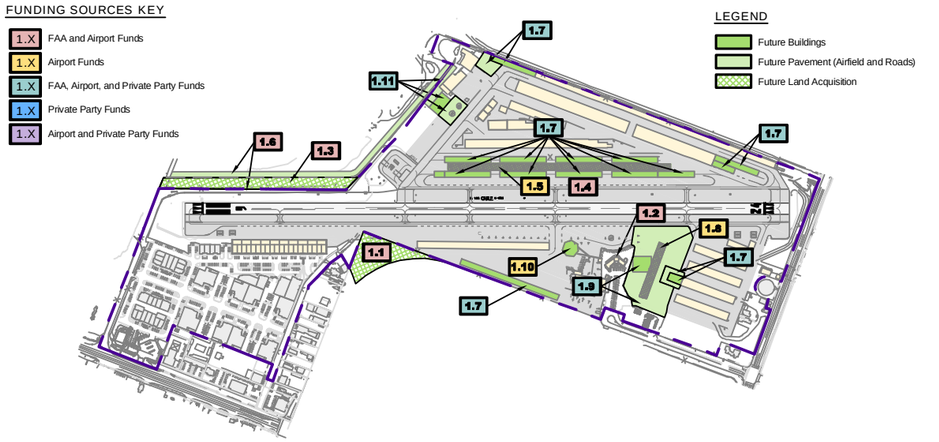
Environmental analysis in this study involved the preparation of an environmental overview contained in Chapter 9 of this report. Further studies are recommended and may be addressed as part of the project implementation. Additional recommendations were made for land acquisition projects.

Recommendations for Overall Project

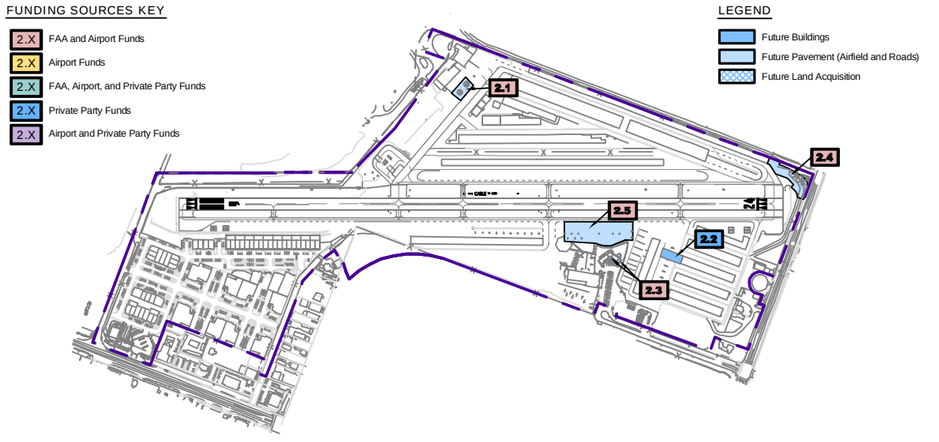
Additional analyses are recommended concerning:

- Potential violation air quality standards during construction
- Solid waste
- Potential water quality impacts due to construction and operation activities
- Identification of approved projects within the vicinity of the project site, is recommended to assess potential cumulative impacts

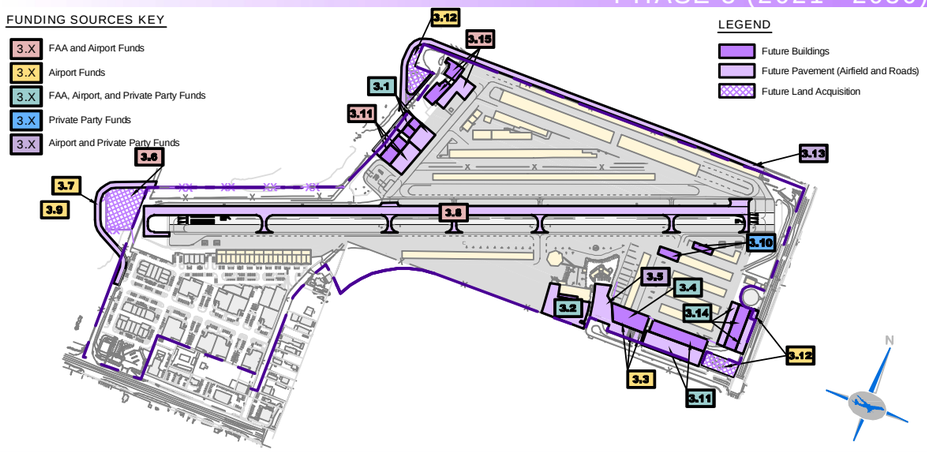
PHASE 1 (2010 - 2015)



PHASE 2 (2016 - 2020)



PHASE 3 (2021 - 2030)



	Project	Airport Cost	Project Cost	Timing
	Phase 1 (2011 - 2015)			
1.1	Acquire Bongiovanni Property - 1.6 Acres	$ 165,303	$ 1,653,025	2011
1.2	Install SuperAWOS	$ 6,000	$ 60,000	2011
1.3	Acquire Holliday Rock Property - 2.1 acres	$ 210,395	$ 2,103,948	2011
1.4	Close Taxiway B and Apply Declared Distances	$ 26,707	$ 267,065	2012
1.5	Remove Shade Hangars	$ 228,500	$ 228,500	2012
1.6	Relocate Airport Access Road	$ 127,865	$ 1,278,650	2012
1.7	Construct Individual Hangars	$ 90,457	$ 16,347,500	2013
1.8	Remove T-Hangars	$ 81,700	$ 81,700	2013
1.9	Construct Maintenance Hangar	$ 68,296	$ 2,345,600	2014
1.10	Remove Maintenance Hangar	$ 45,000	$ 45,000	2015
1.11	Construct Large Box Hangar	$ 42,187	$ 1,698,000	2015
	Phase 1 Total	**$ 1,092,409**	**$ 26,108,988**	
	Phase 2 (2016 - 2020)			
2.1	Relocate Helipad on North and Rehabilitate Apron	$ 16,480	$ 164,800	2016
2.2	Construct Individual Hangars	$ 649,500	$ 649,500	2017
2.3	Expand Terminal	$ 103,800	$ 303,800	2018
2.4	Reconfigure 14th Street Entrance and Relocate Perimeter Road	$ 44,028	$ 164,225	2020
2.5	Relocate Transient Tie-downs	$ 27,685	$ 276,850	2020
	Phase 2 Total	**$ 841,493**	**$ 1,559,175**	
	Phase 3 (2021-2030)			
3.1	Construct Large Box Hangars	$ 8,063	$ 1,152,700	Long-Term
3.2	Expand FBO Hangar	$ 20,268	$ 560,000	Long-Term
3.3	Demolish Terminal Area Buildings	$ 26,800	$ 26,800	Long-Term
3.4	Construct Large Box Hangar and Relocate Airport Beacon	$ 6,890,787	$ 6,958,295	Long-Term
3.5	Expand Terminal Auto Parking	$ 68,950	$ 137,900	Long-Term
3.6	Acquire Holliday Rock Property - 1.3 Acres	$ 142,202	$ 1,422,020	Long-Term
3.7	Relocate Dewey Way	$ 479,500	$ 479,500	Long-Term
3.8	Translate and Relocate Runway and Taxiways	$ 531,645	$ 5,316,450	Long-Term
3.9	Recertify Approaches	$ 15,000	$ 15,000	Long-Term
3.10	Construct Individual Hangars	$ 1,093,875	$ 1,093,875	Long-Term
3.11	Construct Additional Large Box Hangars	$ 17,243	$ 9,914,270	Long-Term/As needed
3.12	Acquire Additional Land - 1.3 acres (Total)	$ 1,302,600	$ 1,302,600	Long-Term/As needed
3.13	Construct North Side Road	$ 436,300	$ 872,600	Long-Term/As needed
3.14	Construct Benson Hangar	$ 1,050	$ 6,066,980	Long-Term/As needed
3.15	Rehabilitate or Reconstruct Hangars 40 and 42	$ 2,792,996	$ 3,018,375	Long-Term/As needed
	Phase 3 Total	**$ 13,827,279**	**$ 38,337,365**	
	Total All Phases	**$ 15,761,181**	**$ 66,005,528**	

Figure 2-3
Master Plan Improvements

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It is also recommended that public service and utility providers be contacted to determine whether the future demand can be met by existing and/or planned service facilities. Further actions are anticipated which will require an Initial Study (IS) be prepared pursuant to the California Environmental Quality Act (CEQA). The IS can be prepared concurrently or jointly with the applicable National Environmental Policy Act (NEPA) documents – anticipated to be an Environmental Assessment (EA). The NEPA and/or CEQA documentation will be prepared according to FAA and City of Upland standards and regulations.

Recommendations for Land Acquired

Two field surveys are recommended. One for land acquisitions including undisturbed land to the north and west of the airport to determine the presence/absence of State and federally-listed species. The second field survey should locate wetlands within the project site and determine if there are potential jurisdictional areas.

It is also recommended that a historic and cultural resources database search be conducted to establish what, if any, archaeological, paleontological, historic or cultural resources of value exist on the project site. This kind of search should also be conducted to determine if there are any hazardous materials sites (and their status) relative to the project site. Furthermore, two analyses are recommended to determine the potential loss of mineral resources on the project site and to address the acquired property located north, west, and south of the airport which is incompatible and not designated or zoned for airport use. It should be noted that the City of Upland General Plan is currently being updated along with the Airport Land Use Plan (ALUP).

PUBLIC AND FAA INVOLVEMENT

In addition to the technical advisory committee meetings, a public meeting was held on November 16, 2010 and meetings with the FAA on November 18, 2010 and February 24, 2011. The FAA's and the public's comments were considered when creating this master plan.

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Chapter 3

Inventory





Chapter 3
Inventory

INTRODUCTION

This chapter documented the number, type, and general condition of the existing facilities that comprise Cable Airport (CCB). It is a complete compilation of all systems, including airfield, terminal area, ground access, parking, NAVAIDS, pavement conditions, utilities, and the physical characteristics of the airport site.

A comprehensive inventory of existing facilities was made to assess their capacity to accommodate future traffic volumes. By comparing the capacity of existing facilities with future traffic volumes (demand/capacity analysis), capacity deficiencies can be determined. Once the deficiencies were identified, alternative expansion concepts (capable of accommodating future demand) were formulated, evaluated, and ultimately, a recommended development program formulated.

The following sections document the findings of the facility inventory work including a description of the study area.

STUDY AREA CHARACTERISTICS

The study area for general aviation services that has been adopted for the development of demand forecasts in the master plan is described in Chapter 4. Cable Airport is located approximately three miles northwest of downtown Upland. The airport is located along the western San Bernardino County border, adjacent to Los Angeles County. The study area includes portions of San Bernardino, Los Angeles, Orange, and Riverside Counties.

The competitive market area (CMA) boundary is defined by census boundaries that include airports within the CMA. There are 13 airports within the CMA, including: Brackett Field, Chino, Corona Municipal, El Monte, Flabob, Fullerton Municipal, John Wayne – Orange County, March ARB, Ontario International, Redlands Municipal, Rialto Municipal (scheduled to close within the planning period), Riverside Municipal, and San Bernardino International. Notable cities included within the CMA are: Anaheim, Corona, Fontana, Fullerton, Orange, Riverside, San Bernardino, Santa Ana, and West Covina.

Figure 3-1 depicts the study area along with the publicly owned airports in the vicinity of Cable. The airport is approximately 5 miles northwest of Ontario, 37 miles east of the Los Angeles, and 96 miles north of San Diego. The City of Upland represents approximately 4 percent of the total population of San Bernardino County.[1] Historical population for the San Bernardino, Riverside, Orange, and Los Angeles Counties is shown in Table 3-1.

[1] US Census www.census.gov (2010).



Figure 3-1
Cable Airport
Study Area

Table 3-1
HISTORICAL POPULATION

Year	Upland	San Bernardino County	Riverside County	Orange County	Los Angeles County	Four County Total
1900	N/A	27,929	17,897	19,696	170,298	235,820
1910	2,384	56,706	34,696	34,436	504,131	629,969
1920	2,912	73,401	50,297	61,375	936,455	1,121,528
1930	4,713	133,900	81,024	118,674	2,208,492	2,542,090
1940	6,316	161,108	105,524	130,760	2,785,643	3,183,035
1950	9,203	281,642	170,046	216,224	4,151,687	4,819,599
1960	15,918	503,591	306,191	703,925	6,038,771	7,552,478
1970	32,551	684,072	459,074	1,420,386	7,032,075	9,595,607
1980	47,647	895,016	663,166	1,932,709	7,477,503	10,968,394
1990	63,374	1,418,380	1,170,413	2,410,556	8,863,164	13,862,513
2000	68,393	1,709,434	1,545,387	2,846,289	9,519,338	15,620,448
2009	N/A	2,017,673	2,125,440	3,026,786	9,848,011	17,017,910

N/A – not available.
Source: California Census Bureau.

The population of San Bernardino County has increased from a low of approximately 5 percent of the four county population in 1940 to almost 12 percent in 2009. Between 1970 and 2009 San Bernardino experienced a population growth on average, of approximately 3 percent per year. This is a higher than the overall growth of approximately 2 percent for the four county area. In addition, the City of Upland has had an average growth rate of approximately 3.7 percent per year between 1970 and 2000. Population data for the City of Upland (year 2009) was not available. However, in 2006, Upland had a population of 73,379 per the California Census Bureau, which indicates an average growth of approximately 1.2 percent per year from 2000 to 2006.

Cable Airport can be accessed by U.S. Interstate 10 or State Highway 210, both east/west freeways. West 13th Street serves as the airport entrance road from the local street network. Primary access to the airport is from North Benson Avenue to West 13th Street. The airport can be accessed from Highway 210 by exiting at North Mountain Avenue, or East Baseline Road. Similarly, both the Central and Mountain Avenue exits on Interstate 10 can be used to access the airport. Cable Airport's location with respect to freeways and surrounding communities is shown on Figure 3-2.

AIRPORT HISTORY

Dewey Cable purchased 60 acres in 1944. By the end of 1946, when he held his first open house, he had constructed Runways 1-19 (1,200 feet) and 6-24 (2,000 feet), built the main terminal building, and erected a seven-sided maintenance building. In 1947 he named the airport "Cable-Claremont". In 1966 the airport was annexed to the City of Upland and the name changed to Cable Airport. By 1974 Dewey had built 176 hangars, extended Runway 6-24 to 3,600 feet and had 255 based aircraft.

In 1981 the Cable Airport Master Plan was approved by the City of Upland and the Cable Airport Comprehensive Airport Land Use Plan was adopted by the West Valley Airport Land Use Commission.

By 1981 the FAA had installed VASIs (visual approach slope indicators) at both ends of Runway 6-24, giving pilots a visual guide for their approach to the runway.



Figure 3-2
Cable Airport Location

Cable became the first privately-owned airport in California to receive money from the Aviation Trust Fund in 1985. These funds are generated by aviation fuel taxes and airline ticket taxes and are given to airports as grants for non-income producing improvements. This master plan is the 12th project funded by the FAA. Other projects completed include installing two looped water mains, a storm drain system that prevents most of the water falling on the airport from flowing onto City streets, repaving of the runways and taxiways, and the installation of a pilot-controlled runway lighting system. The funds are granted with the airport paying 10 percent and the FAA furnishing 90 percent. So far, the airport has received nearly $5.3 million in assistance from the FAA. Acceptance of FAA grant money obligates the airport sponsor to uphold specific provisions and assurances.

A self-serve fuel island with two 12,000-gallon above ground tanks and restrooms were installed in 1997 and a covered coin-operated wash rack for aircraft was installed in 2002. In November of 2002, the terminal building, "Rock House" and Foothill Aircraft were connected to the City sewer, which involved cooperation between the City, Lowe's, and the airport.

A 17-acre business park was completed in 2005 and is owned through a partnership with Cable Development where the airport is the major shareholder.

The governing authority of the airport has passed from Dewey to his children and now on to the third generation.

EXISTING AIRPORT

Cable Airport is contained in the National Plan of Integrated Airport Systems (NPIAS) and is classified as a Reliever Airport. A Reliever Airport is defined as a high-capacity general aviation airport in a metropolitan area. To be eligible for reliever designation, these airports must have 100 or more based aircraft or 25,000 itinerant operations. There are 270 airports in the nation with this designation that have an average of 230 based aircraft (Cable has 360) and account for 28 percent of the Nation's airports. General aviation airports (including Reliever Airports) account for 84 percent of the Nation's airports.

The airport is classified as a Regional Airport in the California Aviation System Plan (CASP). This is a functional classification developed by the State to categorize airports based on an airport's function, services provided, and role in the aviation system. Regional Airports are defined in the CASP as "airports that service the same activities as Community Airports, may provide international access; located in an area with a larger population base than Community Airports while serving a number of cities or counties; serve the same activities as Community Airports with a higher concentration of business and corporate flying; accommodate most business, multi-engine and jet aircraft; provide most services for pilots and aircraft including aviation fuel; has a published instrument approach, maybe a control tower."

Community Airports are defined as "airports that provide access to other regions and states; located near smaller communities or in remote locations; serve, but are not limited to recreation flying, training, and local emergencies; accommodate predominately single engine aircraft under 12,500 pounds; provide basic or limited services for pilots or aircraft." Cable is included in the Los Angeles/Desert Region (Region 8) of the CASP. This region is comprised of San Bernardino, Ventura, Los Angeles, Orange, and Riverside Counties.

Planning standards contained in FAA AC 150/5300-13, Airport Design, will be applied in this master plan study for Cable Airport. The applicable airport reference code (ARC) will be determined in this study. Approach category is defined as a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at the certificated maximum flap setting and maximum landing weight at standard atmospheric conditions. Approach category A aircraft is less than 91 knots and approach category B aircraft ranges from 91 to less than 121 knots. The current (1980) master plan stated that the airport was a Basic Utility Stage II airport. This classification is no longer used, but correlates with approach category A aircraft. The airport reference code identified on the currently unapproved airport layout plan is B-II. The design aircraft and applicable ARC will be defined in Chapter 4 of this study.

AIRSIDE FACILITIES

The term "airside" as used in this report relates principally to the airfield facilities, or landing area, and includes the runway and taxiway system, the runway approach areas and the associated appurtenances such as airfield lighting, and visual and navigation aids. It also includes the aircraft parking aprons, air traffic control facilities, and meteorological considerations. Existing airport facilities are shown in Figure 3-3.

Airfield

Runways

The airport has one runway, designated 6-24, and encompasses 109 acres. The runway is of asphalt construction and is 3,865 feet long and 75 feet wide. The true bearing of the runway is North 69º 07' 41" West. The original runway configuration included two other runways (Runway 1-19 and Runway 8-26) that have since been closed. Runway 6 has a 106-foot displaced threshold and Runway 24 has a 158-foot displaced threshold due to the runway's proximity to adjacent roads, which are indicated on FAA Form 5010-1 as the controlling obstacle.

As a part of the master plan, the obstacles in the runway environment was assessed to confirm the appropriate location of the displaced thresholds and the results are presented in Chapter 5 of this study.

The present airport reference point (ARP) is located at 34° 06' 41.80" North latitude and 117° 41' 14.60" West longitude as noted in the FAA AVN Datasheet, which is a website sponsored by the FAA to provide airport information. The established airport elevation, defined as the highest point along any of an airport's runways, is 1,443.7 feet above mean sea level (MSL), which is located at the Runway 24 threshold. As of March 2012 the magnetic declination was 12° 43' East with an annual rate of change of 5 minutes west per year.

Pertinent data for the existing runway ends is presented below. The runway received a variable thickness overlay in the mid 1990s. As part of this project, the runway profile was flattened removing bumps in the runway profile.

	Runway 6	**Runway 24**
Elevation	1,393.1'	1,443.7'
Latitude	34º 06′ 34.98" N	34º 06′ 48.59" N
Longitude	117º 41′ 36.04" W	117º 40′ 53.11" W

Source: FAA Form 5010-1.

Both runway ends are equipped with 2-box visual approach slope indicators (VASIs) with non-standard 4 degree glide paths. This non-standard glide path facilitates the airport being a good neighbor, as aircraft are at slightly higher altitudes over nearby noise sensitive areas and facilitates obstacle clearance. The traffic patterns for both Runways 6 and 24 is a standard left-handed pattern. The traffic pattern altitude at Cable is 800 feet above the airport elevation.

Helipads

The FAA Form 5010-1 indicates that there are two helipads at Cable Airport, designated H1 and H2. Both helipads are 65 by 65 feet and are located along the southern edge adjacent to the Runway 24 landing threshold. Helipad H1 is constructed of asphalt while Helipad H2 is

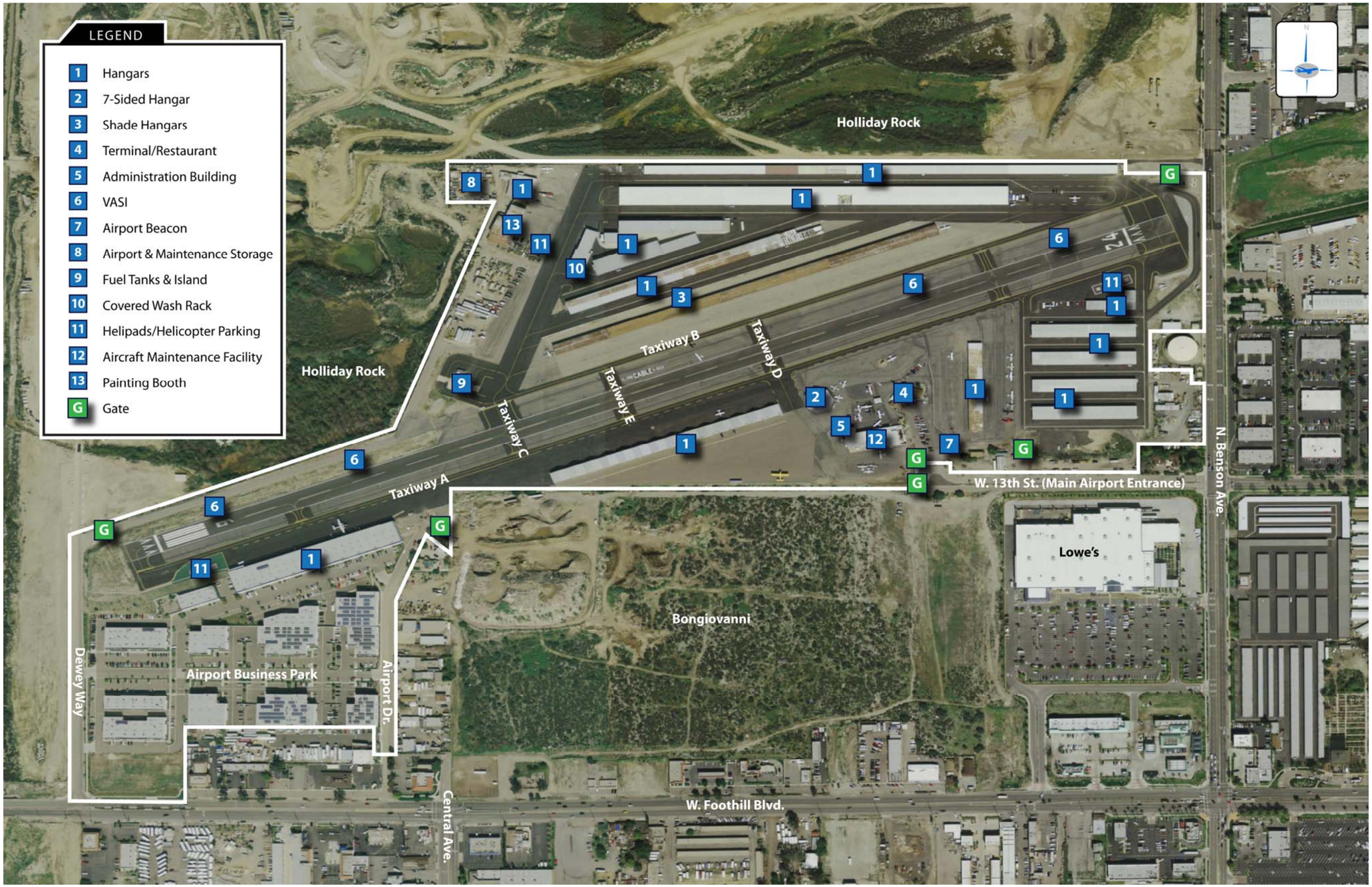

Figure 3-3
Existing Facilities

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comprised of asphaltic concrete. Perimeter lights for Helipad H1 can be activated using the common traffic advisory frequency (CTAF). Helipad H2 does not have perimeter lights. There are also three helicopter parking areas. Two lighted ones are located on the west side of the airport adjacent to the Runway 6 threshold. The third, unlighted, helicopter parking spot is located on the north side of the airport, near the wash rack.

Taxiways

The runway is served by a 25-foot wide full parallel taxiway (Taxiway A) on the south side of the runway. North of the runway is served by a 25-foot wide partial parallel taxiway (Taxiway B). Taxiways at Cable are as follows:

- **Taxiway A** – a 25-foot wide full parallel taxiway to Runway 6-24 located south of the runway.
- **Taxiway B** – a 25-foot wide partial parallel taxiway, approximately 2,350 feet long from the threshold of Runway 24 on the north side of the runway. At the threshold of Runway 24, the taxiway widens to approximately 100 feet.
- **Taxiway C** – a 25-foot wide perpendicular exit taxiway located approximately 1,300 feet from the Runway 6 landing threshold.
- **Taxiway D** – a 25-foot wide perpendicular exit taxiway located approximately 1,340 feet from the Runway 24 landing threshold.
- **Taxiway E** – a 25-foot wide perpendicular exit taxiway located approximately 1,712 feet from the Runway 6 landing threshold.
- **Undesignated West Taxiway** – a 25-foot wide perpendicular exit taxiway located approximately 500 feet from the Runway 6 landing threshold.
- **Undesignated East Taxiway** – a 25-foot wide perpendicular exit taxiway located approximately 500 feet from the Runway 24 landing threshold.

Pavement Strength

FAA Form 5010-1 states that Runway 6-24 has single-wheel pavement strength of 20,000 pounds. However, in the remarks section the airport operator notes that pavement strength is 12,500 pounds for single-wheel aircraft. Through discussions with the airport engineer, it was learned that the last overlay project, completed in 2007, used a standard P-403 Caltrans mix. The designed pavement strength is 12,500 pounds. Pavement strength data noted on the 5010 should be updated by the airport sponsor and no changes to pavement strength are recommended.

Pavement Condition

According to a 2006 Airport Pavement Management System Report for Cable Airport prepared by Caltrans, the apron area adjacent to the terminal is in fair condition. The area associated with T-hangars and flight school tie-downs located east of the terminal is in very poor condition and pavement located on the north side of the airport along the western property border was rated as poor condition. All other areas were rated as excellent or very good. Figure 3-4 shows the conditions of the different pavement areas at Cable Airport. The unknown area identified on the Figure 3-4 was noted as being in "very good" condition, but upon visual inspection, this area appears to be in either poor or very poor condition. Pavement areas noted as poor or very poor should be rehabilitated.

Lighting and Signage

Runway 6-24 is equipped with threshold lights and medium intensity runway edge lights (MIRL). Signage is provided upon entry and exit of Taxiways C and D. It is noted that additional signage

was in place but removed due to repeated damage incurred by aircraft. Taxiway E and the two undesignated taxiways are not equipped with taxiway signs.

Terminal and Support Areas

Apron Areas

Cable Airport has approximately 66 based and transient aircraft tie-downs. Apron areas at Cable are split up into five areas: north, southeast, south, southwest, and the flight school. The north area features half of the tie-downs (33) on the airport which are dispersed throughout the north area. On the southwest apron, there are three tie-downs. The south apron does not provide tie-down parking. There are 13 tie-downs on the southeast apron, of which ten are marked transient tie-downs. These run along Hangars A-H. The flight school is assigned 17 tie-downs, which are located east of the terminal building. Figure 3-5 shows a layout of the different apron areas at Cable Airport.

During AECOM's site visit, additional tie-down spaces were observed on the south side of the airport which were not included in the airport's tie-down records. These tie-down spaces are only used for special events. Furthermore, there are three helicopter parking spaces in addition to the two published helipads. Two helicopter parking spaces are located near the Runway 6 end. The third helicopter parking space is located in the ramp space adjacent to Hangar 42 on the north side of the airport.

Hangar Areas

Aircraft storage hangars consist of a mix of older shade hangars, T-hangars, and box hangar buildings. There are approximately 71 shade hangars, 18 T-hangars, and 250 box hangars on the airport.

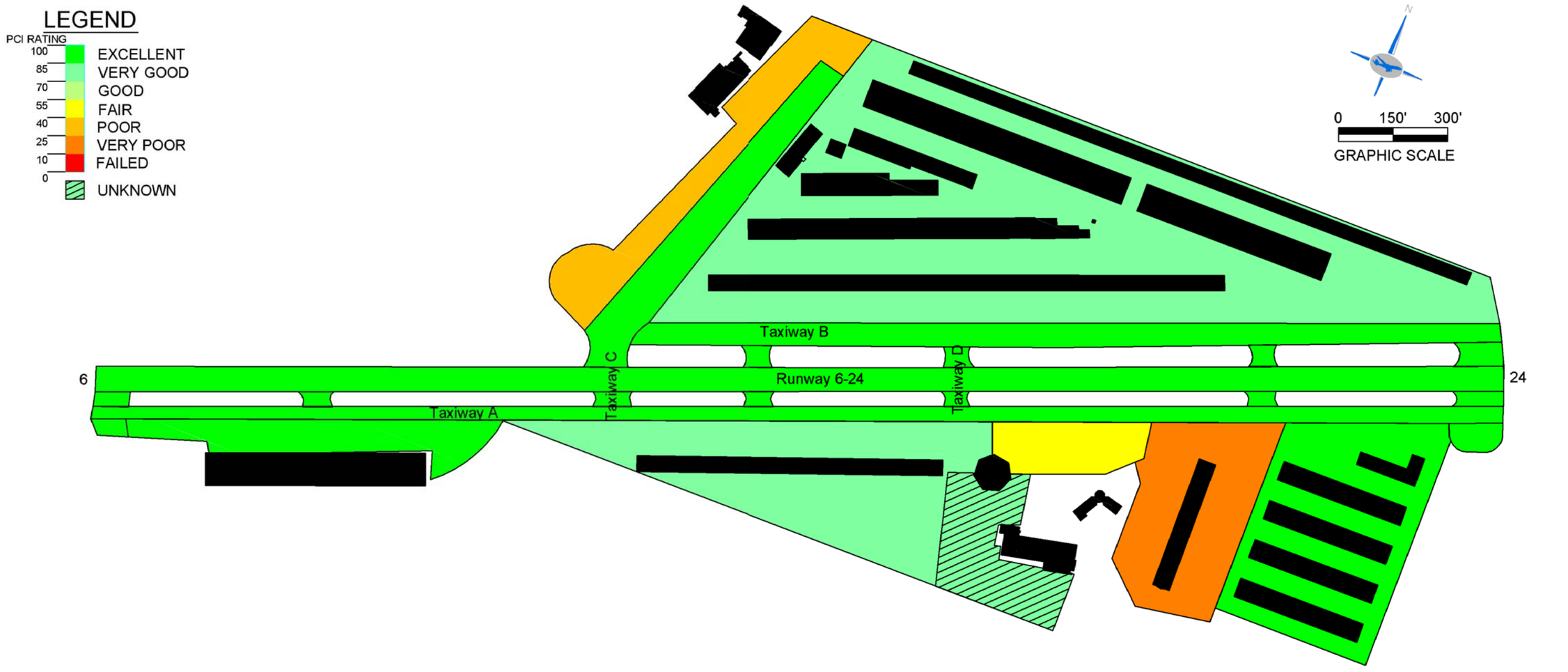
Shade hangars are approximately 870 square feet and T-hangars are approximately 1,000 square feet. The box hangars are categorized as either small or large box hangars and range from 1,200 to 12,100 square feet each. Small box hangars have a width of less than 45 feet while large box hangars have widths greater than 45 feet. The most common large box hangar sizes are 1,200 square feet (64 hangars) and 1,700 square feet (60 hangars).

Terminal Building and Restaurant

The terminal building is located on the south side of the runway. The building totals approximately 3,900 square feet and was constructed in 1946. This building houses a public lobby, two flight planning areas, public rest rooms, a café/restaurant, and aircraft sales/management offices. There are 71 automobile parking spaces (including two handicapped spaces) for the terminal building, associated restaurant, and fixed based operators (FBOs) located adjacent to the terminal building.

Administration Building

The administration building is also located on the south side of the runway. It can be accessed by foot from the terminal/FBO parking area requiring the public to traverse the aircraft sales lot. The administration building is approximately 1,300 square feet and contains airport management offices and a small conference room. The first floor of the administration houses Skywest Instruments. The second story houses the airport administration offices.



Note: Do not scale from this drawing. This drawing is intended to serve as a schematic only.

Source: Caltrans, 2006 Airport Pavement Management System (APMS).

Figure 3-4
PCI Rating
Cable Airport

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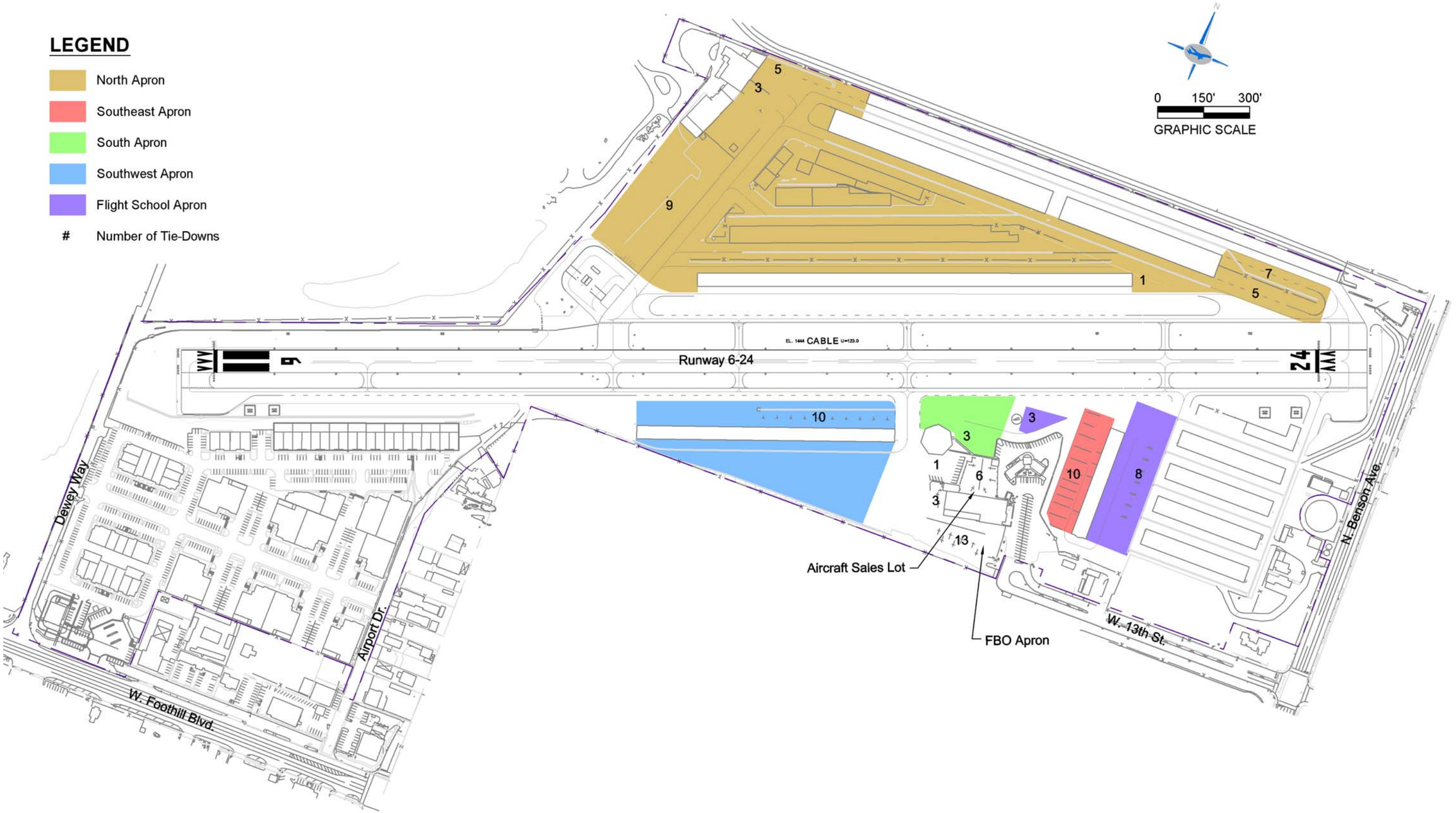

Figure 3-5
Apron Areas

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Fuel

Cable Airport has two 12,000-gallon above ground fuel tanks. Both tanks were installed in 1997 and are in good condition. One tank stores 100LL fuel while the other contains Jet A fuel. Table 3-2 shows historical fuel flowage at Cable Airport. Jet A was introduced to the Airport in 2004. On average, Avgas fuel sales have decreased approximately six percent per year since 1999.

Table 3-2
HISTORICAL FUEL FLOWAGE AT CABLE AIRPORT

Year	Avgas (80/87 & 100LL)	Jet	Year Total
1999	184,145	N/A	184,145
2000	155,203	N/A	155,203
2001	141,677	N/A	141,677
2002	142,360	N/A	142,360
2003	157,719	N/A	157,719
2004	155,631	15,275	170,906
2005	152,116	61,841	213,957
2006	123,982	38,353	162,335
2007	134,198	53,932	188,130
2008	106,963	56,446	163,409
2009	90,875	53,323	144,198

N/A – not applicable.
Source: Cable Airport.

Airport Maintenance

Various airport maintenance and tractor equipment are stored on the northwest corner of airport property, occupying approximately 22,200 square feet.

Airport Vehicle Parking

The existing auto parking facilities total 71 spaces in the terminal area including two handicapped spaces. There are approximately 69 automobile parking spaces dispersed throughout the northern side of the airport within the airport perimeter fence (on the airside). On the south side of the airport, there are approximately 16 parking spaces near the Helipads H1 and H2 and box hangars. Near the administration building there are 17 parking spaces for airport employees. FBO employees and visitors often park adjacent to FBO facilities in areas that do not have marked parking stalls. Additionally, aircraft owners can park their automobiles in hangar spaces or on their tie-down when they are flying their aircraft. In total, there are 173 designated parking spaces at Cable Airport.

METEOROLOGICAL CONSIDERATIONS

Meteorological considerations for this master plan are based on weather observations taken at Ontario International Airport as obtained from the National Climatic Data Center (NCDC). Ontario is the nearest full-time weather station to Cable that provides weather observations in a format that can be used in the FAA Wind Rose analysis software. Data gathered from Ontario was based on 66,784 observations between 2001 and 2009.

Based on these data, the existing runway alignment provides 99.53 percent coverage for a 10.5-knot crosswind and 99.83 percent coverage for a 13-knot crosswind. FAA states in AC 150/5300-13 that the allowable crosswind is 10.5 knots for airport reference codes A-I and B-I and 13 knots for airport reference codes A-II and B-II. The coverage provided by the present runway meets the FAA recommendation of 95

percent crosswind coverage, thus additional runways for improved crosswind coverage are not required. Calm wind conditions (less than 4 knots) prevail approximately 25.4 percent of the time.

Based on the data provided by the NCDC, instrument flight rules (IFR) weather conditions occur 4.7 percent of the time. These are periods when cloud ceilings are less than 1,000 feet above ground and/or visibility less than 3 miles. Periods of IFR are most likely to occur during October (14.4 percent), November (11.3 percent), and May (11.3 percent).

According to airport management, weather at Cable Airport is different than what is experienced at nearby airports (Brackett and Ontario). For example, airport management estimates that IFR conditions prevail approximately 1 percent of the time. This is different from the 4.7 percent that Ontario experiences IFR conditions. A full-time time weather station at Cable Airport should be installed. This master plan identifies suitable locations for a weather data collection station, such as an automated weather observation station (AWOS).

The airport reference temperature, which is defined as the mean maximum temperature of the hottest month is 92.4° and occurs in July. The average total annual precipitation is 22.44 inches. December through March are the three highest months with an average of approximately 4.16, 4.93, and 4.32 inches, respectively.

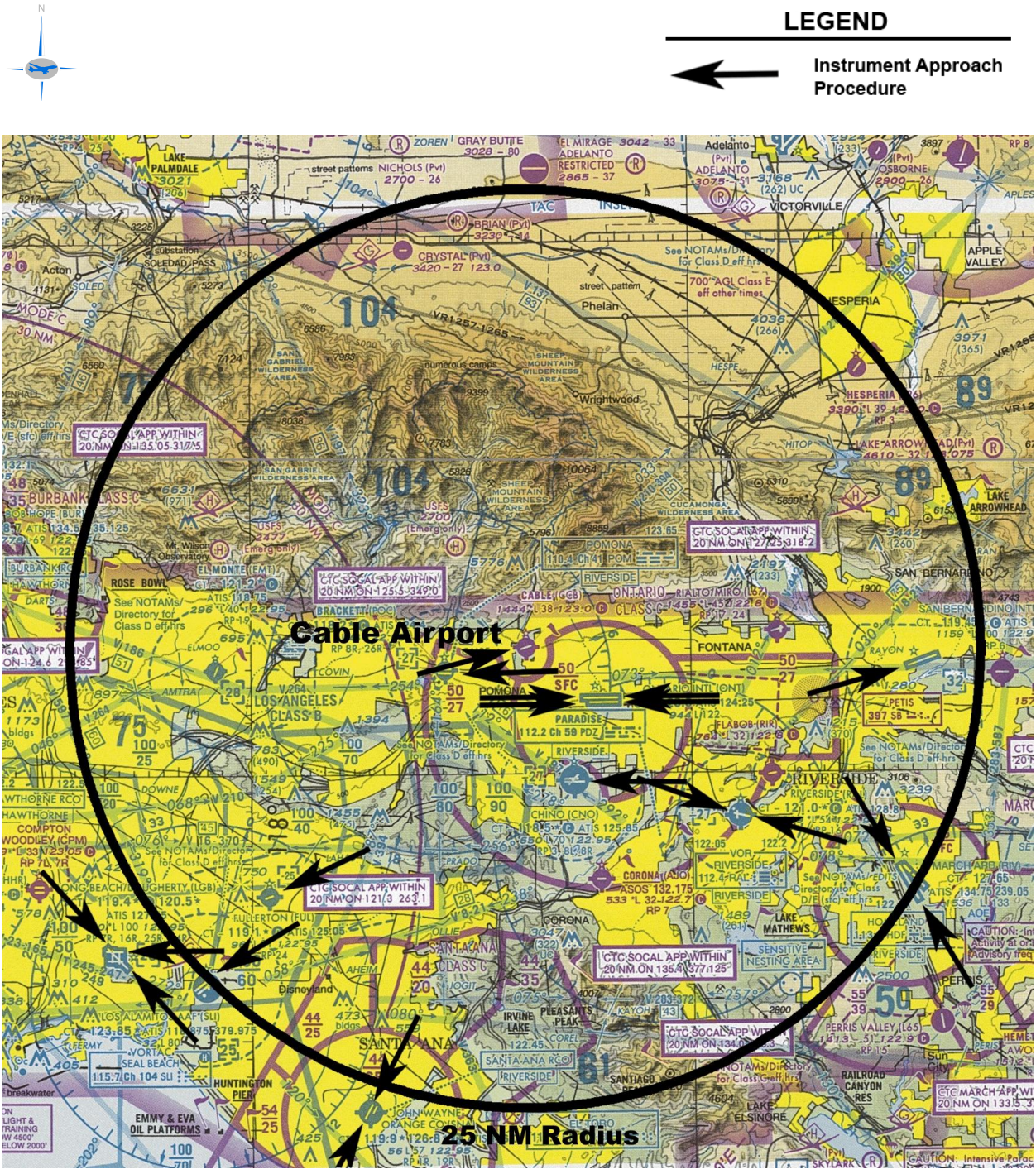
AIRSPACE AND NAVIGATIONAL AIDS

Airspace

The existing system of en-route airways, navigational aids, and airports located within a 25 nautical mile radius of Cable Airport is depicted on Figure 3-6. The low altitude airways which traverse the area serve those en-route aircraft flying below 18,000 feet MSL. Including Cable Airport, there are fifteen airports within 25 nautical miles of the airport which are shown on Figure 3-6. Twelve of the airports are publicly owned airports. These are Hesperia, San Bernardino International, Rialto, March Air Reserve Base (ARB), Flabob, Riverside, Corona, Chino, Ontario International, Brackett, El Monte, and Fullerton Airports. Two of the airports (Crystal and Brian) are private airports. Table 3-3 presents the twelve neighboring airports within the 25 nautical mile radius and includes a summary of facilities and services. There are also several public airports located immediately beyond the 25 nautical mile radius; including Redlands, John Wayne, Compton/Woodley, Long Beach/Daugherty, Perris Valley, and Gray Butte. These airports are also listed in Table 3-3 and shown on Figure 3-6. Rialto Airport is scheduled to be closed during the planning period. This means all aircraft currently based at and operating out of Rialto Airport will be dispersed throughout the study area for Cable Airport. The closure of Rialto Airport does not impact the surrounding airspace but may result in increased traffic at Cable Airport.

Controlled airspace means an area in which some or all aircraft may be subject to air traffic control. It is a generic term that covers the different classification of airspace (Class A, Class B, etc.) and defined dimensions within which air traffic control service is provided to instrument flight rule (IFR) and visual flight rule (VFR) flights in accordance with the airspace classification. The various controlled airspace areas found in the vicinity of Cable Airport are discussed below.

- **Class B Airspace.** Class B airspace consists of the airspace surrounding airports that serve at least 5 million enplaned passengers annually and whose total operations count 300,000 (of which 240,000 are air carriers and air taxi). A Class B designation contributes to the efficiency and safety of operations. The airspace should be designed in a circular configuration around the primary airport of which the outer limits should not exceed 30 nautical miles laterally and 10,000 feet MSL vertically. This airspace will then be subdivided into three concentric circles at 20 and 10 nautical miles. These airspace areas generally consist of a surface area with an additional layer above it, resembling an upside-down wedding cake. At the 30 nautical mile limit laterally, usually there is a Mode C veil where all aircraft are required to be flying with a working Mode C transponder. Pilots are required to obtain air traffic control (ATC) clearance prior to entering



Not to scale.
Source: Los Angeles (June 28, 2012) Sectional Aeronautical Chart.

Figure 3-6
Airspace

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Table 3-3
AIRPORTS IN THE VICINITY OF CABLE AIRPORT
(RADIUS OF 25 NAUTICAL MILES)

Airport	Distance from Cable (NM)	Runways	Runway Surface	Ownership	Based Aircraft	Fuel	Maintenance	Control Tower
Cable	-	6-24(3,864')	Asphalt	Private	358	100LL/Jet A	Major/Major	No
Brackett	4.8 W	8L-26R(3,661') 8R-26L(4,839')	Asphalt	Public	419	100LL/Jet A	Major/Major	Yes
Ontario Int'l	5.4 SE	8L-26R(12,197') 8R-26L(10,200')	Concrete	Public	29	100LL/Jet A	Major/Major	Yes
Chino	8.6 S	3-21(4,919') 8L-26R(4,858') 8R-26L(7,000')	Asphalt	Public	530	100LL/Jet A	Major/Major	Yes
Corona	13.5 S	7-25(3,200')	Asphalt	Public	393	100LL/Jet A	Major/Major	No
Rialto	14.2 E	6-24(4,500') 17-35(2,650')	Asphalt	Public	110	100LL/Jet A	Major/Major	No
Riverside	15.4 SE	9-27(5,401') 16-34(2,850')	Asphalt	Public	163	100LL/Jet A	Major/Major	Yes
Flabob	15.6 SE	6-24(3,200')	Asphalt	Public	60	100LL/80	Major/Major	No
El Monte	17.3 W	1-19(3,995')	Asphalt	Public	335	100LL/Jet A	Major/Major	Yes
Fullerton	20.5 SW	6-24(3,121')	Asphalt	Public	290	100LL/Jet A	Major/Major	Yes
San Bernardino Int'l	22.5 E	6-24(10,001')	Concrete	Public	28	100LL/Jet A	Major/Major	Yes
Hesperia	24.3 NE	3-21(3,910')	Asphalt	Public	33	100LL	None	No
March ARB	25.4 SE	12-30(3,059') 14-32(13,300')	Asphalt/Concrete	Public	0	100LL/Jet A	Major/Major	Yes
Redlands Municipal	26.9 E	8-26(4,505')	Asphalt	Public	173	100LL	Major/Major	No
John Wayne Airport	27.7 S	1L-19R(5,701') 1R-19L(2,887')	Asphalt	Public	561	100LL/Jet A	Major/Major	Yes
Long Beach/Daugherty	29.1 SW	7L-25R(6,192') 7R-25L(5,423') 12-30(10,000') 16L-34R(3,975') 16R-34L(4,470')	Asphalt	Public	435	100LL/Jet A	Major/Major	Yes

Source: AECOM analysis of Form 5010-1 and Airport Management.

Class B airspace. Within Class B airspace, air traffic controllers are required to separate aircraft operating under VFR from aircraft operating under IFR, but are not required to separate VFR operations from one another. The nearest Class B airspace is approximately 5 nautical miles south of Cable and is associated with Los Angeles International Airport (LAX). Cable is outside of the 30 nautical mile Mode C veil associated with LAX. The ceiling of Class B airspace associated with LAX is at 10,000 feet. Within the 25 nautical mile radius of Cable Airport, LAX's Class B airspace floor ranges from 2,000 (closest to LAX within the 25 NAUTICAL MILE radius) to 9,000 feet (a few miles south of Cable Airport).

- **Class C Airspace.** Class C airspace consists of the airspace surrounding airports that have an operational airport traffic control tower (ATCT), are serviced by radar approach control, and accommodate minimum levels of aviation activity as specified by the FAA. Class C airspace is individually tailored for the airports they serve. These airspace areas generally consist of a surface area with an additional layer above it. Pilots are required to establish two-way radio communications with the ATC facility providing air traffic services prior to entering Class C airspace and must maintain those communications while in the airspace. Within Class C airspace, air traffic controllers are required to separate aircraft operating under VFR from aircraft operating under IFR, but are not required to separate VFR operations from one another. The nearest Class C airspace is associated with Ontario International Airport and is less than one nautical mile south, east, and west of Cable Airport. This Class C airspace has a ceiling of 5,000 feet for a radius of 10 nautical miles. Within a 5 nautical mile radius of Ontario Airport, Class C airspace extends down to the surface (ground). The donut extending from 5 to 10 nautical miles from Ontario Airport has a floor of 2,700 feet. Also within 25 nautical miles of Cable Airport are Class C airspaces for John Wayne Airport and March ARB.

- **Class D Airspace.** This is generally airspace from the surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. The area is generally defined as all area within five statute miles (4.3 nautical miles) of the airport; however, the circular configuration can be tailored when instrument approach procedures are published for an airport. The closest Class D airspace area in the vicinity of the airport is located at Brackett Field. This airspace is approximately one to two nautical miles west of Cable. Class D airspace for Brackett is in effect from 0600 to 2000 local time. At other times, this airspace is designated Class G. No separation services are provided to VFR aircraft in the Class D airspace area. Other Class D airspace areas within a 25 nautical mile radius from Cable Airport are associated with Chino, El Monte, San Bernardino International, Long Beach, Seal Beach, Fullerton, and Riverside Airports.

- **Class E Airspace.** Two types of Class E airspace are in the vicinity of Cable. One starts at the surface and the other starts at 700 feet above ground. Class E airspace is controlled airspace, but is the least stringent controlled airspace classification in terms of pilot certification, aircraft equipment, entry requirements, etc. No separation services are provided to VFR aircraft in the Class E airspace area.

- **Class G Airspace.** Cable Airport is within Class G airspace up until 700 feet above the surface, where Class E Airspace starts. Class G airspace is not under air traffic control and no separation services are provided. It is important to note that within less than one nautical mile of Cable Airport, Ontario's Class C airspace is present east, west, and south of the airport.

Four areas regarding flights over charted U.S. Wilderness Areas exist within 25 nautical miles of Cable. These are depicted on Figure 3-6 and are the San Gabriel, Sheep Mountain, Cucamonga Wilderness Areas, and a Sensitive Nesting Area. These are areas where aircraft are requested to maintain an altitude of at least 2,000 above ground.

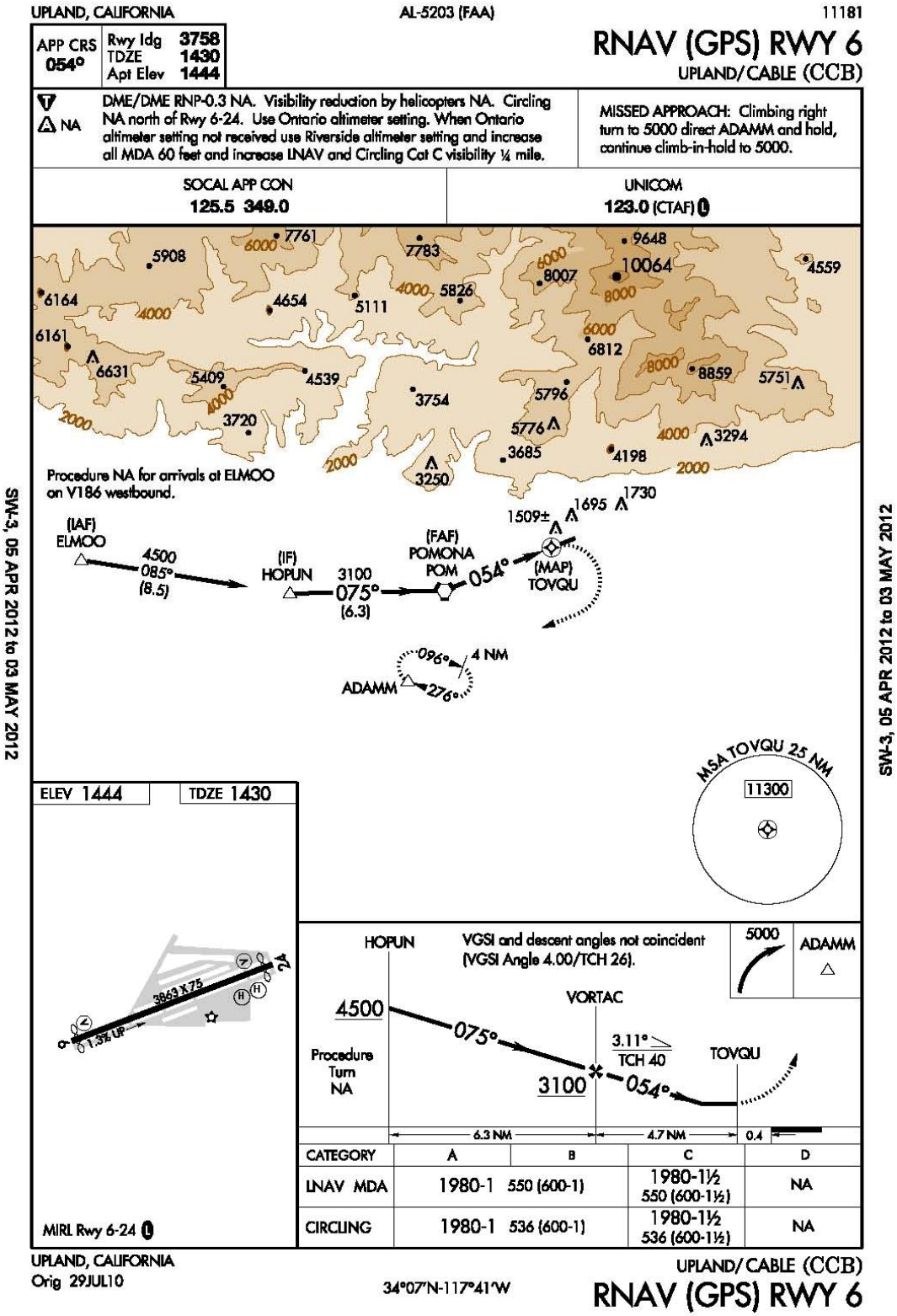
Low altitude Federal Airways in the vicinity of the airport can be seen on Figure 3-6 and include the following:

- **V137 –** is a northwest-southeast airway located approximately 15 nautical miles northeast of the airport that connects the Palmdale and Palm Springs VORTACs.
- **V197 –** is a northwest-southeast airway located approximately 4 nautical miles west of the airport that connects the Palmdale, Pomona, and Paradise VORTACs.
- **V186 –** is a northwest-southeast airway that connects the Van Nuys VOR-DME and Parardise VORTAC and is approximately 6 nautical miles south of Cable.
- **V363 –** is a north-south airway that connects the Pomona VORTAC and El Toro VOR-DME and is approximately 22 nautical miles south of Cable.
- **V210-394 –** is a southwest-northeast airway that connects the LAX, Pomona, and Daggett VORTACs and passes over Cable.
- **V283-372 –** is a west-east airway that connects Seal Beach VORTAC and Homeland VOR.
- **V16-370 –** is a west-east airway that connects the Paradise and Palm Springs VORTACs and is approximately 11 nautical miles southeast of Cable.
- **V8-21 –** is a southwest-northeast airway that connects the Seal Beach VORTAC, Riverside VOR and Hector VORTAC and is approximately 11 nautical miles south of Cable.
- **V442 –** is a southwest-northeast airway that connects Paradise and Hector VORTACs and is approximately 9 nautical miles east of Cable.
- **V264 –** is a southwest-northeast airway that connects the LAX and Pomona VORTACs and passes over Cable Airport

Military training routes VR 1257-1265 runs east/west and travels within approximately 17 nautical miles of Cable. Also running east/west, VR 1265, VR 1257, and VR 1217-1218 travel within 24 nautical miles of Cable. Military training routes are located to the north and northeast of the airport. Centered on these military training routes is Special Military Activity airspace. These are areas where the Department of Defense (DoD) conducts periodic operations. Status of these routes and areas may be obtained by contacting the FAA/DoD facility on designated frequencies along the routes.

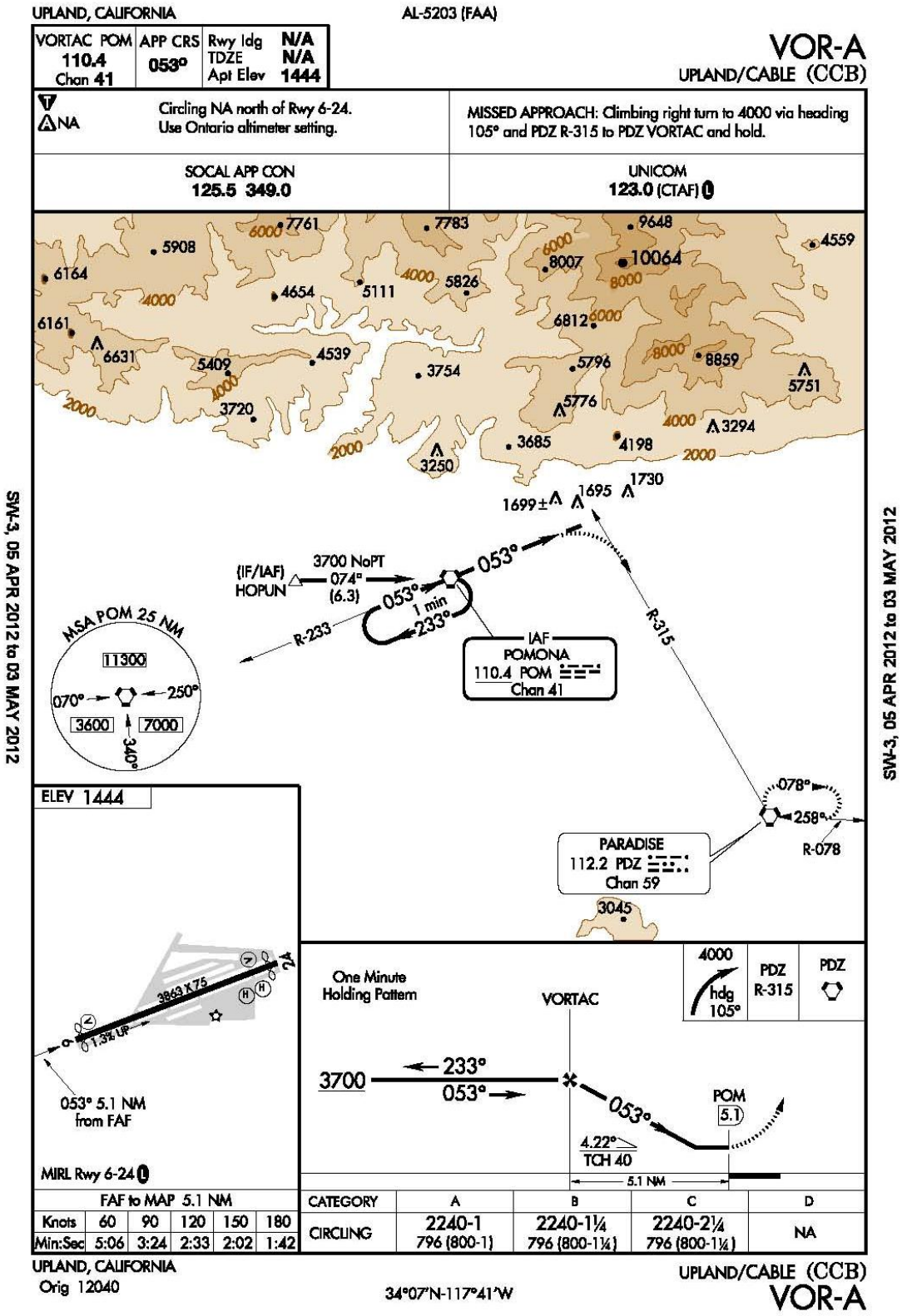
There are two published instrument approach procedures for the airport, which are both classified as non-precision. An instrument approach procedure is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a point where a landing may be made visually. The procedure provides protection from obstacles that could jeopardize safety of aircraft operations by providing a specific clearance over obstacles. There are two types of procedures - precision and non-precision instrument approaches. A precision approach procedure is one in which an electronic glide slope is provided that gives the pilot glide path, or specific descent profile guidance. A non-precision approach is a procedure in which no electronic glide slope is provided. In this case the pilot is provided with directional, or azimuth, guidance only. Instrument approach procedures for Cable are presented in Figure 3-7 and Figure 3-8.

Published instrument approaches are available at eight of the public airports within 25 miles of the airport. These airports are Cable, Brackett Field, Ontario International, Chino, Riverside Municipal, Fullerton Municipal, San Bernardino International, and March ARB. In addition, Redlands Municipal, John Wayne Airport, and Long Beach Airport, which are located just beyond the 25 nautical mile radius, have instrument approaches. In addition, Los Alamitos/Seal Beach Army Airfield, which is a military airport, has an instrument approach. Table 3-4 summarizes the instrument approaches and navigational aids for these airports and shows the airport, NAVAID, location of the NAVAID, type of procedure, and the lowest landing minima.



Source: FAA Digital Terminal Procedures Publications 2012.

Figure 3-7
RNAV (GPS) Approach Runway 6



Source: FAA Digital Terminal Procedures Publications 2012.

Figure 3-8
VOR Approach A

Table 3-4
INSTRUMENT APPROACH PROCEDURES AT NEARBY AIRPORTS

Airport	NAVAID	Location	Procedure	Lowest Minima
Cable	GPS	Satellite	RNAV (GPS) RWY 6	600'/1 mile
	Pomona VORTAC	5.1 nm SW	VOR-A	800'/1 mile
Brackett Field	ILS	On airport	ILS RWY 26L	400'/1 mile
	ILS	On airport	LOC RWY 26L	600'/1 mile
	Pomona VORTAC	1 nm SW	VOR or GPS-A	700'/1 mile
Ontario Int'l	ILS	On airport	ILS or LOC RWY 8L	400'/½ mile
	ILS	On airport	ILS or LOC RWY 26R	400'/½ mile
	ILS	On airport	ILS or LOC RWY 26L	400'/½ mile
	ILS	On airport	ILS RWY 26L (CAT II)	CAT II
	ILS	On airport	ILS RWY 26L (CAT III)	CAT III C
	GPS	Satellite	RNAV (GPS) Y RWY 8R	300'/1 mile
	GPS	Satellite	RNAV (GPS) Y RWY 8L	400'/¾ mile
	GPS	Satellite	RNAV (GPS) Y RWY 26L	300'/½ mile
	GPS	Satellite	RNAV (GPS) Y RWY 26R	300'/½ mile
	RNP	Satellite	RNAV (RNP) Z RWY 8L	600'/2 miles
	RNP	Satellite	RNAV (RNP) Z RWY 26L	400'/7/8 mile
	RNP	Satellite	RNAV (RNP) Z RWY 26R	400'/7/8 mile
	Pomona VORTAC	9.2 nm W	VOR/DME RWY 8L	600'/1 mile
Redlands Municipal	GPS	Satellite	GPS-A	1,100'/1 ¼ miles
Chino	ILS	On airport	ILS or LOC RWY 8R	300'/¾ mile
	GPS	Satellite	RNAV (GPS) RWY 26R	400'/1 ¼ miles
	Riverside VOR	9.6 nm E	VOR RWY 26R	1,500'/1 ¼ miles
Riverside Municipal	ILS	On airport	ILS or LOC RWY 9	200'/½ mile
	GPS	Satellite	RNAV (GPS) RWY 9	400'/¾ mile
	GPS	Satellite	RNAV (GPS) RWY 27	500'/1 ½ miles
	VOR	On airport	VOR RWY 9	1,300'/¾ mile
Fullerton Municipal	GPS	Satellite	RNAV (GPS) RWY 24	900'/1 mile
	LOC	On airport	LOC/DME RWY 24	500'/1 mile
San Bernardino Int'l	ILS	On airport	ILS or LOC Z RWY 6	500'/1 ¾ miles
	GPS	Satellite	RNAV (GPS) Y RWY 6	1,400'/ 1 ¼ miles
	GPS	Satellite	RNAV (GPS) Z RWY 6	600'/1 mile
	LOC	On airport	LOC Y RWY 6	1,400'/1 ¼ miles
	NDB	On airport	NDB RWY 6	1,400'/1 ¼ miles
March ARB	ILS	On airport	HI-ILS or LOC/DME RWY 32	200'/½ mile
	ILS	On airport	ILS or LOC RWY 32	200'/½ mile
	ILS	On airport	ILS Z or LOC/DME RWY 32	200'/½ mile
	ILS	On airport	ILS Y RWY 32(CAT II)	CAT II
	TACAN	On airport	HI-TACAN RWY 14	700'/2 miles
	TACAN	On airport	HI-TACAN RWY 32	600'/1 mile
	TACAN	On airport	TACAN RWY 14	700'/ 2 miles
	TACAN	On airport	TACAN RWY 32	600'/½ mile
	Homeland VOR	7 nm SE	HI-VOR RWY 32	600'/1 mile
	Homeland VOR	7 nm SE	VOR RWY 32	600'/¾ mile
John Wayne	ILS	On airport	ILS or LOC RWY 19R	200'/½ mile
	GPS	Satellite	RNAV (GPS) RWY 1L	500'/1 mile
	GPS	Satellite	RNAV (GPS) RWY 19R	300'/½ mile
	LOC	On airport	LOC BC RWY 1L	500'/1 mile
	LOC	On airport	LDA RWY 19R	500'/½ mile
	NDB	On airport	NDB RWY 19R	600'/¾ mile

Source: United States Government Flight Information Publication, U.S. Terminal Procedures: U.S. Department of Transportation.

Navigational Aids

The airport is an uncontrolled airport in that there is not an airport traffic control tower (ATCT) on the field. An inventory of the navigational aids and air traffic services available at the airport is as follows:

- **Very High Frequency Omni-Directional Range/Tactical Air Navigation (VORTAC)** - This navigational aid provides azimuth (direction) and distance information to the pilot. There are two VORTACs within 25 nautical miles of the airport. The Pomona VORTAC (POM) is located 5.1 nautical miles southwest of the airport. It is used for en-route navigation and for the VOR instrument approach procedure for the airport. The POM facility is designated as an "L" (Low Altitude) facility which means it is usable from altitudes of 1,000 to 18,000 feet above the ground and is usable within 40 nautical miles of the station. Portions of the POM VORTAC's signal are obstructed:

    - The VORTAC is unusable from 300 to 45 degrees beyond 20 nautical miles
    - The VOR portion is unusable from 280 to 300 degrees beyond 20 nautical miles below 13,000 feet
    - The TACAN azimuth is unusable from 280 to 300 degrees beyond 20 nautical miles below 14,000 feet

  The other VORTAC is located approximately 13.5 nautical miles south of Cable, near Corona Airport. The Paradise VORTAC is designated as an "H" (High Altitude) facility which means it is usable from altitudes of 1,000 to 60,000 feet above the ground. From 1,000 feet above ground level (AGL) up to and including altitudes of 14,500 feet AGL the facility is usable within 40 nautical miles of the station and between 14,500 feet and 60,000 feet it is usable within 100 nautical miles, while at altitudes of 18,000 to 45,000 feet AGL the facility is useable within 130 miles of the station.

- **UNICOM** – is available at the airport and operated by airport staff. This service provides local traffic pattern advisories but is not used for air traffic control purposes. The UNICOM was previously operated by the flight school.

- **Flight Service Station** - Assistance from the Flight Service Station (FSS) is available to pilots in the Cable Airport area through the Riverside FSS. This facility is located at Riverside Municipal Airport which is approximately 15 miles southeast of Cable. The services which are provided by the FSS include:

    - Issuance of Notices to Airmen (NOTAM's)
    - Dissemination of Pilot Reports (PIREP's) to interested parties
    - Issuance of weather data and National Airspace System (NAS) information
    - VFR advisory service
    - Direction finding assistance to "lost" aircraft
    - Pilot briefing service
    - Flight plan assistance

In addition to the above navigational aids and advisory services, the airport is equipped with the following visual aids. These are provided to assist pilots in locating the airport at night or during periods of reduced visibility.

- **Rotating Beacon** - a visual aid that indicates the location of an airport. Alternating white and green beams indicate an airport with beacons located either on or close to an airport. The beacon is located in the south eastern part of the airport near the terminal parking area. The beacon was recently refurbished and is in good condition.

- **Visual Approach Slope Indicator (VASI)** – provides pilots visual descent guidance information. It is usually located on the left side of the runway and can be seen for up to five miles during the day and 20 miles at night. Runways 6 and 24 are equipped with a two-light VASIs, which are located to the left of Runway 6 and to the right of Runway 24. Both VASIs have a non-standard 4 degree glide path to increase the height of aircraft overflying adjacent residential areas.

- **Medium Intensity Runway Lights (MIRL)** – are used to outline the edges of runways during periods of darkness or restricted visibility. The MIRL are preset at a low intensity on both runways from dusk to dawn and can be increased in intensity through the use of the Common Traffic Advisory Frequency (CTAF).

AIRPORT TENANTS AND SERVICES

Cable Airport has 11 Fixed Base Operators (FBOs) located on the airport. These FBOs offer the following services: flight training, flight rental, aircraft parking/storage, aircraft maintenance, aircraft sales, aircraft part sales, aircraft instrument sales, aircraft painting, and upholstery. These FBOs are briefly described below.

Foothill Aircraft

Foothill Aircraft includes Aircraft Parts/Sales and Services. Foothill Sales/Services provides aircraft part sales and maintenance service. Foothill Aircraft has a large hangar and office area including a flight shop located near the terminal and administration buildings. They are considering expanding their hangar area should the need arise. Foothill Aircraft has direct airside and landside access.

Foothill Flying Club

Foothill Flying Club is located on the southeast side of the airport and leases an office and tie-downs. This FBO provides ground school and flight training in addition to allowing certified pilots to rent aircraft (such as a Bonanza; Piper; Warrior; Archer; Cessna's 152, 172, and 182; Gobosh; American Champion; Citabria; or Seneca). The office area provides pilots and student pilots a flight planning area, lounge, and a small assortment of reference guides.

Aircraft Interiors by Sill

This FBO uses Hangar 40 which is located on the northwest corner of Cable Airport. Services provided include upholstery for aircraft, cars, and furniture. Aircraft Interiors by Sill has airside access. Customers visiting by car are required to access secured airport areas.

Capt'n Nick's Vintage Biplane Rides

Capt'n Nick offers vintage biplane rides to tour different areas of the Inland Empire two weekends each month all year. Capt'n Nick's is located in Hangar A on the airport and has a based DeHavilland Tiger Moth. This FBO has direct airside access.

Civil Air Patrol

The Civil Air Patrol (CAP) is a part of the U.S. Air Force Auxiliary department and trains individuals in emergency service and flight safety. CAP is located along North Benson Avenue and has airside access.

Experimental Aircraft Association Chapter 448

The Experimental Aircraft Association (EAA) Chapter 448 is located on the north side of the airport and is a club dedicated to building experimental aircraft. EAA is located next to hangars 157 and 193 on the north side of the airport and has a picnic area for members. In addition, EAA has a paved area to accommodate approximately a dozen cars adjacent to the building. EAA has direct airside access. There is no direct landside access to EAA.

Maniac Mike's Café

Maniac Mike's Café is located in the terminal building on the south side of Cable Airport. It provides a restaurant/café to airport tenants, transient users, and the local community. In addition, the café provides communication and phone services for the airport. Future expansion plans include a museum and the opportunity to accommodate groups of 50 or more people. Ideas include a two-story building with a hangar on the bottom floor and café/restaurant on the top floor. Visiting pilots park in adjacent tie-downs and walk to the café. Maniac Mike's Café has landside access.

Sky West Instruments

Sky West Instruments is located on the south side of the airport in the airport administration building under the offices. They provide overhaul, repair flight instruments, and repair engine instruments for most general aviation aircraft. Sky West Instruments would like a covered area to work on aircraft. Sky West Instruments has airside access. The only vehicle access is provided through the employee parking lot of the administration building.

Sport Aerocolor

Sport Aerocolor has its main office on the northwest corner of Cable Airport, but leases multiple hangars around the airport. This FBO provides tenants and transients a certified paint booth. Sport Aerocolor also has approximately 40 projects in various stages of completion located in hangars throughout the airport. Based aircraft include a Skymaster and Beachcraft 200. Sport Aerocolor has airside access. Vehicle access is provided through the northeast gate for registered individuals.

Upland Fire Department Air Ambulance

REACH is located on the southwest part of Cable Airport. Services provided are aeromedical equipment and emergency helicopter transportation and is in partnership with REACH Air Medical Services. REACH has one helicopter, a Euro 135, based at the airport. It is leasing a large box hangar and 3 tie-downs. It plans on an additional tie-down in the future as it may bring a second helicopter to the airport. Upland Fire Department has airside and landside access.

Ontario Police Department

The Ontario Police Department is also located on the southwest side of Cable Airport. The police department has a Eurocopter AS350 located at the airport and rents a hangar and two helicopter parking spaces near the Runway 6 threshold. Both hangar and office space are planned to be expanded in the short-term and hopes for more control in the ramp area for the expansion area. Ontario Police Department has airside and landside access through a two-story building that connects to the Cable Business Park.

EXISTING LANDSIDE FACILITIES

The landside facilities consist of those airport elements that provide the facilities necessary for ground transportation vehicles and which are accessible to the public as shown in Figure 3-3.

Cable Business Park

A business park, which the airport has a vested interest in, is located south of Runway 6 on approximately 17 acres. The business park features various uses, such as commercial, business, and industrial. The buildings located along the runway have two stories. The bottom story is a storefront commercial/office use while the second story is conventional hangar space used by airport tenants accessible by adjoining apron. There is an elevation difference of the ground that makes this development possible. There are FBOs and aviation users such as Ontario Police Department that utilize both office and hangar space. Every other hangar has direct access to office space below.

Non-Aviation Areas

In addition to the Cable Business Park, other areas on airport are used for non-aviation uses. An area on the north side of Cable Airport is temporarily used for the storage of old military vehicle parking. This area is planned to be developed into five large box hangars. Also on the north side of the airport is an observation platform for the public overlooking the Runway 24 approach. Occasional use for community events is associated with apron areas on the south side of the airport near the terminal, 7-sided-hangar, and box hangars. South of the hangars located on the southeast of Cable Airport is a vacant lot.

Ground Access

Cable Airport is accessible from various roads including North Benson Avenue, West 13th Street, West 14th Street, Airport Drive, and Dewey Way. West 13th Street and North Benson Avenue provide automobile access to landside facilities, West 14th Street, and Dewey Way only allow airport tenants access to through gates. Airport Drive provides access to the business park and the airside.

EXISTING UTILITIES

Water

Water is provided by the City of Upland - Water Department. The airport has a domestic and fire supply system in place with multiple connection points to the city system at 13th Street and 14th Street. Improvements were made to this system utilizing funding under AIP 04 to provide a new 8-inch public waterline connecting from the existing service at 14th Street and providing a new service to the existing hangars on the north side of the runway. Subsequently, a project funded under AIP 07 improved this service to connect to an existing service in 13th Street - providing a complete public waterline through the airport property. Improvements to existing services providing the Airport Café, the Aero Commander Hangars, and Foothill Aircraft with domestic water were made under AIP 07 funding.

Sewer

The majority of sewer treatment on Cable Airport has historically been through the use of septic systems. Under AIP funding, the Café, maintenance, and terminal buildings are the only ones that are on a domestic sewer line. Currently, only a portion of the south side of the airport has the ability to connect to domestic sewer.

Electrical/Communications

Construction projects have developed a backbone of electrical and telephone service throughout the airport. Service connections on the south of the runway are provided through Southern California Edison (SCE) drops in 13th Street, and connections on the north side are served from SCE drops from 14th Street. Service capacity provided is sufficient for the current level of development.

Storm Drain

Significant on-site storm drain systems have been constructed under AIP funding (grant numbers 04, 05, 06 and 07). Storm drain improvements have provided a backbone storm drain that was sized to serve the entire tributary area of the airport. The existing facilities were designed and constructed to protect hangars from the 100-year storm event.

SECURITY

Cable Airport security is provided by an airport perimeter fence encompassing most of the perimeter of the airport, gated access to the airside using a sophisticated card reading system, and security patrols by a private company. Signs are posted to warn against unlawful activity and entry to the airport. Aircraft are securely locked in hangars and tie-downs. There is no fence separating active aircraft operating areas from the terminal area; however, there is a rock curb in place.

BUILDING ASSESSMENT

Building conditions at Cable Airport are divided into the following categories based on visual exterior inspections:

- Excellent: A building was deemed excellent if it is in new or like new condition. This means there is no damage or signs of weathering or aging to be seen.
- Good: A building was deemed in good condition if there was either only some minor paint damage or minor roof damage. This does not include leaking roofs.
- Fair: This condition of building shows signs of weathering. This could include anything from paint cracking and flaking off to rusty conditions.
- Poor: If a building is deemed in poor condition, this means that the structure itself is falling apart. Poor buildings should be removed or rehabilitated as soon as possible.
- To be removed: The (unapproved) 2005 Airport Layout Plan indicated some buildings to be removed due to the building conditions or due to future development plans. This designation may change depending on developments and rehabilitations that have occurred since the 2005 ALP and recommendations made in this study.

Figure 3-9 shows Cable Airport and building conditions for all the buildings on airport property.

LAND USE REGULATIONS/ZONES

The City of Upland is currently updating its General Plan. The currently adopted General Plan is dated 1980 and the Land Use Element Update was approved by the City Council in 1996. The City of Upland has set aside 0.9 percent (approximately 71 acres) of City property for airport use. Airport-related uses fall into the category of industrial uses and are designated as commercial/industrial mixed use in the General Plan. In addition, special land uses include "privately owned but publicly used (quasi-public) facilities such as an airport." Surrounding land use includes open space to the north and west, light industrial to the east and south, and commercial/highway along the south. There are also small parcels designated commercial/airport land use to the south and east of the airport property.

BUILDING TABLE			
#	DESCRIPTION	#	DESCRIPTION
1	HANGARS A-N	12	HANGARS 200-238
2	7-SIDED MAINTENANCE BUILDING	13	HANGARS 239-269
3	AIRPORT OFFICE/MAINTENANCE	14	HANGARS 270-277
4	RESTROOMS	15	OPEN HANGARS 80-149
5	AIRCRAFT SALES OFFICE	16	HANGARS 150-199
6	TERMINAL BUILDING	17	HANGAR 40 - UPHOLSTERY SHOP
7	FLIGHT SCHOOL ANNEX	18	HANGAR 42 - PAINT SHOP
8	CIVIL AIR PATROL	19	HANGARS Q-Z
9	HANGARS 401-419	20	HANGARS 308-314
10A	HANGARS 1-16	21	HANGARS 301-307
10B	HANGARS 17-32	22	HANGAR 300
10C	HANGARS 33-48	23	HANGARS 315-316
10D	HANGARS 49-64	24	WASH RACK
10E	HANGARS 65-69	25	FUEL SELF SERVICE
11	CAP BUILDINGS	26	BSA

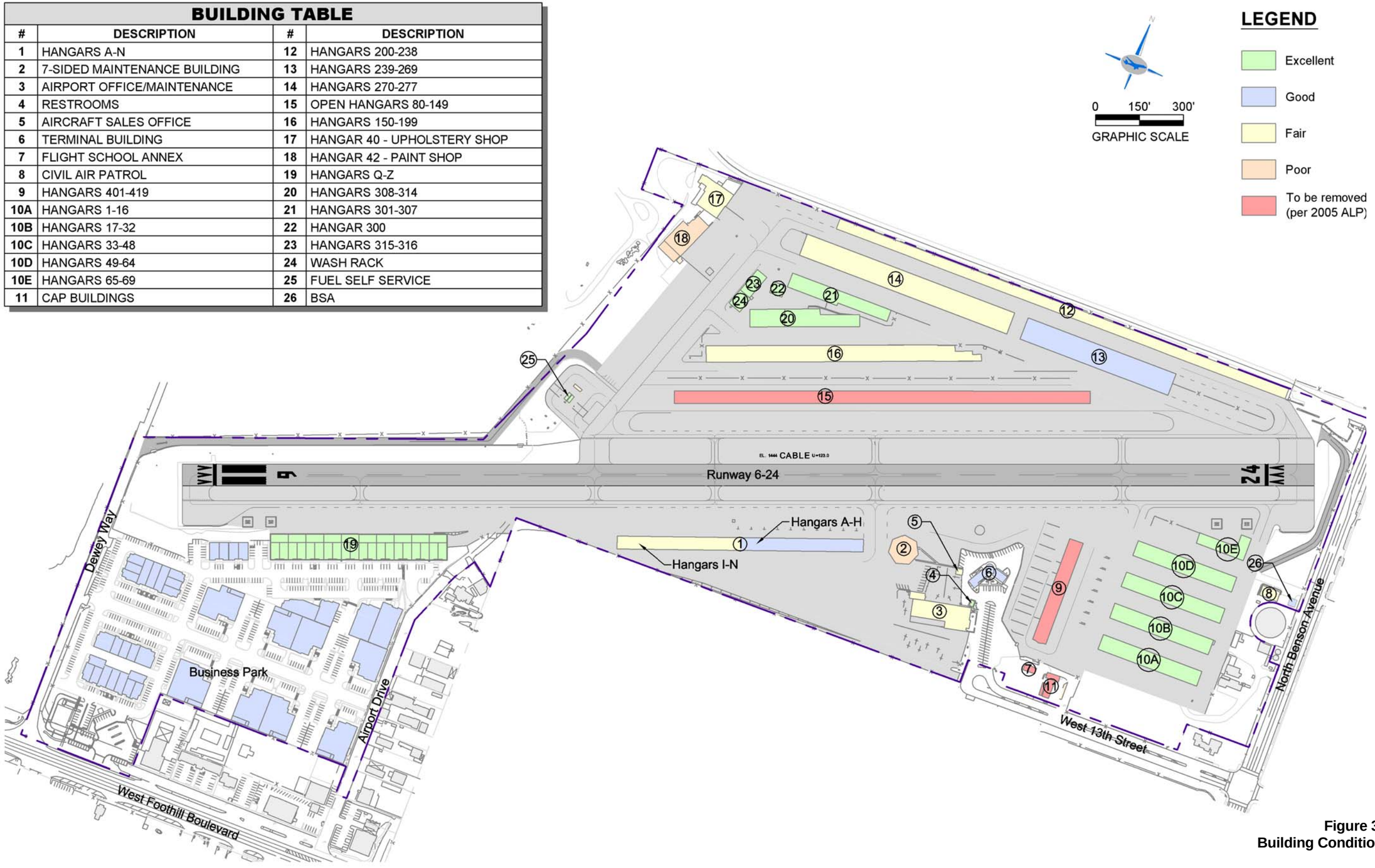


Figure 3-9
Building Conditions

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PROPOSED DEVELOPMENT

There are nine development areas noted in the 1980 master plan that have not been completed. These areas are shown in Figure 3-10. The first development area parallels Runway 6-24 along the Runway 6 end and proposed an extension of Taxiway B to a full-length parallel taxiway. Parallel to Taxiway B, another proposed development is to remove current shade hangars and replace them with aircraft hangars. Along the western property line there are two proposed development areas. The northwestern most corner is proposed to be developed into commercial/industrial use while the northwestern airport property border includes plans for industrial use with a ramp and service road. It includes the construction of five box hangars ranging from 4,200 to 10,000 square feet.

Near the terminal and wind tee, on the southern side of Runway 6-24 aircraft parking spaces, an AWOS, and an airport museum are planned. Current T-hangars east of the terminal building are proposed to be removed and the area be used for commercial/industrial use including the enlargement of the public parking lot.

Along the south edge of airport property and airport entrance road, the area currently vacant is proposed to be developed into a two-story building. The first story is to be used for commercial/industrial uses while the second story is to be used as hangar facilities for airport tenants. Two development areas are identified along the eastern airport property on either side of the tank along North Benson Avenue. Both areas are to be developed as commercial uses including offices and hangar complex developments.

As part of this study, appropriateness of these proposed developments will be reviewed and recommendations made.

HISTORICAL AIRPORT ACTIVITY

Airport activity was collected from the FAA 2009 Terminal Area Forecast. This subsection summarizes the recent historical levels of aviation activities at the airport in terms of based aircraft and aircraft operations. The turnaround in the general aviation industry that began with the passage of the General Aviation Revitalization Act in 1994 encountered setbacks in 2002. The tragic events of September 11th and their aftermath impacted the demand for general aviation products and services, both negatively and, in some cases positively. Shortly after 9/11, aviation was showing signs of a slow recovery that stalled in 2007. The downturn in the economy resulted in significant declines through aviation activity levels in 2009. These impacts affected both commercial and general aviation.

Business and corporate aviation continues to be a bright spot for the general aviation industry. Increased growth in fractional ownership companies and corporate flying has continued to expand the market for jet aircraft, though at reduced annual numbers. Numerous trade journal articles suggest that the fallout from September 11th has spurred interest in fractional or corporate aircraft ownership provided new growth opportunities for the on-demand charter industry. However, in more recent years corporate aviation has been downsizing due to pressures on the financial market.

As can be seen in Table 3-5, historical aviation activity at Cable Airport has varied from 140,250 to 41,000 operations per year since 1990. The FAA Terminal Area Forecast provides both historical and forecast data on aircraft operations at Cable Airport. In the 1990's until 1993 aircraft operations were estimated to exceed 140,000 a year. Of those operations, most were local operations. In 1994 there was a drop in both local and itinerant operations to approximately 88,000 operations per year. By 2005, Cable Airport was estimated to have approximately 92,200 annual operations of which most were local operations. Based on airport records and observations, it is estimated that there were approximately 41,000 operations in 2009. This decrease in annual operations most likely reflects the results of the great recession starting in 2007 and extending through 2009. In addition, an increase in oil and gas prices has negatively affected air traffic nationwide. Based aircraft were at 437 in 1990 and have maintained steady at around 360 aircraft since 1994.

The decline in based aircraft from 1993 to 1994 was due to a reduction in based aircraft facilities (tie-downs) as more hangars were constructed. This decreased the number of aircraft that could be based at the airport. The consistent numbers of based aircraft seen since 1993 are indicators of the number of hangar facilities available at the airport. Hangars are the preferred method of storing aircraft at Cable Airport.

Table 3-5
CABLE AIRPORT BASED AIRCRAFT AND TOTAL OPERATIONS (1990-2009)

Year	Based Aircraft	Local Operations	Itinerant Operations	Total Operations
1990	437	118,000	22,000	140,000
1991	436	118,000	22,250	140,250
1992	436	118,000	22,250	140,250
1993	436	118,000	22,250	140,250
1994	360	70,400	17,600	88,000
1995	360	70,400	17,600	88,000
1996	359	70,400	17,600	88,000
1997	359	70,400	17,600	88,000
1998	359	70,400	17,600	88,000
1999	359	70,400	17,600	88,000
2000	359	70,400	17,600	88,000
2001	360	70,400	17,600	88,000
2002	360	70,400	17,600	88,000
2003	360	70,400	17,600	88,000
2004	360	70,400	17,600	88,000
2005	362	73,751	18,438	92,189
2006	362	73,751	18,438	92,189
2007	365	73,751	18,438	92,189
2008	354	73,751	18,438	92,189
2009	358	N/A	N/A	41,000

Source: FAA Terminal Area Forecast, 2009; Airport Records.

BASED AIRCRAFT OWNER SURVEY

As part of the master plan, a survey was mailed to the based aircraft owners at the airport. A total of 316 surveys were mailed and 97 were returned (31 percent). A sample survey is provided in Appendix C. Respondents indicated a need for installation of AWOS/SuperAWOS. Other important improvements that were identified include pavement resurfacing, followed closely by pilot shop improvements. The three facilities that were rated as the lowest in adequacy by respondents are rental car facilities, crosswind coverage, and flight planning area.

It has been noted that weather conditions are different in Ontario (source of weather data used in this study) and Upland. Based aircraft owners indicated a need for additional crosswind coverage; however, Cable Airport previously featured a crosswind runway that has been closed. Based on discussions with airport staff, available weather data, and the closure of Runway 1-19, it is assumed that crosswind coverage is adequate. However, this will require further study once an AWOS is installed and 10 years of historical data accumulated.

The main reason respondents base their aircraft at Cable is the proximity to their homes. Approximately $14,475 is spent by based aircraft owners annually for hangar/tie-downs, fuel, maintenance, insurance, and other related items. Of respondents, 43 (41 percent) indicated flying activity to remain the same and 39 (40

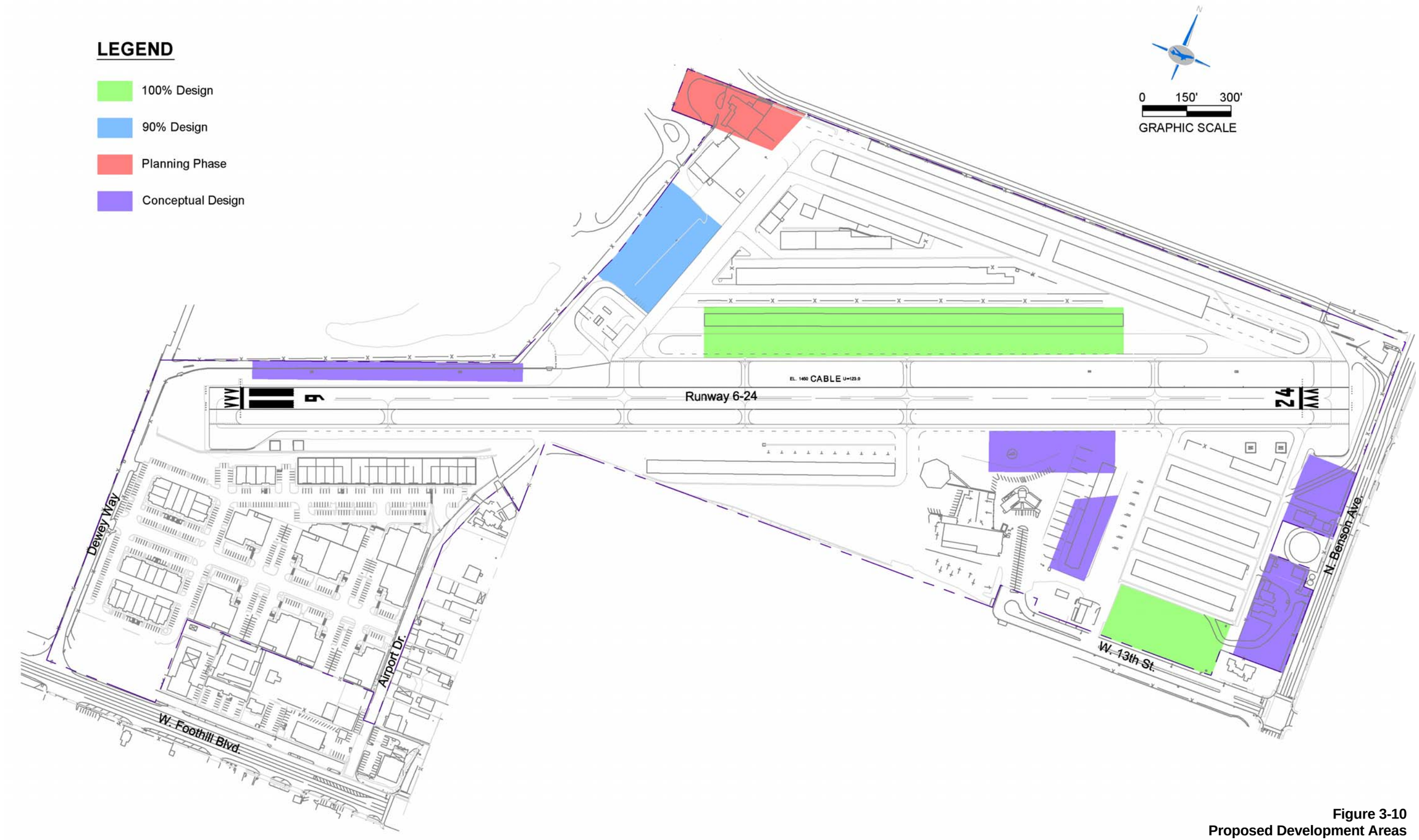

Figure 3-10
Proposed Development Areas

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percent) expected an increase in flying activity over the next five years. Many respondents commented on the positive, warm, and friendly atmosphere and how the staff is both professional and approachable.

NOISE ABATEMENT PROCEDURES

There are two noise abatement procedures at Cable Airport. Runway 6 has a left-hand traffic pattern. The noise abatement for Runway 6 states there are no touch-and-go's, no straight-out departures, no right departures, no down-wind departures, and no straight-in approaches. The traffic pattern altitude is at 2,250 feet mean sea level (MSL), which is approximately 800 feet above ground.

Runway 24 also has a left-hand departure. The noise abatement procedures for Runway 24 state that there are left turns only, no straight-out departures, no right departures, no down-wind departures, and no straight-in approaches. The pattern altitude is at 2,250 feet MSL.

AIRPORT PLANS AND STUDIES

Several sources of information were consulted during the preparation of this inventory. References that were used to obtain data for this report include, but are not limited to: (Cable Airport Master Plan (1981), Airport Layout Plan (1991 and 2005), on-site inventory, and interviews with airport staff and tenants are not included in this list.)

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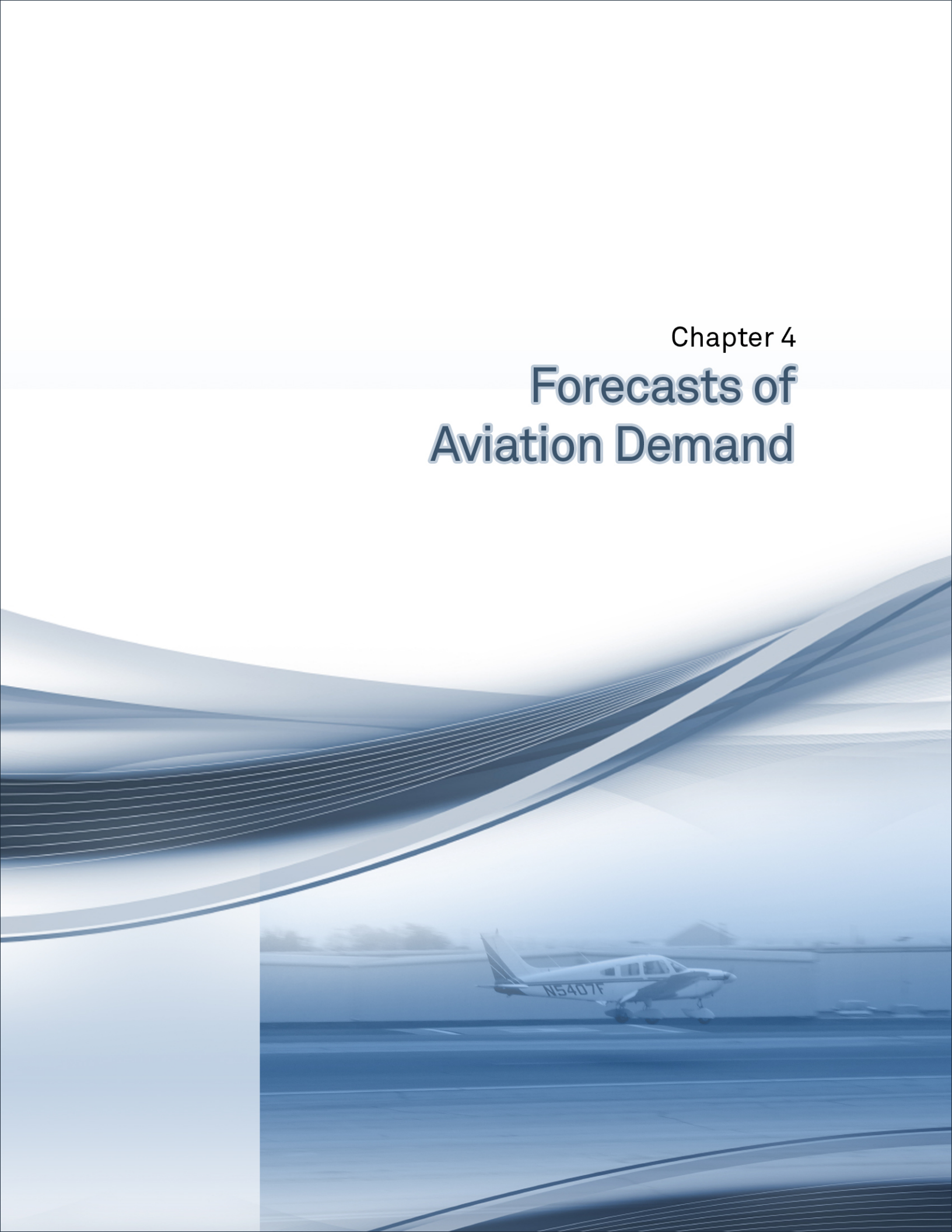
Chapter 4

Forecasts of Aviation Demand





Chapter 4
Forecasts of Aviation Demand

INTRODUCTION

This chapter presented the forecast of general aviation demand at Cable Airport. Prudent planning for the physical development of an airport requires a well-documented forecast of aviation activity at the subject facility. Once the forecasting tasks of the planning process have been completed, the airport planner can then translate the projected activity levels into required facilities. The forecast then serves as a basis for determining the phased development of the facility components for the short, intermediate, and long-range planning periods.

The forecast developed for this study covers the period between 2010 and 2030, with intermediate year forecasts presented for the years 2015 and 2020. It is important to note that the forecasts presented herein represent unconstrained potential or "market-driven" demand, without consideration of the physical, safety, noise, regulatory, institutional, or political constraints that may preclude development of facilities to fully serve the demand.

The forecast has been prepared for general aviation demand, and the assessment focused on based aircraft. The result of this analysis was utilized in the development of projections of aircraft operations and fuel flowage.

It is also important to note that due to the uncertainties in the long-range aviation outlook, long-term forecasting is approximate in nature. However, an indication of trends is important since estimates can be made of facility costs, social costs, and environmental impacts, which an airport creates on the surrounding area. Thus, the purpose of the forecasting effort is to identify activity levels, which then serve as planning tools.

COMPETITIVE MARKET AREA

The competitive market area (CMA) for Cable Airport includes portions of four counties including San Bernardino, Los Angeles, Riverside, and Orange. As previously noted, the airport is located on the western edge of San Bernardino County, adjacent to Los Angeles County. The CMA boundary is defined by census boundaries that include airports within the CMA. There are 13 airports within the CMA, including: Brackett Field, Chino, Corona Municipal, El Monte, Flabob, Fullerton Municipal, John Wayne – Orange County, March ARB, Ontario International, Redlands Municipal, Rialto Municipal (which is scheduled to close), Riverside Municipal, and San Bernardino International. Figure 4-1 depicts the CMA defined for this master plan study. Notable cities included within the CMA are: Anaheim, Corona, Fontana, Fullerton, Orange, Riverside, San Bernardino, Santa Ana, and West Covina.



Figure 4-1
Cable Airport CMA

Even though Ontario International Airport and March ARB are within the CMA, they do not directly compete with Cable Airport. Ontario International is a medium hub commercial service airport that primarily serves the Inland Empire area and surrounding communities. Due to the levels of commercial operations, general aviation activities are not typically conducted at Ontario International. Cable Airport is designated as a reliever to Ontario, meaning that general aviation activity is encouraged to operate from Cable instead. March ARB is a joint-use facility between the United States Air Force and the March Joint Powers Authority (March JPA). The March JPA has approximately 350 acres on-airport that is available for civil aviation uses. Presently the airport does not have general aviation based aircraft facilities and historically no civil aircraft have been based at the airport. However, it is noted that March JPA is constructing general aviation facilities. The type of aircraft expected to operate at March (corporate aircraft) are not able to operate at Cable.

Unlike Ontario International, John Wayne has many general aviation aircraft. General aviation based aircraft leaving John Wayne may move to Fullerton Municipal, which is also in Orange County. However, Fullerton has a shorter runway than Cable, and therefore aircraft requiring slightly longer runways, may move into San Bernardino County. In addition, aircraft from Rialto Airport will be relocating to similar airports within the CMA.

FORECAST OF BASED AIRCRAFT

A based aircraft is one that is permanently stationed at an airport, usually by some form of agreement between the aircraft owner and airport management. This forecast value is used in developing projections of aircraft activity, as well as determining facility requirements for airport elements such as aprons and hangars.

The approach used to forecast based aircraft at Cable involved the following steps: (1) project total based aircraft in the Cable Competitive Market Area (CMA); (2) forecast the share of based aircraft in the CMA served at Cable considering both supply (competitive airports) and demand factors; and (3) project the fleet mix of aircraft based at Cable. The methodology and assumptions used in each step are described below.

Total Based Aircraft in CMA

The latest FAA Terminal Area Forecast was used to compile historical based aircraft for the airports within the CMA. Over the past 20 years (1989 through 2009) based aircraft in the CMA decreased by an average of 1.6 percent per year (see Table 4-1). Total based aircraft have decreased from 4,891 in 1989 to 3,499 in 2009, a 28.5 percent reduction in based aircraft. Annual changes in the number of based aircraft have varied greatly, with a maximum decrease occurring from 1990 to 1991 (10.5 percent) and a maximum increase of 4.3 percent occurring from 1998 to 1999. Since 1989, nearly half of the years experienced positive and half experienced negative growth in based aircraft, but positive years have not offset the impacts of negative years.

Figure 4-2 graphically represents the based aircraft levels within the CMA since 1989. As can be seen in the figure, significant reductions in based aircraft within the CMA occurred between 1990/1991 (approximately 500 based aircraft) and from 2006 through 2008 (approximately 600 based aircraft). These decreases in based aircraft coincide with U.S. recessions of the early 1990s and late 2000s. With the exception of these two declines, based aircraft levels within the CMA have been relatively constant and have hovered around 4,000. In fact, from 1995 to 2006 based aircraft within the CMA have been between 3,800 and 4,200.

Total Based Aircraft at Cable Airport

Historically, the market share of Cable has been an average of 9.3 percent of the general aviation aircraft based within the CMA. This rate has varied from a low of 8.7 percent in 1994 to as much as 10.4 percent

in 2008. Table 4-1 presented the number of based aircraft at CMA airports for the period 1989 through 2009 and the respective share of each airport.

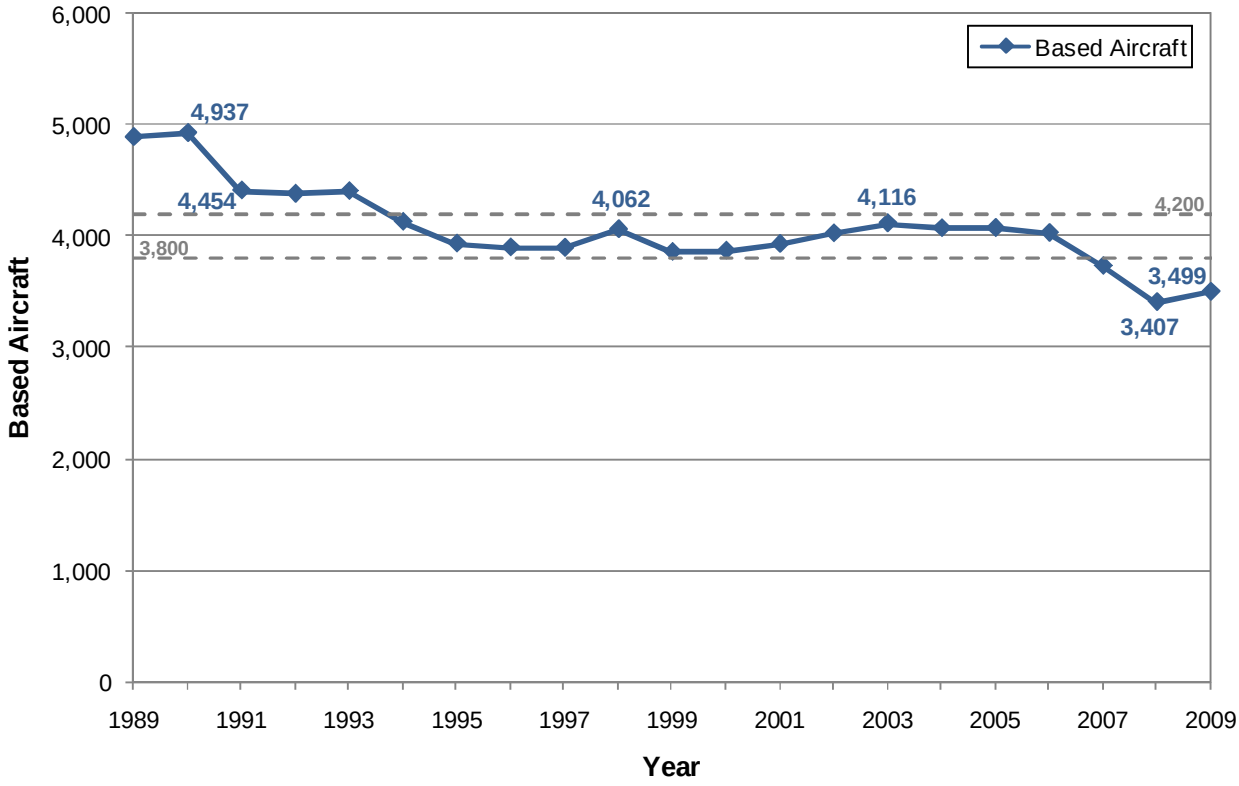


Figure 4-2
Based Aircraft within the CMA since 1989

Historically, Brackett, Chino, Corona, El Monte, Fullerton, and John Wayne, have averaged a greater share of based aircraft than Cable Airport. However, El Monte has at times also had lower market shares than Cable. Cable Airport's share of the based aircraft market has remained fairly stable with a range of 1.7 percent between the low and high market shares. Only two other airports with significant historical data (Redlands and San Bernardino), have experienced lower fluctuations in market share.

When developing the forecast for Cable Airport it is important to understand the impact of Rialto Municipal Airport. The City of Rialto is in the process of a major redevelopment project – Renaissance Rialto. As part of this redevelopment project, Rialto Municipal will be closed, with aviation capacity and facilities reallocated/relocated to San Bernardino International Airport. This relocation project requires the City of Rialto and its developer (Lewis-Hillwood Rialto) to replace or rebuild certain general aviation assets at San Bernardino International. The timing of this project has been slowed due to present economic conditions, but it is assumed that it will take 5 to 10 years for Renaissance Rialto to be completed with the airport closing in 5 years. Presently, Rialto is home to approximately 110 based aircraft, most of which are single engine airplanes.

As part of this analysis it is assumed that a percentage of these based aircraft may relocate to Cable Airport. This assumption was made for the following reasons:

- **Airport Traffic Control Tower.** Rialto is a non-towered airport. In contrast, San Bernardino International Airport recently reactivated a control tower. While the number of operations at San Bernardino is similar to Rialto, an air traffic control tower can make operating at the airport more cumbersome for recreational pilots – the primary users at Rialto.

Table 4-1
HISTORICAL BASED AIRCRAFT IN THE CABLE AIRPORT CMA (1989 – 2009)

	Based Aircraft													
	Brackett		Cable		Chino		Corona		El Monte		Flabob		Total	
Year	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA
1989	498	10.18%	437	8.93%	792	16.19%	580	11.86%	467	9.55%	N/A	N/A	4,891	100.00%
1990	488	9.90%	437	8.87%	792	16.07%	580	11.77%	513	10.41%	N/A	N/A	4,927	100.00%
1991	466	10.56%	436	9.88%	876	19.86%	580	13.15%	502	11.38%	N/A	N/A	4,411	100.00%
1992	470	10.73%	436	9.95%	876	20.00%	580	13.24%	461	10.52%	N/A	N/A	4,381	100.00%
1993	474	10.76%	436	9.90%	876	19.88%	580	13.16%	482	10.94%	N/A	N/A	4,406	100.00%
1994	446	10.80%	360	8.72%	841	20.37%	580	14.05%	444	10.75%	N/A	N/A	4,129	100.00%
1995	431	10.96%	360	9.15%	840	21.35%	470	11.95%	436	11.08%	N/A	N/A	3,934	100.00%
1996	458	11.74%	359	9.21%	840	21.54%	471	12.08%	409	10.49%	N/A	N/A	3,900	100.00%
1997	481	12.35%	359	9.22%	840	21.57%	381	9.78%	415	10.65%	N/A	N/A	3,895	100.00%
1998	512	12.60%	359	8.84%	840	20.68%	381	9.38%	411	10.12%	140	3.45%	4,062	100.00%
1999	439	11.38%	359	9.30%	840	21.77%	381	9.87%	409	10.60%	N/A	N/A	3,859	100.00%
2000	440	11.37%	359	9.27%	840	21.70%	381	9.84%	420	10.85%	N/A	N/A	3,871	100.00%
2001	450	11.45%	360	9.16%	947	24.10%	381	9.69%	355	9.03%	N/A	N/A	3,930	100.00%
2002	526	13.07%	360	8.94%	947	23.53%	381	9.47%	365	9.07%	N/A	N/A	4,025	100.00%
2003	524	12.73%	360	8.75%	951	23.10%	381	9.26%	365	8.87%	73	1.77%	4,116	100.00%
2004	544	13.36%	360	8.84%	947	23.26%	414	10.17%	365	8.97%	N/A	N/A	4,071	100.00%
2005	525	12.89%	362	8.89%	947	23.25%	414	10.16%	367	9.01%	N/A	N/A	4,073	100.00%
2006	529	13.13%	362	8.98%	947	23.50%	414	10.28%	306	7.59%	N/A	N/A	4,029	100.00%
2007	428	11.47%	365	9.78%	641	17.18%	414	11.10%	306	8.20%	N/A	N/A	3,731	100.00%
2008	419	12.30%	354	10.39%	530	15.56%	393	11.54%	324	9.51%	N/A	N/A	3,407	100.00%
2009	419	11.97%	358	10.23%	538	15.38%	393	11.23%	328	9.37%	60	1.71%	3,499	100.00%
Low	419	9.90%	354	8.72%	530	15.38%	381	9.26%	306	7.59%	60	1.71%	3,407	100.00%
Average	475	11.70%	378	9.30%	833	20.47%	454	11.10%	402	9.86%	91	2.31%	4,074	100.00%
High	544	13.36%	437	10.39%	951	24.10%	580	14.05%	513	11.38%	140	3.45%	4,927	100.00%

Sources: Flabob 1998 - 1998 CASP; Flabob 2003 - SCAG General Aviation Forecast; Flabob 2009 and Rialto 2007-2009 - Airport Management; Brackett and El Monte 1989 – 2009 – LA County Department of Airports; Cable 2008-2009 – Airport Management; 2009 FAA Terminal Area Forecast

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Table 4-1 (cont'd)
HISTORICAL BASED AIRCRAFT IN THE CABLE AIRPORT CMA (1989 – 2009)

	Based Aircraft													
	Fullerton		John Wayne		Redlands		Rialto		Riverside		San Bernardino		Total	
Year	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA	# of Aircraft	% of CMA
1989	575	11.76%	1,035	21.16%	214	4.38%	N/A	N/A	293	5.99%	N/A	N/A	4,891	100.00%
1990	575	11.67%	1,035	21.01%	214	4.34%	N/A	N/A	293	5.95%	N/A	N/A	4,927	100.00%
1991	401	9.09%	617	13.99%	230	5.21%	N/A	N/A	303	6.87%	N/A	N/A	4,411	100.00%
1992	401	9.15%	617	14.08%	237	5.41%	N/A	N/A	303	6.92%	N/A	N/A	4,381	100.00%
1993	401	9.10%	617	14.00%	237	5.38%	N/A	N/A	303	6.88%	N/A	N/A	4,406	100.00%
1994	401	9.71%	547	13.25%	207	5.01%	N/A	N/A	303	7.34%	N/A	N/A	4,129	100.00%
1995	423	10.75%	568	14.44%	205	5.21%	N/A	N/A	201	5.11%	N/A	N/A	3,934	100.00%
1996	335	8.59%	569	14.59%	206	5.28%	N/A	N/A	228	5.85%	25	0.64%	3,900	100.00%
1997	379	9.73%	574	14.74%	206	5.29%	N/A	N/A	235	6.03%	25	0.64%	3,895	100.00%
1998	379	9.33%	574	14.13%	206	5.07%	N/A	N/A	235	5.79%	25	0.62%	4,062	100.00%
1999	379	9.82%	576	14.93%	206	5.34%	N/A	N/A	235	6.09%	35	0.91%	3,859	100.00%
2000	379	9.79%	576	14.88%	206	5.32%	N/A	N/A	235	6.07%	35	0.90%	3,871	100.00%
2001	379	9.64%	573	14.58%	206	5.24%	N/A	N/A	235	5.98%	44	1.12%	3,930	100.00%
2002	379	9.42%	573	14.24%	206	5.12%	N/A	N/A	235	5.84%	53	1.32%	4,025	100.00%
2003	381	9.26%	580	14.09%	206	5.00%	N/A	N/A	242	5.88%	53	1.29%	4,116	100.00%
2004	379	9.31%	577	14.17%	206	5.06%	N/A	N/A	235	5.77%	44	1.08%	4,071	100.00%
2005	385	9.45%	585	14.36%	221	5.43%	N/A	N/A	235	5.77%	32	0.79%	4,073	100.00%
2006	385	9.56%	589	14.62%	221	5.49%	N/A	N/A	246	6.11%	30	0.74%	4,029	100.00%
2007	385	10.32%	585	15.68%	221	5.92%	110	2.95%	246	6.59%	30	0.80%	3,731	100.00%
2008	290	8.51%	604	17.73%	173	5.08%	110	3.23%	182	5.34%	28	0.82%	3,407	100.00%
2009	293	8.37%	612	17.49%	173	4.94%	110	3.14%	187	5.34%	28	0.80%	3,499	100.00%
Low	290	8.37%	547	13.25%	173	4.34%	110	2.95%	182	5.11%	25	0.62%	3,407	100.00%
Average	394	9.64%	628	15.34%	210	5.17%	110	3.11%	248	6.07%	35	0.89%	4,074	100.00%
High	575	11.76%	1,035	21.16%	237	5.92%	110	3.23%	303	7.34%	53	1.32%	4,927	100.00%

Sources: Flabob 1998 - 1998 CASP; Flabob 2003 - SCAG General Aviation Forecast; Flabob 2009 and Rialto 2007-2009 - Airport Management; Brackett and El Monte 1989 – 2009 – LA County Department of Airports; Cable 2008-2009 – Airport Management; 2009 FAA Terminal Area Forecast

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- **Commercial Service.** The San Bernardino International Airport Authority and Inland Valley Development Agency have invested hundreds of millions of dollars at the airport and surrounding areas. The 67,000-square foot, 4-gate terminal building renovation was completed in 2010. While the airport does not presently have commercial service, a marketing effort is underway to secure airline service. It is assumed that service will be initiated at San Bernardino in the short-term (next 5 years).

- **Part 139 Certification.** In preparation of obtaining commercial service, San Bernardino International became certified under FAR Part 139. This means that there are additional security screening requirements and more restrictive access to San Bernardino than is present at Rialto or Cable.

- **Corporate Aviation Facility.** In 2011, it is anticipated that San Bernardino's corporate aviation facility will be completed. This facility caters to business jet traffic. Such traffic is not readily compatible with extensive single engine aircraft.

- **Geographic Location.** Rialto Municipal is located between San Bernardino International and Cable Airport. Therefore, based aircraft owners located west of Rialto may be more inclined to relocate to Cable Airport, as it would be closer and more convenient. To the east of San Bernardino is Redlands Municipal, another facility that is similar in size and uses (primarily recreation) as Rialto. Rialto Municipal is located approximately 10 miles from San Bernardino International, 15 miles from Redlands, and 16 miles from Cable.

Of Rialto's 110 based aircraft approximately 94 are single engine aircraft, 4 multi-engine aircraft, and 11 are helicopters. The San Bernardino County Sheriff's helicopter operation is conducted at Rialto. Mercy Air also is based at the airport. For the purpose of this forecast it is assumed that all multi-engine and helicopter aircraft will be relocated to San Bernardino, where replacement facilities will be provided. A portion of the single engine aircraft could potentially relocate to Cable. This potential relocation is included in some of the forecast scenarios presented below. It is also assumed that the closure of Rialto will occur in the short-term, by 2015.

The approach used to forecast based aircraft at Cable was based on the airport's share of based aircraft in the CMA. Table 4-2 presents the number of based aircraft within California and the CMA.

Table 4-2
BASED AIRCRAFT FORECAST
CALIFORNIA AND CMA 2009, 2015-2030

	Actual	Forecast		
	2009	2015	2020	2030
California	23,176	23,355	25,280	27,389
CMA	3,499	3,424	3,571	3,888
CMA % of California	15.1%	14.7%	14.1%	14.2%

Source: FAA 2009 Terminal Area Forecast; AECOM analysis.

A range of forecasts was developed based on the following assumptions (scenarios) regarding Cable's future share of the based aircraft market in the CMA and potential relocation of aircraft from Rialto:

- **Low Growth Forecast.** This scenario assumes the number of based aircraft at Cable will remain constant at 360 (present levels). This no growth scenario parallels the FAA's forecast for the airport. Under this scenario, it is assumed that no based aircraft will be relocated from Rialto, or that any aircraft that do relocate will replace existing tenants leaving the airport. This scenario represents a decline in market share from about 10.2 percent today to 9.3 percent in 2030.

- **Baseline Forecast.** This scenario assumes a condition where Cable Airport's competitive position reflects a slightly higher than average share of based aircraft in the CMA over the last five years, plus 23 based aircraft relocated from Rialto. Over the last five years Cable's captured an average of 9.3 percent of the CMA and from 2004 to 2008 was on an increasing trend. A slight decrease was seen in 2009. For this scenario a capture rate of 9.8 percent was assumed, plus based aircraft relocated from Rialto. This scenario also includes a slight increase in based aircraft associated with the new Light Sport pilot certification. With the increased based aircraft from Rialto, it is assumed that Cable will capture 10.4 percent of the based aircraft in 2030 within the CMA under this scenario.

- **High Growth Forecast.** This scenario assumes that Cable will exceed its historical high market capture rate of 10.4 percent set in 2008. This scenario assumes a capture rate of 11.1 percent, plus 23 based aircraft from Rialto; representing an actual CMA capture rate of 11.7 percent in 2030. This scenario also represents an increase in based aircraft to accommodate the Light Sport pilot certification and also a small number of very light jet (VLJ) aircraft.

Applying these assumptions to the forecast of based aircraft in the CMA, results in the projections for based aircraft at Cable Airport, as shown in Table 4-3. As may be noted, all forecasts start at the existing (June 2010) based aircraft levels of 360 based aircraft, as obtained from Cable Airport. Under the Low Growth Forecast, based aircraft are projected to remain constant at 360 based aircraft. The Baseline Forecast, estimates that 404 based aircraft will be based at the airport in 2030 and the High Growth Forecast projects 454 based aircraft in 2030. Figure 4-3 graphically presents the based aircraft forecast.

Table 4-3
BASED AIRCRAFT FORECAST – CABLE AIRPORT 2009-2030

		Forecast		
	Actual	**2015**	**2020**	**2030**
CMA	3,499	3,424	3,571	3,888
Cable Airport				
Low Growth	358	360	360	360
Baseline	358	387	393	404
High Growth	358	398	416	454
Cable % CMA				
Low Growth	10.2%	10.5%	10.1%	9.3%
Baseline	10.2%	11.3%	11.0%	10.4%
High Growth	10.2%	11.6%	11.6%	11.7%

Source: AECOM analysis.

Based Aircraft Fleet Mix

The forecasted fleet mix of general aviation aircraft located at Cable Airport was based on historical fleet mix information contained in the FAA TAF for the CMA (Table 4-4) and the airport (Table 4-5). Table 4-4 lists based aircraft by type for Cable and the CMA. From this it is seen that single engine aircraft within the CMA has declined by 33 percent. Conversely, Cable's share of based single engine aircraft has increased. Jets within the CMA have increased by approximately 70 percent. Cable Airport has occasionally had only one based jet and the current based jet is inoperative. Multi-engine aircraft within the CMA have decreased by approximately 55 percent and decreased 25 percent at the airport.

Helicopters within the CMA have increased by 20 percent and Cable's share of based helicopters has varied from 2 to 6 percent.

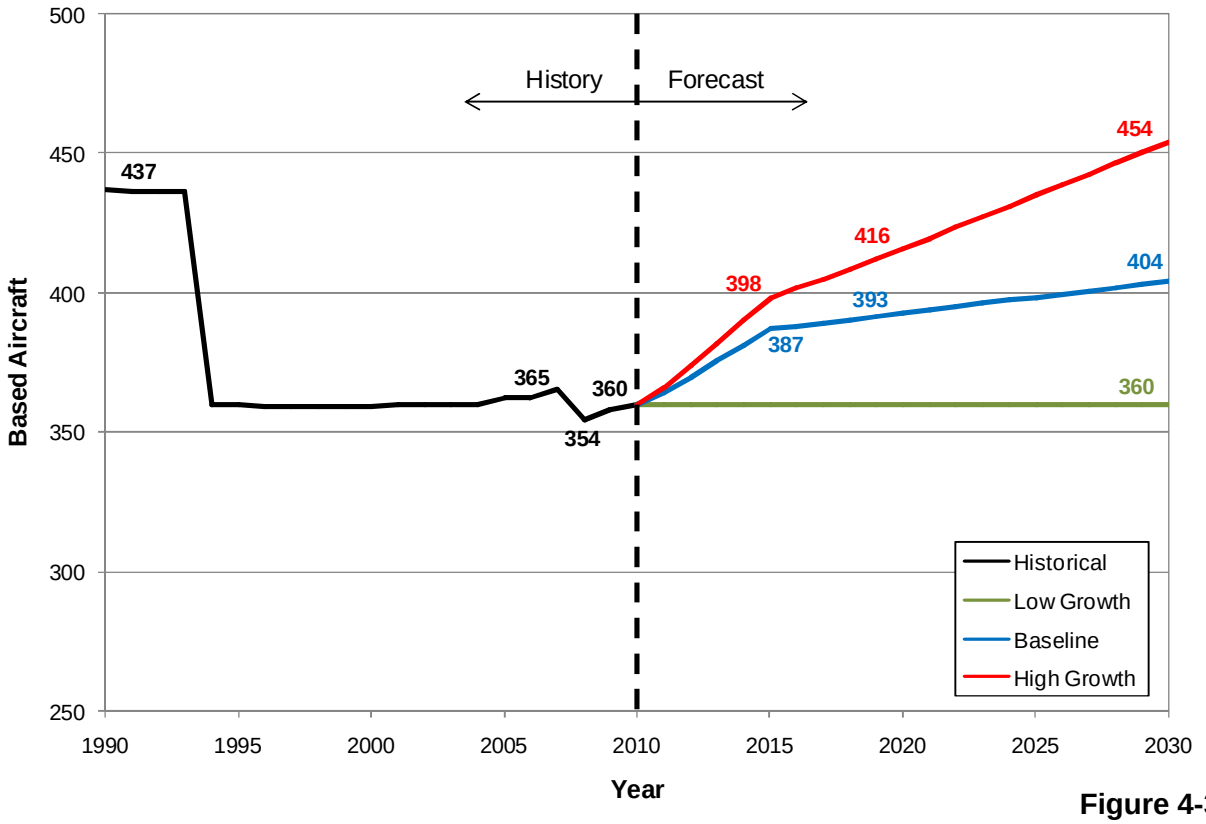

Figure 4-3
Cable Airport Based Aircraft

Table 4-4
BASED AIRCRAFT FLEET MIX FOR CMA AND CABLE AIRPORT 1990-2009

Year	Single Engine	Jet	Multi-Engine	Helicopter	Other	Total
CMA						
1990	4,138	60	655	84	0	4,937
1995	3,482	45	405	50	6	3,988
2000	3,384	53	402	61	6	3,906
2005	3,419	101	458	72	13	4,063
2009	2,753	104	307	101	19	3,284
Cable Airport						
1990	408	1	28	0	0	437
1995	328	0	28	3	1	360
2000	328	0	28	3	0	359
2005	328	0	28	4	2	362
2009	330	1	21	3	3	358
Cable Airport as a % of CMA						
1990	9.86%	1.67%	4.27%	0.00%	0.00%	8.85%
1995	9.42%	0.00%	6.91%	6.00%	16.67%	9.03%
2000	9.69%	0.00%	6.97%	4.92%	0.00%	9.19%
2005	9.59%	0.00%	6.11%	5.56%	15.38%	8.91%
2009	11.99%	0.96%	6.84%	2.97%	15.43%	10.90%

Source: FAA 2009 Terminal Area Forecast; Cable Airport; and AECOM analysis.

Table 4-5
HISTORICAL FLEET MIX AT CABLE AIRPORT (1989 – 2009)

Year	Single Engine	Multi-Engine	Jet	Helicopter	Other	Total
1989	408	28	1	0	0	437
1990	408	28	1	0	0	437
1991	408	28	0	0	0	436
1992	408	28	0	0	0	436
1993	408	28	0	0	0	436
1994	328	28	0	3	1	360
1995	328	28	0	3	1	360
1996	328	28	0	3	0	359
1997	328	28	0	3	0	359
1998	328	28	0	3	0	359
1999	328	28	0	3	0	359
2000	328	28	0	3	0	359
2001	328	28	0	2	2	360
2002	328	28	0	2	2	360
2003	328	28	0	2	2	360
2004	328	28	0	2	2	360
2005	328	28	0	4	2	362
2006	328	28	0	4	2	362
2007	328	29	0	5	3	365
2008	327	21	1	3	2	354
2009	330	21	1	3	3	358
			% of Based Aircraft			
1989	93.36%	6.41%	0.23%	0.00%	0.00%	100.00%
1990	93.36%	6.41%	0.23%	0.00%	0.00%	100.00%
1991	93.58%	6.42%	0.00%	0.00%	0.00%	100.00%
1992	93.58%	6.42%	0.00%	0.00%	0.00%	100.00%
1993	93.58%	6.42%	0.00%	0.00%	0.00%	100.00%
1994	91.11%	7.78%	0.00%	0.83%	0.28%	100.00%
1995	91.11%	7.78%	0.00%	0.83%	0.28%	100.00%
1996	91.36%	7.80%	0.00%	0.84%	0.00%	100.00%
1997	91.36%	7.80%	0.00%	0.84%	0.00%	100.00%
1998	91.36%	7.80%	0.00%	0.84%	0.00%	100.00%
1999	91.36%	7.80%	0.00%	0.84%	0.00%	100.00%
2000	91.36%	7.80%	0.00%	0.84%	0.00%	100.00%
2001	91.11%	7.78%	0.00%	0.56%	0.56%	100.00%
2002	91.11%	7.78%	0.00%	0.56%	0.56%	100.00%
2003	91.11%	7.78%	0.00%	0.56%	0.56%	100.00%
2004	91.11%	7.78%	0.00%	0.56%	0.56%	100.00%
2005	90.61%	7.73%	0.00%	1.10%	0.55%	100.00%
2006	90.61%	7.73%	0.00%	1.10%	0.55%	100.00%
2007	89.86%	7.95%	0.00%	1.37%	0.82%	100.00%
2008	92.37%	5.93%	0.28%	0.85%	0.56%	100.00%
2009	92.18%	5.87%	0.28%	0.84%	0.84%	100.00%
Low	89.86%	5.87%	0.00%	0.00%	0.00%	100.00%
Average	91.74%	7.28%	0.05%	0.63%	0.29%	100.00%
High	93.58%	7.95%	0.28%	1.37%	0.84%	100.00%

Source: FAA 2009 Terminal Area Forecast and Cable Airport.

As can be seen in Table 4-5, Cable Airport primarily houses single engine aircraft (approximately 92 percent of based aircraft). Up until 2007, there was a greater presence of multi-engine aircraft, and a jet has been based at the airport occasionally throughout the last 20 years. On average, multi-engine and jet aircraft comprise 7.4 percent of based aircraft. Helicopters have been fairly constant since 2001 – an average of approximately 0.6 percent.

The aircraft fleet mix at Cable was estimated based on the trends expected in the CMA as reflected in the FAA's 2009 Terminal Area Forecast. The fleet mix was modified under the Baseline and High Growth Forecast to reflect an increase of multi-engine based aircraft, nominal growth of based jet aircraft, and increases of based helicopters.

When applied to the total number of based aircraft forecast for the airport, these assumptions result in the fleet mix of based aircraft shown in Table 4-6. Single engine piston aircraft are expected to be the predominant type of based aircraft located at Cable, followed by multi-engine piston aircraft and helicopters.

Table 4-6
FORECAST BASED AIRCRAFT FLEET MIX AT CABLE AIRPORT 2009-2030

	Total				% Total			
	2009	**2015**	**2020**	**2030**	**2009**	**2015**	**2020**	**2030**
Low Growth Forecast								
Aircraft Type								
Single Engine	330	332	332	332	92.18%	92.18%	92.18%	92.18%
Multi-Engine	21	21	21	21	5.87%	5.87%	5.87%	5.87%
Jet	1	1	1	1	0.28%	0.28%	0.28%	0.28%
Helicopter	3	3	3	3	0.84%	0.84%	0.84%	0.84%
Other	3	3	3	3	0.84%	0.84%	0.84%	0.84%
Total	358	360	360	360	100.00%	100.00%	100.00%	100.00%
Baseline Forecast								
Aircraft Type								
Single Engine	330	354	357	363	92.18%	91.60%	91.02%	89.86%
Multi-Engine	21	24	26	29	5.87%	6.22%	6.57%	7.28%
Jet	1	1	1	2	0.28%	0.31%	0.34%	0.40%
Helicopter	3	4	5	7	0.84%	1.03%	1.23%	1.62%
Other	3	3	3	3	0.84%	0.84%	0.84%	0.84%
Total	358	387	393	404	100.00%	100.00%	100.00%	100.00%
High Growth Forecast								
Aircraft Type								
Single Engine	330	362	374	399	92.18%	91.08%	89.99%	87.80%
Multi-Engine	21	25	29	36	5.87%	6.40%	6.93%	8.00%
Jet	1	2	2	4	0.28%	0.41%	0.54%	0.80%
Helicopter	3	5	8	14	0.84%	1.38%	1.92%	3.00%
Other	3	3	3	2	0.84%	0.73%	0.62%	0.40%
Total	358	398	416	454	100.00%	100.00%	100.00%	100.00%

Source: AECOM analysis.

It is noted that there has been a recent trend of helicopter operators basing their aircraft at Cable. The Baseline and High Growth Forecasts reflect a continuation of this trend.

Selected Forecast

The Baseline Forecast was selected to be used for this master plan. This forecast reflects a steady growth rate at the airport; 1.5 percent annually through 2015 (primarily due to an assumed relocation of Rialto based aircraft) and 0.3 percent annual increase from 2016 through 2030. Under the Baseline Forecast, it is projected that 404 based aircraft will be located at Cable in 2030, which is less than the peak of 437 based aircraft at the airport in 1989. As evidenced over the last 20 years, Cable Airport has had little to no growth, but is in an ideal position to capture additional based aircraft from the CMA as competing airports close and/or change in function. In addition, throughout the last 20 years, tie-down spaces have been replaced with hangars (the preferred method of storing an aircraft), which decreases the total number of based aircraft facilities.

The Low Growth Forecast projects no growth at the airport, which is not prudent for planning purposes. The High Growth Forecast, which also includes a relocation of Rialto based aircraft, represents a 2.0 percent annual increase through 2015 and a 0.9 percent annual increase for the rest of the planning period. Under present economic conditions, the High Growth Forecast levels seem unrealistic in the next 20 years.

Comparison with Other Forecasts

Three other forecasts of based aircraft have been prepared for Cable Airport in the past. These include:

- 2009 Terminal Area Forecast (TAF) prepared by the FAA
- California Aviation System Plan (CASP) 1999 Update
- 2003 General Aviation Study for the SCAG (Southern California Association of Governments) Region

These three forecasts are summarized in Table 4-7 and compared with the Baseline Forecast of based aircraft.

Table 4-7
COMPARISON OF BASELINE FORECAST OF BASED AIRCRAFT WITH 2009 FAA TAF, 1999 CASP, AND 2003 SCAG

		Forecast		
Item	**2010**	**2015**	**2020**	**2030**
Baseline Forecast	360	387	393	404
2009 TAF	116	116	116	116
2009 TAF – Adjusted	360	360	360	360
2003 SCAG	366	370	374	380
1999 CASP	400	400	N/A	N/A

N/A – Data not available.
Sources: As noted.

The 2009 TAF reflected an inaccurate number of based aircraft at Cable Airport. According to airport records, there are 360 based aircraft located at the airport as of June 2, 2010. This is substantially different than the information noted in the TAF. The TAF projects no growth at the airport. Therefore, adjusting the TAF to current based aircraft levels will result in a "flat line" forecast of 360 based aircraft through 2030. This is reflected as "2009 TAF – Adjusted" in the table.

Intermediate years for the 2003 SCAG are estimated assuming a constant growth rate. The 2003 SCAG forecast noted that there were 360 based aircraft in 2001. It was assumed that the SCAG forecast used 360 based aircraft as its base number in 2003 and a constant growth rate was assumed to reach 380 based aircraft in 2030.

It is seen in Table 4-7 that all forecasts for Cable Airport reflect low or no growth. The Baseline Forecast selected in this master plan also assumes a nominal rate of growth, with a large increase in the short-term from an assumed relocation of Rialto based aircraft.

FORECAST OF AIRCRAFT OPERATIONS

An aircraft operation, or movement, is defined as either a takeoff or landing with each operation being categorized as either local or itinerant. A local operation is one that is performed by aircraft that: (1) operate in the local traffic pattern or within sight of the airport; (2) are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport; or (3) execute simulated instrument approaches or low passes at the airport. Itinerant operations are all operations other than local.

Annual Operations

Annual aircraft operations for the years 1990 to 2009 are shown in Table 4-8. Cable is a low to moderate activity airport without a control tower and therefore the number of operations noted in Table 4-8 appear to be based on annual estimates which over time were sometimes repeated in subsequent years. This is not unusual for non-towered airports and is often the case when FAA Forms 5010-1 are updated.

Table 4-8
ANNUAL AIRCRAFT OPERATIONS BY TYPE
CABLE AIRPORT 1990 – 2009

	Itinerant				Local			
Year	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	Total Operations
1990	600	21,150	250	22,000	118,000	0	118,000	140,000
1991	0	22,000	250	22,250	118,000	0	118,000	140,250
1992	0	22,000	250	22,250	118,000	0	118,000	140,250
1993	0	22,000	250	22,250	118,000	0	118,000	140,250
1994	0	17,600	0	17,600	70,400	0	70,400	88,000
1995	0	17,600	0	17,600	70,400	0	70,400	88,000
1996	0	17,600	0	17,600	70,400	0	70,400	88,000
1997	0	17,600	0	17,600	70,400	0	70,400	88,000
1998	0	17,600	0	17,600	70,400	0	70,400	88,000
1999	0	17,600	0	17,600	70,400	0	70,400	88,000
2000	0	17,600	0	17,600	70,400	0	70,400	88,000
2001	0	17,600	0	17,600	70,400	0	70,400	88,000
2002	0	17,600	0	17,600	70,400	0	70,400	88,000
2003	0	17,600	0	17,600	70,400	0	70,400	88,000
2004	0	17,600	0	17,600	70,400	0	70,400	88,000
2005	0	18,438	0	18,438	73,751	0	73,751	92,189
2006	0	18,438	0	18,438	73,751	0	73,751	92,189
2007	0	18,438	0	18,438	73,751	0	73,751	92,189
2008	0	18,438	0	18,438	73,751	0	73,751	92,189
2009	N/A	N/A	N/A	N/A	N/A	N/A	N/A	41,000

Source: 1990-2008 - FAA 2009 Terminal Area Forecast; 2009 Airport Records and AECOM analysis.

Since May 2009, Airport staff has maintained a log of operations. Airport staff generally logged takeoffs and landings between the hours of 8:00 am to 5:00 pm daily. This log is not all inclusive as staff was often performing multiple tasks and had to be away from the UNICOM, sometimes for extended periods. Since multiple people maintained the log, reporting methods varied. Therefore, operations counts for a day varied from a handful to a hundred or more. Also, pattern work or touch-and-go operations were not accurately reflected in the logs. It is not uncommon for a pilot to perform multiple landings and takeoffs

while performing touch-and-go's. The number of times a pilot performed a touch-and-go (which counts as two operations) was rarely indicated and can be quite varied.

Per data recorded in the log, the airport averaged approximately 1,000 operations per month. However, due to reasons noted above, it is assumed that less than one third of all operations were recorded. Therefore, it is estimated that from May 2009 to April 2010 approximately 41,000 operations occurred at the airport, or roughly 3,400 a month and just over a 110 per day. This is less than half of the number of operations shown in the TAF and through discussions with Airport staff, FBOs, and observations at the airport, is more realistic and in line with current levels of operations.

The technique used to develop the forecast of annual operations was to apply varying ratios of general aviation aircraft operations per based aircraft at Cable to future levels of based aircraft (see Table 4-9). For the Low Growth Forecast the current ratio of operations per based aircraft (115) was retained. For the Baseline Forecast, it was assumed that the number of operations per based aircraft would increase to the historical average of 256 by 2030. The High Growth Forecast assumes that the high level of operations per based aircraft experienced from 1991 through 1993 (322) is reached in the year 2030. The percent distribution of operations between local and itinerant was assumed to remain the same as indicated in the TAF (20 percent itinerant and 80 percent local).

Table 4-9
OPERATIONS PER BASED AIRCRAFT AT CABLE AIRPORT

Year	Operations	Based Aircraft	Operations per Based Aircraft	Year	Operations	Based Aircraft	Operations per Based Aircraft
1990	140,000	437	320	**2000**	88,000	359	245
1991	140,250	436	322	**2001**	88,000	360	244
1992	140,250	436	322	**2002**	88,000	360	244
1993	140,250	436	322	**2003**	88,000	360	244
1994	88,000	360	244	**2004**	88,000	360	244
1995	88,000	360	244	**2005**	92,189	362	255
1996	88,000	359	245	**2006**	92,189	362	255
1997	88,000	359	245	**2007**	92,189	365	253
1998	88,000	359	245	**2008**	92,189	354	260
1999	88,000	359	245	**2009**	41,000	358	115
Low	115		Average	256		High	322

Sources: Operations and Based Aircraft 1990-2009 – FAA 2009 Terminal Area Forecast; Operations and Based Aircraft 2010 – Airport Records and AECOM analysis; Operations per Based Aircraft - AECOM analysis.

The results of the Baseline, High Growth, and Low Growth Forecasts are shown in Table 4-10. Under the Baseline Forecast, total annual operations at Cable are projected to increase from 41,000 in 2009 to 103,300 in 2030. Under the High Growth Forecast total annual operations are projected to reach 146,100 by 2030; under the Low Growth Forecast, operations are expected to remain constant at 41,200 through 2030. All operations are general aviation, as commercial and military operations are not expected. With the exception of the Low Growth Forecast, all forecasts assume that the economy recovers and aviation demand increases. A potential increase in operations may be seen by Light Sport pilots and very light jet aircraft operations. It should be noted that without accurate historical traffic counts, the Baseline Forecast is probably optimistic.

If it is assumed that half of itinerant operations are transient, there were approximately 4,000 transient operations from May 2009 to April 2010.

Table 4-10
FORECAST OF ANNUAL AIRCRAFT OPERATIONS
CABLE AIRPORT 2009-2030

Year	Itinerant	Local	Total
2009	8,200	32,800	41,000
Low Growth Forecast			
2015	8,200	33,000	41,200
2020	8,200	33,000	41,200
2030	8,200	33,000	41,200
Baseline Forecast			
2015	11,600	46,500	58,100
2020	14,600	58,200	72,800
2030	20,700	82,600	103,300
High Growth Forecast			
2015	13,300	53,000	66,300
2020	18,100	72,600	90,700
2030	29,200	116,900	146,100

Source: AECOM analysis.

Annual Operations Comparison with Other Forecasts

The TAF, CASP, and SCAG also forecasted operations. Table 4-11 presents the forecasted operations at Cable Airport for each forecast including the Baseline Forecast. As can be seen in the table, existing operations are far below those forecasted by the FAA, SCAG, and the State. The Baseline Forecast is reasonably close to the FAA forecast in 2030. SCAG assumed a lower annual increase in operations and there is a significant difference in 2010, where actual operations were far below what was forecasted. Therefore, by 2030 the SCAG forecast is 26 percent higher than the Baseline Forecast. SCAG's 2010 forecast is roughly equal to the Baseline Forecast for 2030.

Table 4-11
COMPARISON OF BASELINE FORECAST OF AIRCRAFT OPERATIONS WITH FAA 2009 TAF, 1999 CALTRANS CASP AND 2003 SCAG

		Forecast		
Item	**2010**	**2015**	**2020**	**2030**
Baseline Forecast	41,200	58,100	72,800	103,300
2009 TAF	92,189	92,189	92,189	92,189
2003 SCAG	109,286	116,964	124,643	140,000
1999 CASP	93,329	94,661	N/A	N/A

N/A – Data Not Available
Sources: As noted.

Aircraft Operations by Aircraft Type

General aviation aircraft operations by type of aircraft were forecast by applying existing trends to future operations. The mix of existing (2009) operations was developed by calculating the ratio of operations per based aircraft. Without detailed operations data, it is assumed that all types of aircraft have the same ratio of operations per based aircraft. The future mix is based on trends reflected in the forecast of based

general aviation aircraft. Table 4-12 presents aircraft operations by type at the airport under the Baseline, High Growth, and Low Growth Forecast.

Table 4-12
FORECAST AIRCRAFT OPERATIONS BY TYPE

	Total			
	2009	2015	2020	2030
Low Growth Forecast				
Aircraft Type				
Single Engine	37,800	38,000	38,000	38,000
Multi-Engine	2,400	2,400	2,400	2,400
Jet	110	100	100	100
Helicopter	340	300	300	300
Other	340	300	300	300
Total	41,000	41,200	41,200	41,200
Baseline Forecast				
Aircraft Type				
Single Engine	37,800	53,200	66,200	92,800
Multi-Engine	2,400	3,600	4,800	7,500
Jet	110	180	250	410
Helicopter	340	600	890	1,670
Other	340	490	610	870
Total	41,000	58,100	72,800	103,300
High Growth Forecast				
Aircraft Type				
Single Engine	37,800	60,400	81,700	128,200
Multi-Engine	2,400	4,200	6,300	11,700
Jet	110	270	490	1,170
Helicopter	340	910	1,740	4,380
Other	340	480	560	580
Total	41,000	66,300	90,700	146,100

Note: Columns may not add to totals due to rounding.
Source: AECOM.

Peak Hour Aircraft Operations

Peak hour operations were forecast for the average day of the peak month (ADPM). The peak month was assumed to account for approximately 10 percent of annual aircraft operations. The number of operations for the average day of the peak month is obtained by dividing the peak month activity by 30 days. A peak hour factor of 12 percent of ADPM operations was assumed to project peak hour operations. Table 4-13 presents the forecast of peak hour airport operations.

DESIGN AIRCRAFT

A primary goal of this master plan is to determine the appropriate design aircraft for Cable Airport. The FAA in its current Advisory Circular (AC) 150/5300-13, Airport Design, has developed an airport reference code (ARC), which is a coding system that relates airport design criteria and planning standards to two components: the operational and physical characteristics of aircraft operating at, or expected to operate at, the airport. It is an alphanumeric code with the numeric component consisting of a Roman numeral. The letter element of the code is the aircraft approach category and thus relates to operational characteristics. The aircraft approach category is a grouping of aircraft based on 1.3 times the stalling speed as seen in Table 4-14. The second component of the ARC is the airplane design group and

relates to the wingspan and tail height of aircraft and is a physical characteristic. The grouping of aircraft by airplane design group is found in Table 4-15.

Table 4-13
FORECAST OF PEAK HOUR OPERATIONS
DURING THE AVERAGE DAY OF THE PEAK MONTH (ADPM)
CABLE AIRPORT 2009 - 2030

	Estimated	Forecast		
	2009	2015	2020	2030
Low Growth Forecast				
Annual Operations	41,000	41,200	41,200	41,200
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	4,100	4,120	4,120	4,120
Days in Peak Month	30	30	30	30
ADPM Operations	137	137	137	137
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	16	16	16	16
Baseline Forecast				
Annual Operations	41,000	58,100	72,800	103,300
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	4,100	5,810	7,280	10,330
Days in Peak Month	30	30	30	30
ADPM Operations	137	194	243	344
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	16	23	29	41
High Growth Forecast				
Annual Operations	41,000	66,300	90,700	146,100
Peak Month Percentage	10%	10%	10%	10%
Peak Month Operations	4,100	6,630	9,070	14,610
Days in Peak Month	30	30	30	30
ADPM Operations	137	221	302	487
Peak Hour Percentage	12%	12%	12%	12%
Peak Hour Operations	16	27	36	58

Source: AECOM.

Table 4-14
AIRCRAFT APPROACH CATEGORY

Category	Speed
A	Speed less than 91 knots
B	Speed 91 knots or more but less than 121 knots
C	Speed 121 knots or more but less than 141 knots
D	Speed 141 knots or more but less than 166 knots
E	Speed 166 knots or more

Source: FAA Advisory Circular 150/5300-13, Airport Design, Change 15.

As was noted in Chapter 3, over the years there have been a number of different classifications applied to the airport to determine applicable FAA design standards. In the 1980 Master Plan the airport was classified as a Basic Utility Stage II airport. While this classification is no longer used, it correlates with approach category A aircraft. Former FAA advisory circulars defined a Utility runway as one that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross

weight and less. This classification is the same as the "small airplane" classification contained in the current FAA AC 150/5300-13. Therefore, historically the airport has been designed to accommodate small airplanes with low approach speeds. Recently, the airport has been analyzed against more restrictive FAA design standards by the Runway Safety Action Team (RSAT). Current FAA design standards will be applied based upon the applicable airport reference code (ARC).

Table 4-15
AIRPLANE DESIGN GROUP

Airplane Design Group	Wingspan	Tail Height
I	Up to but not including 49 feet	Up to but not including 20 feet
II	49 feet up to but not including 79 feet	20 feet up to but not including 30 feet
III	79 feet up to but not including 118 feet	30 feet up to but not including 45 feet
IV	118 feet up to but not including 171 feet	45 feet up to but not including 60 feet
V	171 feet up to but not including 214 feet	60 feet up to but not including 66 feet
VI	214 feet up to but not including 262 feet	66 feet up to but not including 80 feet

Source: FAA Advisory Circular 150/5300-13, Airport Design, Change 15.

Applicable FAA design standards depend upon the design aircraft for the airport. The design aircraft is defined as the most demanding aircraft, or demanding class of aircraft, estimated to conduct, or expected to conduct, at least 500 annual operations at the airport. The predominance of based aircraft currently at Cable Airport are small, single engine aircraft weighing less than 12,500 pounds maximum gross weight. With the exception of a few (less than six) based fixed wing aircraft, all based aircraft are ARC A-I aircraft. The remaining fixed wing aircraft have slightly higher approach speeds and therefore are ARC B-I aircraft. While the logs maintained by airport staff generally contained aircraft registration numbers, due to reasons noted earlier, the logs did not capture all operations. Therefore, while the logs provide a general overview of operations, they are not detailed enough to determine the design aircraft. However, based upon the current mix of based aircraft, observations of operations and parked transient aircraft observed during several visits to the airport, and discussions with FBOs and Airport staff, it is concluded that "small airplanes" (less than 12,500 pounds gross weight) is the design aircraft. It is also estimated that approach category B aircraft conduct just over 500 annual operations at the airport. Therefore, the applicable ARC for Cable Airport is B-I, small airplanes exclusively. FAA design standards associated with this ARC will be fully defined in Chapter 5.

Representative design aircraft in this category include the Beech Baron, Cessna 414, and Cessna 421. These types of aircraft are currently based at Cable, are all multi-engine aircraft and weigh less than 12,500 pounds. These aircraft seat 4 to 8 passengers. Figure 4-4 depicts a representative design aircraft observed at Cable Airport.



Figure 4-4
Representative Design Aircraft - Beech Baron

FORECAST OF FUEL FLOWAGE

Fuel flowage at Cable Airport since 1999 is presented in Table 4-16. As seen in the table, fuel sales have varied from year to year but have generally declined since 2003, primarily as a result of decreased activity at the airport. Since 2003 fuel prices have spiked several times, and this has caused many recreational users to reduce flying activity, as seen by reduction in Avgas sales. Jet A sales have remained strong due to helicopter operations at the airport.

Table 4-16
HISTORICAL FUEL FLOWAGE
CABLE AIRPORT (1999 – 2009)
IN GALLONS

Year	Avgas [a]	Jet A	Total
1999	184,145	N/A	184,145
2000	155,203	N/A	155,203
2001	141,677	N/A	141,677
2002	142,360	N/A	142,360
2003	157,719	N/A	157,719
2004	155,631	15,275	170,906
2005	152,116	61,841	213,957
2006	123,982	38,353	162,335
2007	134,198	53,932	188,130
2008	106,963	56,446	163,409
2009	90,875	53,323	144,198

[a] Includes 80/87 and 100LL octane.
N/A Jet A fuel was not available at the airport.
Source: Airport records.

Fuel flowage was projected using historical ratios of fuel flowage to based aircraft (see Table 4-17). The average gallons of aviation fuel per based aircraft will be applied to the Low, Baseline and High Growth Forecast total based aircraft to project fuel flowage (Table 4-18). While it is understood that based aircraft will not purchase all their fuel at their base airport, use of these data will account for fuel purchased at Cable Airport by transient aircraft. For the purposes of this analysis it is assumed that single engine and "other" aircraft use 100LL avgas and multi-engine, jets, and helicopters use Jet A.

As can be seen in Table 4-18, under the High Growth Forecast scenario it is estimated that 157,800 of avgas and 94,300 gallons of Jet A, for a total of 252,100 gallons would be sold at the airport in 2030.

Table 4-17
AVERAGE FUEL CONSUMPTION PER BASED AIRCRAFT AT CABLE AIRPORT

Year	Gallons	Based Aircraft [a]	Gallons per Based Aircraft
	100LL		
1999	184,145	408	451
2000	155,203	408	380
2001	141,677	408	347
2002	142,360	408	349
2003	157,719	329	479
2004	155,631	329	473
2005	152,116	328	464
2006	123,982	328	378
2007	134,198	328	409
2008	106,963	328	326
2009	90,875	328	277
Low			277
Average			394
High			479
	Jet A [b]		
1999	N/A	29	N/A
2000	N/A	28	N/A
2001	N/A	28	N/A
2002	N/A	28	N/A
2003	N/A	31	N/A
2004	15,275	31	493
2005	61,841	31	1,995
2006	38,353	31	1,237
2007	53,932	31	1,740
2008	56,446	31	1,821
2009	53,323	31	1,720
Low [c]			1,237
Average [c]			1,703
High			1,995

N/A – Jet A was not available at the airport.
[a] Includes single engine and "other" aircraft.
[b] Includes multi-engine, jet, and helicopter aircraft.
[c] Low and average Jet A computations of Gallons per Based Aircraft exclude year 2004, when Jet A became available at the airport.
Source: Airport records and AECOM analysis.

Table 4-18
FUEL FLOWAGE FORECAST
CABLE AIRPORT 2015 - 2030

	Existing	Forecast		
	2009	**2015**	**2020**	**2030**
Avgas 100LL				
Low Growth	90,875	131,900	131,900	131,900
Baseline	90,875	140,900	142,100	144,400
High Growth	90,875	143,900	148,400	157,800
Jet A				
Low Growth	53,323	47,900	47,900	47,900
Baseline	53,323	55,300	60,000	69,800
High Growth	53,323	60,400	70,800	94,300
Total Aviation Fuel				
Low Growth	144,198	179,800	179,800	179,800
Baseline	144,198	196,200	202,100	214,200
High Growth	144,198	204,300	219,200	252,100

Source: AECOM analysis.

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Chapter 5

Facility Requirements





Chapter 5
Facility Requirements

INTRODUCTION

Chapter 4 produced a forecast of traffic volumes expected to be generated at the airport during the 20-year forecast period. The next step in the planning process was to determine the type and magnitude of airport facilities needed during the 20-year planning period to satisfactorily accommodate future traffic volumes.

The process of determining facility requirements involves the application of acceptable airport planning standards to the various forecast components to identify the needed facilities that will provide sufficient capacity to handle the expected traffic. By comparing the sizes and capacities of the future facility needs with existing facility sizes and capacities, facility deficiencies can be determined and quantified.

The deficiencies were then resolved by increasing facility capacities over a phased development program. This chapter of the report addresses the calculation of theoretical airport facility requirements as discussed above. The facilities developed through this planning process must be considered theoretical until they have been related to existing facilities. In Chapter 6, Alternatives Development, the recommended improvements derived from the facility requirements were defined and later delineated in a series of plans and drawings.

The uncertainty of long-range forecasting was noted in Chapter 4, and a range of forecasts was provided. In the interest of preparing a plan that can be used as a development guide throughout the 20-year master planning period congruent with current economic conditions, the analysis of facility requirements used the Baseline Forecast presented in Chapter 4. It is important to note that it will be ***actual*** demand that dictates the eventual development of facilities and not forecast demand. Should traffic actually materialize faster than forecast, then facility improvements should be accelerated. Should demand actually lag the forecast, then facility improvements may be deferred. Thus, the use of the Baseline Forecast does not commit Cable Airport to construct the facilities associated with projected demand, but it provides an assumed schedule for planning purposes.

Airport facility requirements are grouped into the following main operating elements: airfield, airspace and navigational aids, terminal and support area facilities, and landside. Before addressing the facility requirements, a brief discussion of airport classification is presented.

AIRPORT CLASSIFICATION

Cable Airport functions in several roles as defined by FAA and explained in Chapter 3. The airport is contained in the National Plan of Integrated Airport Systems (NPIAS) and is classified as a Reliever Airport. A Reliever Airport is a high-capacity general aviation airport in a metropolitan area. To be eligible for reliever designation, these airports must have 100 or more based aircraft or 25,000 itinerant operations. Cable

serves as a General Aviation Reliever Airport for Ontario International Airport and has 360 based aircraft. The airport is also contained in the California Aviation System Plan (CASP) and is classified as a Regional Airport.

Regional Airports, as defined by the CASP, are airports that provide the same access as Community Airports, may provide international access; located in an area with a larger population base than Community Airports while serving a number of cities or counties; serve the same activities as Community Airports with a higher concentration of business and corporate flying; accommodate most business, multi-engine and jet aircraft; provide most services for pilots and aircraft including aviation fuel; has a published instrument approach, may have a control tower.

Community Airports provide access to other regions and states; located near small communities or in remote locations; serve, but are not limited to recreation flying, training, and local emergencies; accommodate predominately single engine aircraft under 12,500 pounds; provide basic or limited services for pilots or aircraft.

It is anticipated that the airport will continue to function in these roles through 2030.

FAA Design Standards

An airport reference code (ARC) of B-I, small airplanes exclusively will be used for existing and future planning purposes. Application of planning and design standards for ARC B-I, small airplanes exclusively ensures that all general aviation aircraft that use the airport will be provided facilities that are designed to appropriate standards, in accordance with the planning standards contained in FAA AC 150/5300-13, Airport Design. Presented in Table 5-1 are the airport planning standards for airport reference code B-I, small airplanes exclusively. The airport historically complied with an equivalent of ARC A-I, small airplanes exclusively. The change in approach category reflects an increase in slightly faster aircraft operating at the airport, and does not affect separation standards.

Table 5-1
AIRPORT PLANNING STANDARDS
FOR AIRPORT REFERENCE CODES A-I AND B-I, SMALL AIRPLANES EXCLUSIVELY

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category A and B
Airplane Design Group I, small airplanes exclusively
Airplane wingspan ..... 48.99 feet
Runway 6 end approach visibility minimums are ..... not lower than 1 mile
Runway 24 end approach visibility minimums are ..... visual exclusively
Airplane undercarriage width (1.15 x main gear track) ..... 21 feet
Airport elevation ..... 1,444 feet
Airplane tail height ..... 19.99 feet

SEPARATION STANDARDS

Runway centerline to parallel runway centerline ..... 700 feet
wider runway separation may be required for capacity (See AC 150/5060-5)
Runway centerline to parallel taxiway/taxilane centerline ..... 150 feet
Runway centerline to edge of aircraft parking ..... 125 feet
Taxiway centerline to parallel taxiway/taxilane centerline ..... 69 feet
Taxiway centerline to fixed or movable object ..... 44.5 feet
Taxilane centerline to parallel taxilane centerline ..... 64 feet
Taxilane centerline to fixed or movable object ..... 39.5 feet

Table 5-1 (cont'd)
AIRPORT PLANNING STANDARDS
FOR AIRPORT REFERENCE CODES A-1 AND B-I, SMALL AIRPLANES EXCLUSIVELY

RUNWAY PROTECTION ZONES

Runway protection zone: (Runways 6 and 24)	
Length	1,000 feet
Width 200 feet from runway end	250 feet
Width 1,200 feet from runway end	450 feet

OBSTACLE FREE ZONES

Runway obstacle free zone (OFZ) width	250 feet
Runway obstacle free zone length beyond each runway end	200 feet
Inner-approach obstacle free zone width	250 feet
Inner-approach obstacle free zone length beyond approach light system	200 feet
Inner-approach obstacle free zone slope from 200 feet beyond threshold	50:1

RUNWAY DESIGN STANDARDS

Runway width	60 feet
Runway shoulder width	10 feet
Runway blast pad width	80 feet
Runway blast pad length	60 feet
Runway safety area width	120 feet
Runway safety area length beyond each runway end or stopway end, whichever is greater	240 feet
Runway object free area width	250 feet
Runway object free area length beyond each runway end or stopway end, whichever is greater	240 feet
Clearway width	500 feet
Stopway width	60 feet

TAXIWAY DESIGN STANDARDS

Taxiway width	25 feet
Taxiway edge safety margin	5 feet
Taxiway shoulder width	10 feet
Taxiway safety area width	49 feet
Taxiway object free area width	89 feet
Taxilane object free area width	79 feet
Taxiway wingtip clearance	20 feet
Taxilane wingtip clearance	15 feet

Source: FAA Advisory Circular 150/5300-13, Airport Design.

AIRFIELD CAPACITY

Annual and Hourly Capacity

Hourly runway capacities and annual service volume (ASV) estimates are needed to design and evaluate airfield development and improvement projects. The approach for estimating airport capacity in this study used capacity estimates contained in FAA AC 150/5060-5, Airport Capacity and Delay. The advisory circular

contains capacity and delay estimates suitable for long range planning and the conditions at Cable. The capacity assumptions listed in the advisory circular are applicable to Cable. These include:

- A mix index of 0 to 20.
- A runway configuration (single runway), Figure 2-1, configuration number 1 in the capacity AC.
- Percent arrivals equal to departures.
- Percent touch and go's between 0 and 50 percent.
- Full parallel taxiway.

Based on guidelines contained in the advisory an hourly VFR capacity estimate of 98 operations and an hourly IFR capacity of 28 operations are also identified in the advisory circular.

The hourly capacities noted above together with the percent of operating conditions are used to calculate a weighted hourly capacity (C_w). For the estimate of ASV it was assumed that IFR conditions occur 4 percent of the time. The airport was closed 1 percent of the time due to IFR conditions below the published minimums for the instrument approach procedures. When not closed, the conditions were assumed to be VFR (95 percent of the time).

Based on the above and procedures contained in the AC a weighted hourly capacity of 86 operations is obtained for the airport and is used for estimating ASV.

Annual service volume is calculated as:

$$ASV = (C_w)*(D)*(H)$$

where:

C_w = weighted hourly capacity
D = ratio of annual to average day of the peak month (ADPM) demand
H = ratio of ADPM to peak hour demand

Average demand ratios were developed from historical data obtained from UNICOM logs and used in the projection of peak hour forecasts for the years 2009 and 2010. The ratios derived were a daily demand ratio (D) of 137 and an hourly ratio (H) of 12. These were then compared for reasonableness with typical demand ratios provided in the AC. The derived daily ratio is significantly lower than the range (280-310) contained in the AC and reflects the lower level of operations the airport has been experiencing. The hourly ratio proved to be higher than the range of 7-11. In order to provide a more reasonable estimate of capacity the peaking factors assumed in the AC for long range planning estimates were adopted (D = 280, H = 9).

The ASV is then calculated at approximately 216,000 operations. This was then checked against long range planning ASV estimates contained in AC 150/5060-5 for the airport configuration and fleet mix and the PANCAP (Practical Annual Capacity) established in the 1980 Master Plan. The long range estimate provided in the AC is 230,000 operations and the PANCAP is 209,000. The calculated ASV is reasonably close to the PANCAP defined in the previous master plan; and therefore, for the purpose of this study, it assumed that the ASV is for Cable Airport 216,000 operations.

It should be noted that the above calculated ASV represents the capacity of the present airport. It is also important to note the capacity of an airport is not constant and may vary over time depending upon airfield improvements, airfield or airspace geometry, ATC procedures, weather and mix of aircraft operating at the airport. The capacity of an airport can change with or without airfield improvements.

Demand Versus Capacity

By comparing ASV and hourly capacities with the forecast annual and peak hour demand, the relationship between demand and capacity can be determined. Table 5-2 presents the comparisons of demand versus capacity and as seen, the present airfield will accommodate annual demand through the planning period.

Table 5-2
DEMAND VERSUS CAPACITY

	2015	2020	2030
ANNUAL:			
Demand	58,100	72,800	103,300
Capacity	216,000	216,000	216,000
% Capacity Utilized	27%	34%	48%
WEIGHTED HOURLY:			
Demand	23	29	41
Capacity	86	86	86
% Capacity Utilized	27%	34%	48%

Source: AECOM.

Throughout the 20-year planning period, capacity is adequate and the relationship of demand and capacity is below a threshold when capacity improvements are usually considered. Generally, planning for capacity improvements should occur when demand is forecast to utilize 60 percent of capacity. Construction of improvements should begin when demand reaches 80 percent of capacity. This allows sufficient lead time to develop the improvement before the airport becomes saturated. Airport activity levels warranting capacity improvements are contained in FAA Order 5090.3C. As seen in Table 5-2, the forecast demand utilizes 48 percent of annual and hourly capacity, which is below the 60 percent planning threshold. The need for capacity enhancing projects is not warranted.

From this comparison of demand and capacities it is concluded that airfield capacity is sufficient to accommodate forecast operations and airfield (runway/taxiway) improvements are not warranted based upon capacity reasons. Although the implementation of additional airfield capacity is not warranted strictly from a capacity standpoint, there may be equally important considerations that dictate otherwise.

AIRFIELD FACILITY REQUIREMENTS

As discussed earlier, the airfield operating element as used in this report is defined as the portion of an airport that contains the facilities necessary for the operation of aircraft. The ability of the present airside facilities to accommodate existing and future traffic loads and the facilities required through the year 2030 are examined in the following subsections.

Runway System

The existing runway system was described in Chapter 3. This section details runway requirements needed to satisfy the forecast demand in terms of runway length, pavement strength requirement, crosswind coverage, and safety areas. Planning and design standards set forth in FAA AC 150/5300-13, Airport Design, for airport reference code B-I, small airplanes exclusively are the basis of this analysis. This will provide satisfactory facilities for the variety of aircraft expected to use the airport.

When determining runway requirements it is important to account for the type of approach the airport has or can be expected to have. Runways with lower visibility minimums have more demanding requirements. Currently Runway 6 is equipped for non-precision instrument approaches with visibility minimums not lower than 1 mile. Therefore, for the purpose of this master plan, these instrument approach capabilities are assumed in the future for Runway 6.

Crosswind Runway

The existing runway system provides 99.53 percent coverage for a 10.5 knot (12 mph) crosswind. FAA states in AC 150/5300-13 that the allowable crosswind is 10.5 knots for airport reference codes A-I and B-I. The coverage provided by the existing runway alignment exceeds the FAA recommendation of 95 percent crosswind coverage, thus additional runways for improved crosswind coverage are not required. It is noted, that the weather data collected is from Ontario International Airport which is the closest full time weather station, and has different prevailing winds and meteorological conditions than Cable Airport. As previously indicated, respondents of the based aircraft owner survey stated a need for additional crosswind coverage. However, airport management notes that crosswinds are not a problem at the airport. Cable Airport previously had a crosswind runway which has since been closed. It is recommended that a full time weather station be installed at Cable Airport to confirm meteorological conditions at the airport and crosswind coverage of the existing airfield are adequate.

Runway Length

This subsection describes the runway length requirements for the existing runway at Cable. Runway length is a critical consideration in airport planning and design. Aircraft need specified runway lengths to operate safely under varying conditions of wind, temperature, and takeoff weight.

FAA Advisory Circular 150/5325-4B contains criteria used in developing runway lengths required for various general aviation utility and transport airports. The recommended runway lengths are based on performance information from manufacturer's flight manuals in accordance with provisions in FAR (Federal Aviation Regulations) Part 23, Airworthiness Standards: Normal, Utility, and Acrobatic Category Airplanes, and FAR 91, General Operating and Flight Rules.

Aircraft performance combined with significant site characteristics are considered in analyzing runway length. The site characteristics that are evaluated include: airport elevation, temperature (mean maximum temperature of the hottest month), runway gradient, and wind conditions.

The FAA Airport Design (Version 4.2d) software package contains a program to calculate typical runway requirements for various classes of aircraft. This model was applied and the results are presented in Table 5-3. The airport site characteristics used in the runway length analysis were:

- Elevation – 1,444 feet MSL
- Temperature – 92.4°F
- Maximum Difference in Runway Centerline Elevation – 50.6 feet
- Surface Winds – Calm

The critical aircraft for Cable Airport are twin-turboprops which primarily are airplanes that weigh less than 12,500 pounds. As seen in Table 5-3, the recommended runway lengths small airplanes with less than 10 passenger seats ranges from 3,020 feet to 4,240 feet. At 3,865 feet runway length, Cable can accommodate approximately 97 percent of these small airplanes, which accommodates future demand.

Runway Width

Runway width is a dimensional standard that is based upon the physical and performance characteristics of aircraft using the airport (or runway). The characteristics of importance are wingspan and approach speed. In this case, FAA airplane design group I (wingspans up to but not including 49 feet) and approach category B are used and will provide adequate width and separation for current and anticipated aircraft operations. FAA AC 150/5300-13 specifies a runway width of 60 feet for an airport reference code of B-I, small aircraft exclusively. The present runway is 75 feet wide and exceeds the standard.

Table 5-3
FAA RECOMMENDED RUNWAY LENGTHS
FOR CABLE AIRPORT

AIRPORT AND RUNWAY DATA

Airport elevation ..... 1,444 feet
Mean daily maximum temperature of the hottest month..... 92.4° F
Maximum difference in runway centerline elevation ..... 50.6 feet

RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots ..... 340 feet
Small airplanes with approach speeds of less than 50 knots ..... 920 feet
Small airplanes with less than 10 passenger seats
- 75 percent of these small airplanes ..... 3,020 feet
- 95 percent of these small airplanes ..... 3,600 feet
- 100 percent of these small airplanes ..... 4,240 feet

Small airplanes with 10 or more passenger seats ..... 4,590 feet

Sources: FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design.
AECOM application of FAA Airport Design (Version 4.2d).

Runway Shoulders

The required runway shoulder width for B-1, small airplanes exclusively is 10 feet. Infield areas are paved at the airport and therefore meets and exceeds the runway shoulder width design standards.

Runway Grades

The maximum longitudinal grade is 2.0 percent for runways serving approach category B aircraft. The existing maximum longitudinal runway grade is 2.3 percent and therefore longitudinal grade for the runway does not meet FAA standards. The latest runway rehabilitation project flattened the runway some and decreased the maximum longitudinal grade. These efforts should be continued in future pavement rehabilitation project until the runway meets FAA design standards. The effective runway grade is 1.3 percent and meets standard. The runway should have adequate transverse slopes to prevent the accumulation of water on the surface. A maximum transverse grade of 1.0 to 1.5 percent is recommended for the airport by FAA. The runway at Cable is not "crowned" as water sheet flows from the north to the south. Transverse slopes at the airport vary from 1 to 3 percent.

Runway Blast Pads

A runway blast pad provides blast erosion protection beyond runway ends. For airplane design group I and II aircraft, blast pad recommendations include turf, aggregate-turf, soil cement, lime or bituminous stabilized soil adjacent to paved surfaces. Runway 24 has a paved/landscaped area that provides blast erosion protection and meets blast pad requirements. Runway 6 does not have a blast pad, but a pea gravel bed beyond the runway end. Blast pads at Cable Airport should be 80 feet wide and 60 feet long. Both runway ends meet these requirements.

Runway Safety Area

A runway safety area (RSA) is defined as a rectangular area centered about the runway that is cleared, drained, graded, and usually turfed. Under normal conditions, this area should be capable of accommodating occasional aircraft that may veer off the runway, as well as firefighting equipment.

For Cable Airport, the existing and future requirement for Runway 6-24 to accommodate airport reference code B-I, small airplanes exclusively is an area 120 feet wide centered on the runway centerline, and extending 240 feet beyond each runway end. There are specific FAA clearing and grading standards for runway safety areas. The RSAs for both Runways 6 and 24 extend beyond airport property and are non-standard as they are traversed by Dewey Way and Benson Avenue, respectively. Both RSAs are also traversed by the airport fence. Beyond Runway 6 there is 141 feet of clear RSA, impeded by the perimeter fence and Runway 24 has 57 feet of clear RSA beyond the runway end at which point the Perimeter Road traverses the RSA.

Beyond Runway 6 is an area of pea gravel that acts as an arresting system for aircraft over-running the runway when using Runway 24. The pea gravel bed is akin to a runaway truck ramp and stops/slows aircraft with minimal damage. It has been effective in stopping two out of four runway overshoots. Overshoots that did not stop would have been unable to stop within 240 feet as they were traveling too fast when they exited the runway. Runway safety areas are shown in Figure 5-1.

Runway Obstacle Free Zone

The runway obstacle free area (OFZ) is a volume of airspace centered above the runway centerline and the elevation of the OFZ is the same as the nearest point on the runway centerline. The OFZ clearing standard precludes taxiing and parked airplanes and object penetrations, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function. The design standards for an ARC of B-I, small airplanes exclusively call for an OFZ extending 200 feet beyond each of the runway ends. For runways serving small airplanes with approach speeds of 50 knots or more the width of the OFZ is 250 feet, 125 feet on either side of the runway centerline.

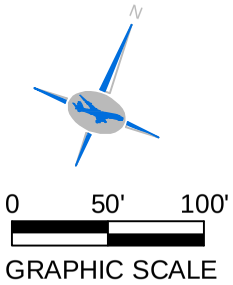
The Airport Access Road traverses through the Runway 6 OFZ so that there is no clear full-width OFZ area beyond the runway end (see Figure 5-1). The Airport Access Road parallels the runway on the north for approximately 1,220 feet, 100 feet north of the runway centerline. During that entire length, the Airport Access Road is within the OFZ. Along the extended centerline, the OFZ is clear of obstructions as both Dewey Way and the perimeter fence are below the runway threshold elevation.

The OFZ for Runway 24 is non-standard as it is traversed by Benson Avenue and the Perimeter Road 87 and 32 feet, respectively, from the runway end. In addition, FAA standards state that taxiing aircraft are not allowed within the OFZ. Taxiways A and B are within the Runway 6-24 OFZ and therefore do not meet FAA design standards. From the runway centerline to the wingtip of aircraft using Taxiway A is approximately 75 feet and 112 feet for Taxiway B.

Runway Object Free Areas

The runway object free area (ROFA) is a two dimensional ground area surrounding the runway and its clearing standard precludes parked aircraft, agricultural operations, and objects, except those fixed by function. The criterion replaces the former design standard of the aircraft parking limit line and is designed with the intention of providing adequate wing-tip clearance. The design standards for an ARC of B-I, small airplanes exclusively call for a ROFA extending 125 feet on either side of the runway centerline and extending 240 feet beyond the end of the runway.

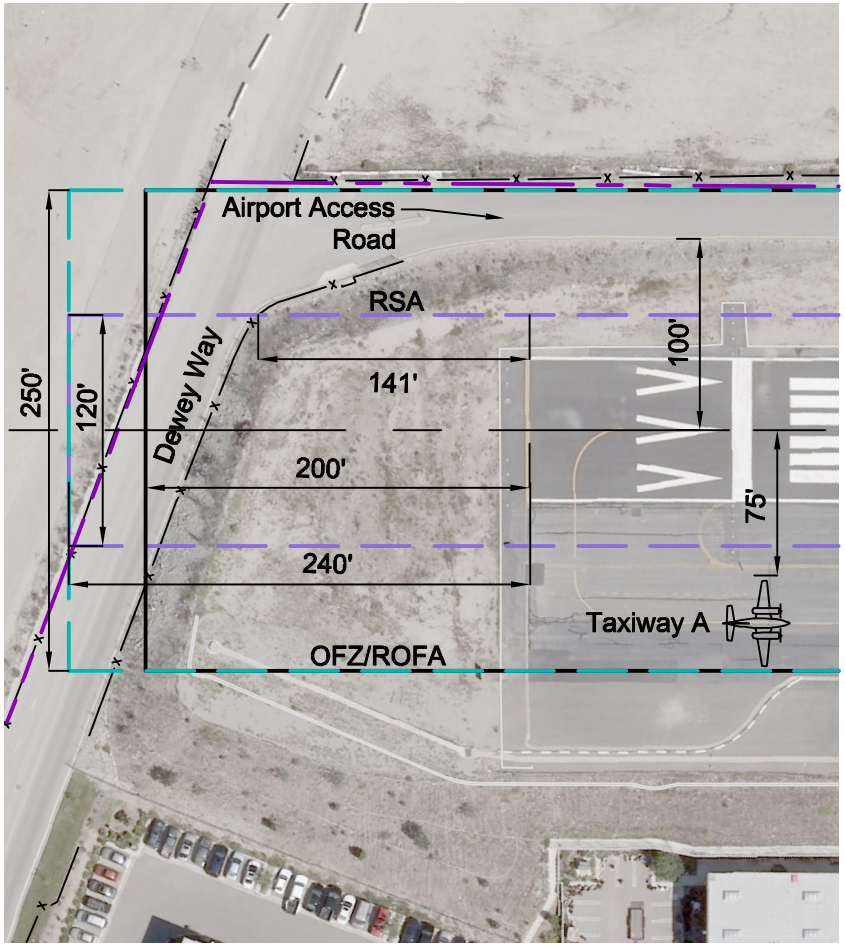
Similar to the OFZ, the Airport Access Road parallels the runway for approximately 1,220 feet and is within the ROFA approximately 100 feet from the runway centerline. Along the extended runway centerline of Runway 6, there are no obstructions as Dewey Way and the perimeter fence are below the runway threshold elevation. Runway 24 ROFA is non-standard, as it is traversed by Benson Avenue and the perimeter road. Along the extended runway centerline of Runway 24, the ROFA is



LEGEND	
DESCRIPTION	**EXISTING**
AIRPORT BOUNDARY	
RUNWAY SAFETY AREA	
RUNWAY OBJECT FREE AREA	
RUNWAY OBSTACLE FREE ZONE	
FENCE	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

Runway 6



Runway 24

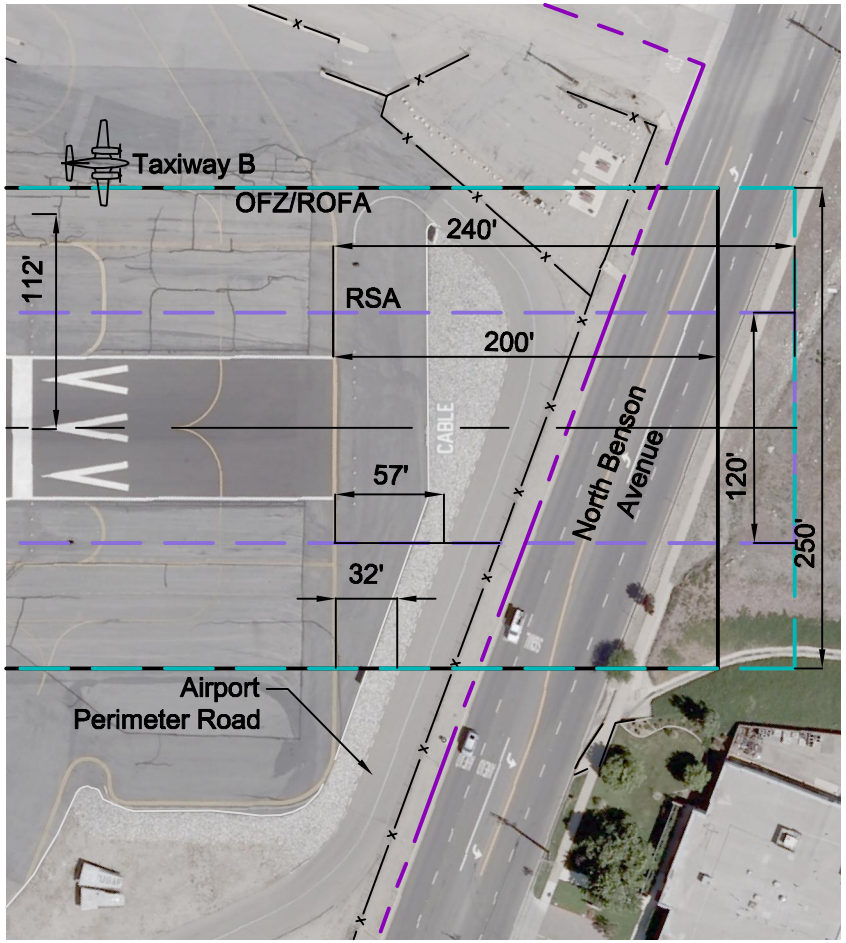


Figure 5-1
Cable Airport Safety Areas

clear for 79 feet before being obstructed by the perimeter road. Figure 5-1 shows safety areas and surrounding land uses.

Approach Surfaces and Runway Protection Zones

The approach surface and the runway protection zone (formerly called clear zone) are important elements in the design of runways which help to ensure the safe operations of aircraft. A brief description of these two areas follows:

- **The Approach Surface** is an imaginary inclined plane beginning at the end of the primary surface and extending outward to distances up to 10 miles depending on runway use (i.e., instrument or visual approaches). The width and slope of the approach surface are also dependent on runway use. The approach surface governs the height of objects on or near the airport. Objects should not penetrate or extend above the approach surface. If they do, they are classified as obstructions and must be either marked or removed.

- **The Runway Protection Zone (Clear Zone)** is an area at ground level that provides for the unobstructed passage of landing aircraft through the above airspace and is used to enhance the protection of people and property on the ground. The runway protection zone (RPZ) begins at the end of the primary surface and has a size which varies with the designated use of the runway. Land uses specifically prohibited from the RPZ are residences and places of public assembly (churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly). Fuel storage facilities also should not be located in the RPZ.

Federal Aviation Regulations (FAR) Part 77 indicates that the approach surface should be kept free of obstructions to permit the unrestricted flight of aircraft in the vicinity of the airport. As the type of instrument approach to a runway becomes more precise, the approach surface increases in size and the required approach slope becomes more restrictive.

The runway protection zone is the most critical safety area under the approach path and should be kept free of all obstructions. No structure should be permitted nor the congregation of people allowed within the runway protection zone. Control of the runway protection zone by the airport owner is essential. It is desirable, therefore, that the airport owner acquire adequate property interests, preferably in fee title, in the runway protection zone to ensure compliance with the above. Control of the runway protection zone may be acquired in fee or through an easement.

As indicated above, the approach and runway protection zone dimensions are dependent on the type of approach being made to a runway. Presented in Table 5-4 are runway protection zone dimensions for various type runways. As previously noted, visibility minimums for Runway 6 are not lower than 1 mile and both serve small airplanes exclusively and Runway 24 is a visual runway. Therefore, the RPZs for both runways are 1,000 feet long with an inner width of 250 feet and an outer width of 450 feet. Both RPZs for Runways 6 and 24 are completely or mostly off airport property.

The airport should take necessary steps to prevent the construction of any structure within the RPZ that is a hazard to air navigation or which might create glare or misleading lights or lead to the construction of residences, fuel handling and storage facilities, smoke generating activities, or places of public assembly such as schools, churches, office buildings, shopping centers, and stadiums. Figure 5-2 shows RPZs for both Runway 6 and 24.

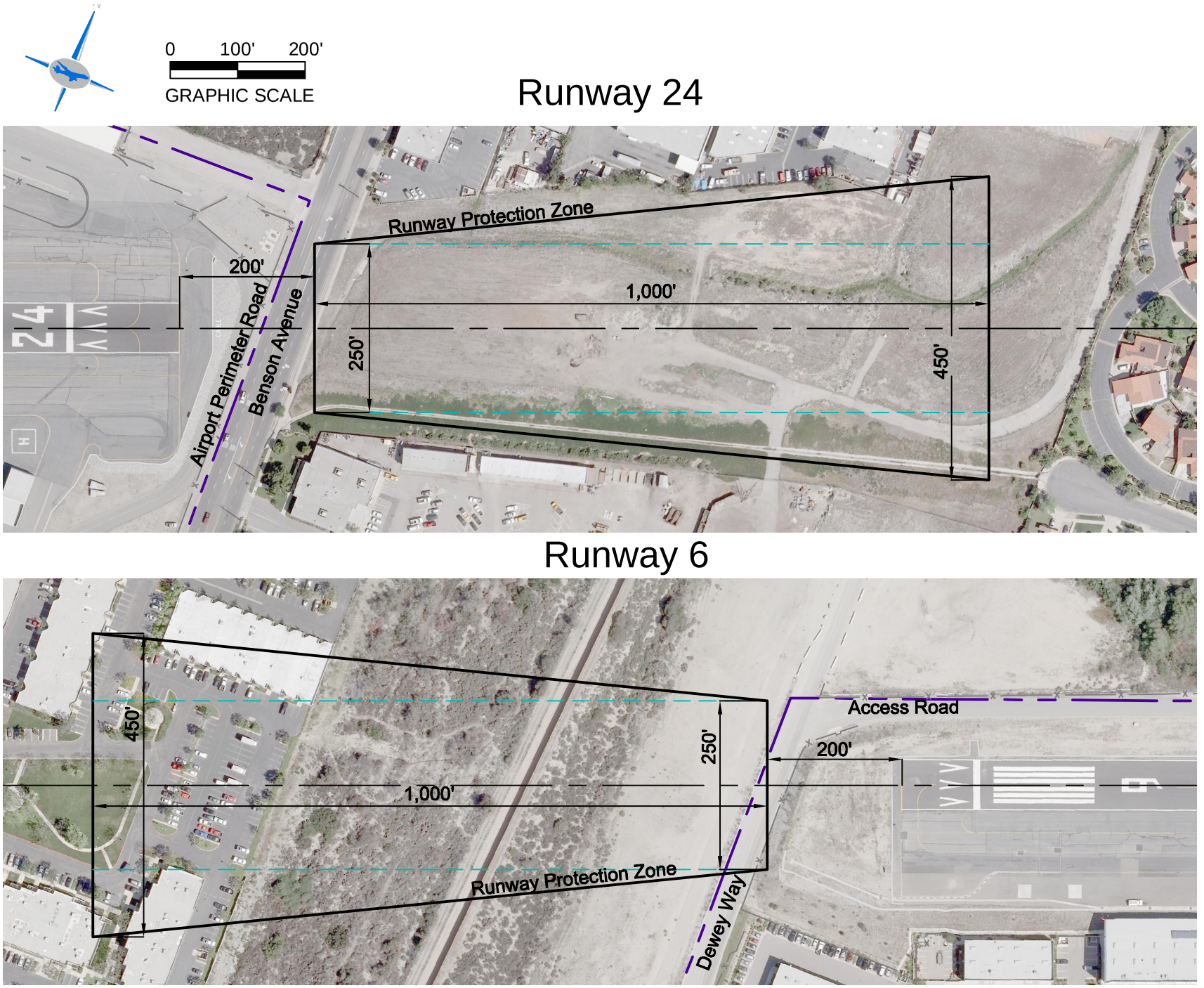


Figure 5-2
Cable Airport Runway Protection Zones (RPZs)

Table 5-4
RUNWAY PROTECTION ZONE DIMENSIONS

Approach Visibility Minimums	Facilities Expected To Serve	Runway Protection Zone Dimensions			
		Length (Feet)	Inner Width (Feet)	Outer Width (Feet)	Area (Acres)
Visual and Not lower than 1 mile	Small Aircraft Exclusively	1,000	250	450	8.035
	Aircraft Approach Categories A & B	1,000	500	700	13.770
	Aircraft Approach Categories C & D	1,700	500	1,010	29.465
Not lower than ¾ mile	All Aircraft	1,700	1,000	1,510	48.978
Lower than ¾ mile	All Aircraft	2,500	1,000	1,750	78.914

Source: FAA Advisory Circular 150/5300-13, Airport Design.

Within the Runway 6 RPZ are a parking lot and portions of commercial buildings. Cable Airport has a good relationship with Holliday Rock and hopes to obtain a letter of intent on the usage of the area within the Runway 6 RPZ. The Runway 24 RPZ is located over open space. An agreement between the City of Upland and Cable Airport keeps the area within the Runway 24 RPZ clear. The City of Upland has proposed to construct a detention pond within the RPZ. To help minimize bird attraction, the detention pond will not have standing water for more than 72 hours.

Threshold Siting Surface

Appendix 2 of FAA Advisory Circular 150/5300-13, Airport Design, contains guidance on locating runway thresholds to meet approach obstacle clearance requirements using threshold siting surfaces. If an object penetrates a threshold siting surface, one or more of the following actions is required: 1) the object is removed or lowered to preclude the penetration; 2) the threshold is displaced to preclude the object penetration; 3) visibility minimums are raised; or 4) night operations are prohibited.

The shape, dimensions and slope of a threshold siting surface are dependent upon the type of aircraft operations, landing visibility minimums and types of instrumentation available. For the purpose of this analysis, the threshold siting surface for Runway 6 is assumed as follows: "approach end of runways expected to support instrument straight-in night operations serving greater than approach category B aircraft." This is because the published instrument approaches for Runway 6 support these type operations. Runway 24 criteria are applied as follows: "approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more (visual runways only, day/night)." These surfaces are shown on Figure 5-3.

The applicable threshold siting surface for Runway 6 is described as follows. The centerline of the surface extends 10,000 feet along the extended runway centerline. The surface extends laterally 400 feet on each side of the centerline 200 feet from the runway threshold and increases to a width of 1,900 feet on each side of the runway centerline at the end of the surface. The

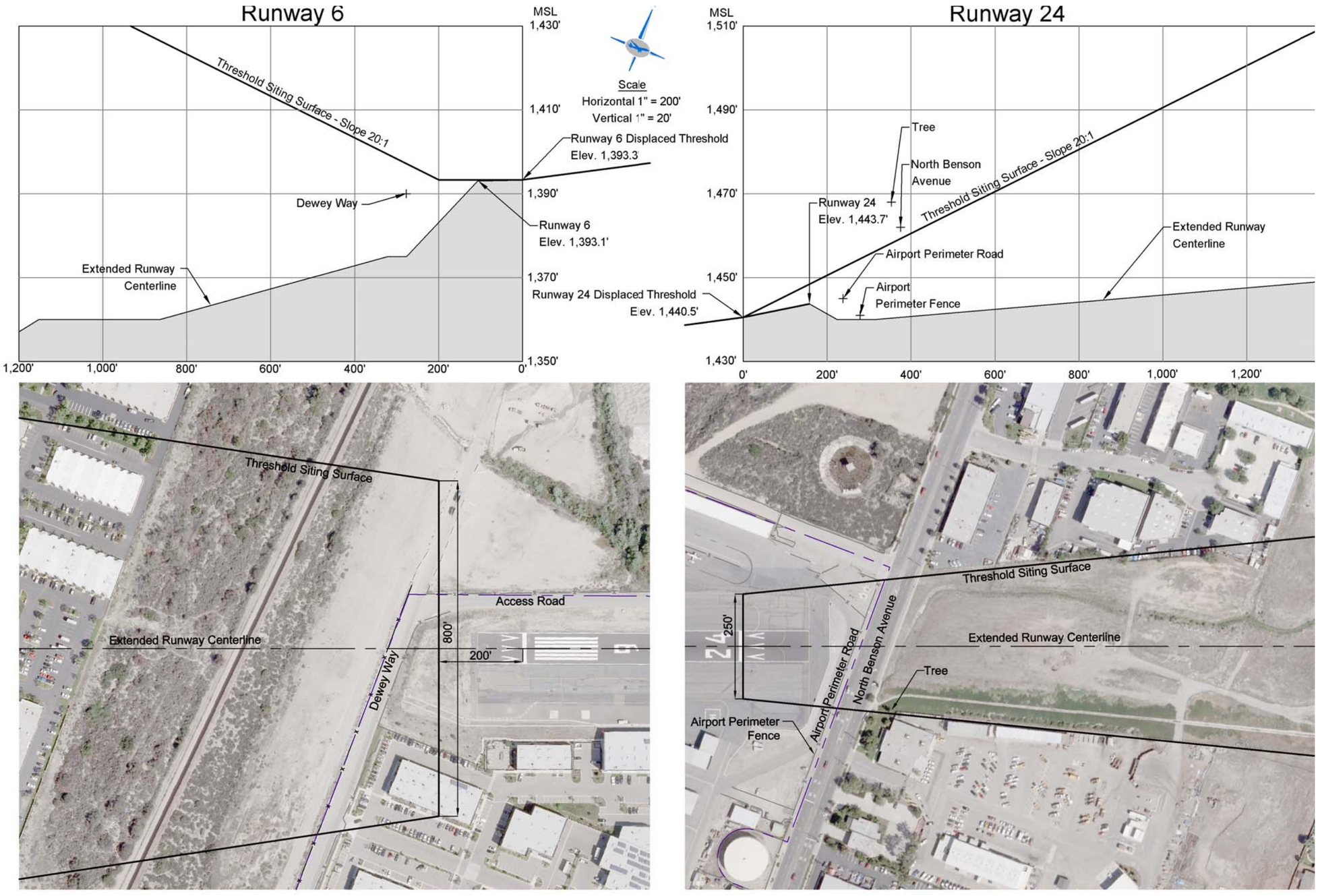


Figure 5-3
Threshold Siting Surfaces

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beginning surface elevation is the same as the runway threshold, and the surface extends outward and upward at a slope of 20 to 1.

The applicable threshold siting surface for Runway 24 is described as follows. The centerline of the first segment of the surface extends 2,250 feet along the extended runway centerline starting at the landing threshold. The surface extends laterally 125 feet on each side of the centerline and increases to a width of 350 feet on each side of the runway centerline at the end of the first segment. The second segment of the surface extends 2,750 feet and maintains the width of 350 feet on either side of the centerline. The total surface has a length of 5,000 feet. The beginning surface elevation is the same as the runway threshold, and the surface extends outward and upward at a slope of 20 to 1.

Current thresholds at Cable Airport are displaced 106 and 158 feet, respectively, for Runways 6 and 24. The displaced threshold for Runway 6 does not appear to be required to avoid obstacles. Rather, since full RSA and ROFA are not provided beyond runway thresholds, the displaced landing thresholds provide increased safety for undershoots. North Benson Avenue and a tree appear to penetrate the existing threshold siting surface of Runway 24; however, these should be verified via an obstruction survey.

Taxiway System

Taxiway Width

Taxiways on the airport are 25 feet wide and therefore meet the standards of an airplane design group I aircraft.

Taxiway Grades

The maximum longitudinal grade is two percent for aircraft approach categories A and B. Taxiway grading provides adequate drainage. There is a segment along Taxiway A where the grade is approximately 2.8 percent and therefore does not meet FAA design standards.

Taxiway Safety Area

Taxiway safety areas for airplane design group I aircraft specify a width of 49 feet (24.5 feet on either side of the taxiway). There are no obstructions to the taxiway safety areas. Taxiway safety areas are paved and are capable of supporting aircraft that inadvertently exit the taxiway.

Taxiway Object Free Area

Object free areas also exist for taxiways and are 89 feet wide (44.5 feet on either side of centerline) for airplane design group I. Within the taxiway object free area are airfield and taxiway signs, which are fixed by function and frangible and therefore allowed. The taxiway object free area (TOFA) is clear of obstructions.

Runway/Taxiway Separation

Runway 6-24 has a centerline-to-centerline separation from Taxiway A of 100 feet, which does not meet requirements contained in FAA AC 150/5300-13, Airport Design, for airport reference code B-I, small airplanes exclusively (150 feet is required). Runway centerline to Taxiway B centerline distance is 137 feet and therefore does not meet FAA requirements. The FAA standard for runway to parallel taxiway separation precludes any part of an airplane (tail, wingtip, nose, etc.) on a parallel taxiway centerline from being within the runway safety area or penetrating the OFZ. This is not met at Cable Airport.

Pavement Strength

FAA Form 5010-1 states that Runway 6-24 has single-wheel pavement strength of 20,000 pounds. However, in the remarks section the airport operator notes that pavement strength is 12,500 pounds for single-wheel aircraft. Through discussions with the airport engineer, it was learned that the last overlay project, used a standard P-403 Caltrans mix and the designed pavement strength is 12,500 pounds. Pavement strength data noted on the FAA Form 5010-1 should be updated by the airport owner. These pavement strengths are adequate to meet existing and future demand.

Airfield Lighting and Signage

Runway 6-24 is equipped with threshold lights and medium intensity runway edge lights (MIRL). Signage is provided upon entry and exit of Taxiways C and D. It is noted that additional signage was in place but removed due to repeated damage incurred by aircraft. Taxiway E and two undesignated taxiways are not equipped with taxiway signs. It is proposed to install signage to note taxiways and runway information upon exit/entrance and designate taxiways that currently are undesignated. Surface painted signs may be considered as a means to mitigate repeated sign damage.

Building Restriction Line

According to AC 150/5300-13, the building restriction line (BRL) is defined as a line identifying suitable building area locations on airports. It encompasses runway protection zones, runway object free areas, runway and taxiway visibility zone critical areas, areas required for terminal instrument procedures, and airport traffic control tower clear line of sight.

The current master plan and the unapproved 2005 airport layout plan indicate a BRL located 200 feet on either side of the runway centerline. This study recommends retaining the 200-foot BRL, as this marks the outline of the taxiway object free area (TOFA) on both sides of Runway 6-24 should standard runway-taxiway separation be provided. Anytime a building is proposed at on airport property, FAA Form 7460-1 – Notice of Proposed Construction or Alternation, should be filed; allowing for FAA review and determination if the building creates significant adverse aeronautical effects.

Summary of Airfield Facility Requirements

Currently the RSA, ROFA, OFZ, and RPZs do not meet FAA requirements. RSAs are obstructed by Dewey Way, the Perimeter Road, and the perimeter fence. ROFA and OFZ are obstructed by the Airport Access Road. RSA, ROFA, and OFZ are all obstructed by North Benson Avenue and the Perimeter Road off the Runway 24 end. Both RPZs extend off airport property and the Runway 6 RPZ overlies a parking lot and commercial buildings. Alternatives will analyze how these safety areas can be accommodated.

Runway capacity, length, and pavement strength are adequate to meet future demand. As previously stated, the commitment to build and provide facilities will depend on the actual demand that materializes, and not forecasted demand.

AIRSPACE AND NAVIGATIONAL AIDS

There are no special use airspace areas such as restricted, prohibited, or warning areas that influence the airport.

The airspace in the immediate vicinity of Cable is Class E (starting at 700 feet above the surface) and Class G from the surface (ground) to 700 feet. As described in Chapter 3, the airport has two non-precision instrument approaches, is a non-towered airport, and has various visual aids.

Runway 6 is served by a RNAV (GPS) and a VOR approach. These approaches permit landings with visibilities as low as one mile and a 600-foot minimum descent height. Both runway ends have a two box visual approach slope indicator (VASI) with a 4-degree glide path. This glide path is non-standard due to the proximity of obstructions such as a six-foot fence with red lights beyond the Runway 24 end and to mitigate noise affects on the surrounding community.

AWOS/SuperAWOS Siting

Wind and weather conditions at Cable Airport are different than those at nearby airports (as evidenced by the different runway alignments at Brackett and Ontario). Based aircraft owners have indicated a need for improved crosswind coverage. To enhance the airport and conduct a crosswind coverage analysis, a full-time weather station should be installed at Cable Airport. However, with the current airport configuration, a crosswind runway could not be provided on airport property.

The siting requirements for an automated weather observing system (AWOS) require that the wind sensor be at least 15 feet higher than any obstruction (vegetation, building, etc.) within a 500-foot radius of the sensor and between the 500-foot and 1,000-foot radius of the sensor, obstructions cannot be greater than 10 feet above the sensor. In addition, the wind sensor is required to be 1,000 to 3,000 feet downrange from the primary runway threshold and between 500 and 1,000 feet from the runway centerline. At Cable Airport, the wind sensor could be placed on the airport beacon tower or the southern edge of the maintenance building on the south side of the airport. On the north side of the airport, the wind sensor could be located on top of buildings including Hangar 40, Hangar 42, Hangars 300-316, Hangars 270-277, and the northern half of the building that houses Hangars 200-238.

While location of pressure, visibility, and other sensor requirements are much less critical they need to be nearby the wind sensor. These sensors could be placed almost anywhere on the airport that provides similar conditions to the main runway (Runway 24). It is recommended that all sensors be placed as close to each other as possible.

Siting criteria for a SuperAWOS are less restrictive. A SuperAWOS can be installed on a fixed structure outside of the runway and taxiway object free areas, or on a frangible structure (such as the existing wind sock) outside of the runway obstacle free zone (but within the runway object free area). It is noted that the SuperAWOS is only FAA certified as an AWOS A and AWOS A-V; meaning that the SuperAWOS is only certified for altimeter and visibility. While the SuperAWOS records temperature, dew point, and wind, these data are provided as advisories only. However, the SuperAWOS also provides an automated UNICOM system which is beneficial at general aviation airports, such as Cable.

Visual Aids

As previously mentioned in Chapter 3, the airport has VASIs for both runway ends, a rotating beacon, and MIRL. These visual aids are in good working order.

Next Generation Air Transportation (NextGen)

NextGen will reshape the national airspace system by 2025. Changes will affect not only airspace and navigational aids, but will affect all phases of a flight, from flight planning, to the landing. The FAA has detailed plans for mid-term implementation (year 2018). Most technology being implemented during the mid-term will utilize advanced avionics found on modern aircraft. Changes to the national airspace system will be most noticeable in and around large commercial service airports, such as Los Angeles International, Ontario International, and John Wayne Airports. Smaller outlying general aviation airports may not be immediately impacted by NextGen; but may benefit from enhanced GPS instrument approach procedures and more direct en route navigation.

Since one of the goals of NextGen is to reduce aviation's impact on the environment, alternative fuels are being considered and developed. This is a long-term implementation, seeking to replace current leaded aviation fuels (Avgas) and could potentially have an impact on general aviation. Storage requirements for alternative fuel may also be different than Avgas, but it is assumed that regardless of the selected fuel, storage tanks will be required.

At Cable Airport there has been an RNAV approach since July 2010 that uses the NextGen technology for the non-precision instrument approach for Runway 6. This approach procedure meets demands for the planning period.

Summary of Airspace and Navigational Aids

Instrument approach procedures for Cable Airport are adequate to meet 2030 demand of aircraft using the airspace. Within the planning period, it is suggested that an AWOS/SuperAWOS be installed at Cable Airport to provide accurate weather data to support a crosswind analysis study.

TERMINAL AND SUPPORT AREA REQUIREMENTS

The determination of general aviation and support area facilities has been accomplished for the three future planning periods of 2015 (short-term), 2020 (intermediate-term), and 2030 (long-term) based on the Baseline Forecast. This section discusses anticipated general aviation terminal and administration building, transient aircraft parking apron, based aircraft storage, aircraft maintenance facility, perimeter fencing and gates, automobile parking, airport rescue and fire fighting facility, airport maintenance, and aviation fuel storage requirements and their ability to meet 2030 Baseline Forecast demand.

The following subsection presents the rationale for determining these requirements to serve the general aviation role of the airport.

General Aviation Terminal/Administration Building

Terminal facilities at Cable relate to those required to support general aviation operations. The existing terminal building is approximately 3,870 square feet. Part of the terminal building, approximately 1,860 square feet, is being used by the café. Approximately 1,245 square feet of the terminal building is being leased to a FBO, of which half is a pilot's lounge open for the public. This leaves a total terminal space of approximately 1,390 square feet that is available for the public, composed of lounge area, flight planning, and waiting area.

The administration building is a two-story building totaling approximately 2,560 square feet (1,280 square feet per story). The top floor is dedicated to airport administration offices while the bottom floor is occupied by an airport tenant.

The amount of general aviation terminal space required is based upon the expected demand, i.e., the peak hourly volume of pilots and passengers who will use the facilities. A planning standard of 49 square feet per peak hour pilot/passengers is used to determine the required area. Table 5-5 shows the breakdown of the planning standard. An estimated 2.5 pilot/passengers are assumed per peak hour operation. Table 5-6 shows the building requirements that were calculated using the above approach.

As Table 5-6 indicates, a terminal area requirement of approximately 5,020 square feet is required in 2030. Currently, total space provided by the terminal and administration buildings totals approximately 5,150 square feet of which only approximately 2,670 square feet can be accessed by the public. This means, approximately 2,350 square feet of terminal and administration space is needed to meet baseline 2030 forecasts. Additional space could be provided by Cable Airport or a FBO.

Table 5-5
DERIVATION OF REQUIREMENTS FOR
GENERAL AVIATION TERMINAL BUILDINGS

Operational Use	Area Required (SF) Per Peak Hour Pilot/Passenger
Waiting Area/Pilot's Lounge	15
Management Operations	3
Public Conveniences	1.5
Concessions, Dining, etc.	5
Circulation, Mechanical, Maintenance	24.5
Total	49

Note: Space requirements for circulation, mechanical and maintenance should be allocated equally among other terminal building uses in calculating total building requirements.

Table 5-6
GENERAL AVIATION TERMINAL AREA REQUIREMENTS

Item	2015	2020	2030
Peak Hour Operations	23	29	41
Total Peak Hour Occupants	57.5	72.5	102.5
Area/Occupant (SF)	49	49	49
Total Building Area (SF)	2,818	3,553	5,023

Source: AECOM.

Transient Aircraft Parking Apron

The overall requirements for facilities are driven by the desires of the market. Aircraft parking apron is required primarily for visiting transient aircraft as most based aircraft are stored in hangars. These are aircraft that land at Cable, but are based elsewhere. A busy itinerant day is derived from the average day of the peak month forecasts (ADPM) of aircraft activity and forms the basis of estimating transient parking apron requirements. Currently transient aircraft park on the transient southeast apron. Summarized in Table 5-7 are the transient apron requirements.

- Transient aircraft parking apron requirements were determined by applying the following assumptions to itinerant movements performed by transient aircraft on an ADPM.
- Transient operations are approximately 50 percent of itinerant aircraft operations.
- The majority of transient aircraft will arrive and depart on the same day, thus it is assumed that the actual number of aircraft utilizing the parking apron is one-half (50 percent) of the transient movements being performed on the average day of the peak month.
- During the planning period, 50 percent of the transient aircraft will be on the ground at any given time.
- Thus, 25 percent of transient operations (during ADPM) will be temporarily parked on the transient apron.

- Single engine aircraft require 2,700 square feet (300 square yards) of apron space; and multi-engine aircraft, business jets, and helicopters require 5,625 square feet (625 square yards) of apron for parking and maneuvering.

Table 5-7
TRANSIENT AIRCRAFT TO BE ACCOMMODATED
ON TRANSIENT AIRCRAFT APRON

Number of Aircraft to be Accommodated	2015	2020	2030
Annual Transient Operations	5,800	7,300	20,698
Peak Month Transient Operations	580	730	2,070
ADPM Transient Operations	19	24	69
Number of Aircraft Parked	5	8	12
Size of Transient Aircraft Apron			
Single Engine: Number of Aircraft [a]	4	7	11
Area/Aircraft (SY)	300	300	300
Apron Area (SY)	1,200	2,100	3,300
Multi-Engine/Turboprops/Jets: Number of Aircraft [a]	1	1	1
Area/Aircraft (SY)	1,600	1,600	1,600
Apron Area (SY)	1,600	1,600	1,600
Total Aircraft	5	8	12
Total Apron Area (SY)	2,800	3,700	4,900

Source: AECOM.
[a] Based upon estimated mix of transient aircraft

The analysis concludes that roughly 3,900 square yards of apron for 12 aircraft are required to accommodate transient demand in 2030. Currently there are approximately 16 transient tie-downs. Additional space is provided for aircraft to park without tie-downs. There are approximately 14,700 square yards of empty aircraft apron located south of hangars A through N that are used for special events and during emergencies.

Based Aircraft Storage

Aircraft based at the airport can be stored either by occupying a paved tie-down parking space or by storage within a hangar. The number of aircraft stored in hangars varies according to the desire for hangar space versus apron storage, the economics of providing hangars, and the severity of weather conditions prevailing at the airport location. The number of based aircraft at Cable may increase from the present level of approximately 360 to 404 aircraft in the year 2030 under the Baseline Forecast. Adequate storage facilities should be provided to accommodate forecast based aircraft. In determining the demand for the various types of storage, the following assumptions were made:

- The trend at Cable is that all based aircraft will be stored in hangars
- It is assumed that all single-engine based aircraft will be stored in T-hangars or small box hangars.
- It is assumed that most multi-engine aircraft will be stored in large box hangars.

- All turboprops and business jets will be stored in box hangars and each will require 4,500 square feet of floor space.

- It is assumed that helicopters will be stored in large box hangars with each helicopter requiring 1,620 square feet of floor space.

For the purpose of this analysis of facility requirements, hangars are generally categorized into three basic types, T-hangars, small box hangars, and large box hangars. T-hangars and small box hangars are hangars that accommodate one aircraft. Small box hangars are defined as having a width less than 45 feet. Large box hangars are structures that will accommodate several aircraft of different sizes in an open bay. Large box hangars have a width of equal to or greater than 45 feet and can serve small business jets or very light jets. Figure 5-4 presents the different types of T-hangars, small box hangars, and large box hangars.

For the purpose of this analysis, T-hangar and small box hangar requirements are determined as number of spaces, or units and may be provided through a mix of box and T-hangars. Table 5-8 summarizes the storage hangar requirements for based aircraft determined in this analysis. The analysis is based on the Baseline Forecast.

Table 5-8
BASED AIRCRAFT STORAGE HANGAR
REQUIREMENTS BASED ON BASELINE FORECAST

	2015	2020	2030
Single Engine Piston			
Number of Based Aircraft	354	357	363
Number of Aircraft in T-Hangar or Small Box Hangar	354	357	363
Multi-Engine Piston			
Number of Based Aircraft	24	26	29
Number of Aircraft in T-Hangar or Small Box Hangar	24	26	29
Turboprop/Business Jet			
Number of Aircraft	1	1	2
Number of Aircraft in Large Box Hangar	1	1	2
Area/Aircraft (SF)	4,500	4,500	4,500
Helicopters			
Number of Aircraft	4	5	7
Number of Aircraft in Large Box Hangar	4	5	7
Area/Aircraft (SF)	1,620	1,620	1,620
Other			
Number of Based Aircraft	3	3	3
Number of Aircraft in T-Hangar or Small Box Hangar	3	3	3
Total Aircraft Hangared	386	392	404
Required T-Hangars and Small Box Hangars (Spaces)	381	386	395
Required Large Box Hangar Area (SF)	10,980	12,600	20,340

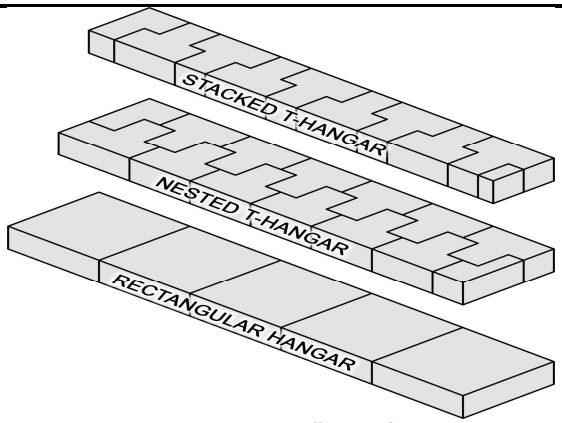
Source: AECOM analysis.

"Other" aircraft are assumed to be ultra-light and home built aircraft and stored in T-hangars or small box hangars. It is assumed that helicopters will be housed by FBOs. Table 5-9 below notes the deficiencies assuming that existing hangars cannot accommodate more based aircraft.

T-HANGARS



T-Hangar



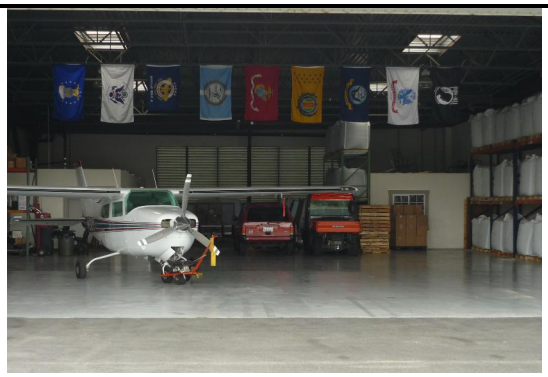
Hangar Configuration

SMALL BOX HANGARS



Small Box Hangar (width less than 45 feet)

BOX HANGARS





Large Box Hangars (width greater than or equal to 45')

Figure 5-4
Hangar Types at
Cable Airport

Table 5-9
HANGAR DEFICIENCIES AT CABLE AIRPORT (2009 – 2030)

Item	Deficiency			
	Existing	2011-2015	2016-2020	2021-2030
T-Hangars and Small Box Hangars (Spaces)	358	27	32	41
Large Box Hangar (SF)	90,400	1,620	4,860	15,840

Source: AECOM analysis.

Table 5-9 shows that if based aircraft increase as forecast, 41 new T-hangars/small box hangars will be needed in addition to eventual replacement of old hangars. The replacement of old hangars should be anticipated. Based on forecast based helicopters and turboprops/business jets an additional 15,840 square feet hangar space is required by large box hangars.

Three approaches are available to the airport in providing hangars. The first would involve leasing land to aircraft owners and allowing them to construct their own hangars. To assure uniformity in construction as well as visually pleasing results, the airport owner (the Cable Land Company) could control the type of hangar built by a clause in the land lease. An alternative to the above would be for the airport owner to construct the hangars and then rent or lease them to aircraft owners. If this approach is followed, firm commitments for their use should be made before construction of the hangars are undertaken. A third approach is to have a complex of hangars built by a third party on property leased by the airport. Typically, the Cable Land Company builds hangars to suit specific tenant requirements. This arrangement is expected to continue throughout the planning period.

An alternative to aircraft storage hangars is to provide space on the parking apron with tie-down facilities to secure the aircraft during severe weather or periods of high winds. For planning purposes, an allowance of 300 square yards for single engine and 625 square yards for multi-engine and helicopters can be used to calculate the size of the based aircraft tie-down area. While all based aircraft are assumed to be stored in hangars, planning for provision of a nominal apron for approximately 10 based aircraft tie-downs is prudent.

By 2030 it is assumed that rehabilitation of apron pavement will be conducted. The short-term pavement areas needing rehabilitation are on the apron and ramp associated with the flight school tie-downs, north of the terminal, and along the western property line of the north side of the airport.

Aircraft Maintenance Facilities

Fixed base operators at Cable Airport provide major airframe repair and major power plant repair services. Currently approximately 35,750 square feet of aircraft maintenance facilities are located on the airport. By 2030, the need will increase to approximately 40,340 square feet. An additional 4,590 square feet may be needed to accommodate the Baseline Forecast.

Perimeter Fencing and Gates

A perimeter fence surrounds Cable Airport with the exception of the terminal area. The terminal area is separated from the airside by a rock curb. Gates require ID card access only provided to airport tenants and businesses serving the airport. Six gates provide access to the airport including access from North Benson Avenue, West 13th Street, Airport Drive, and Dewey Way. Consideration may be given to provide perimeter fencing to further delineate the landside from the airside.

Automobile Parking

For general aviation users, the parking areas are designed to accommodate peak activity periods. A generally accepted value for computing the amount of general aviation parking space needed is 1.3 spaces per peak hour general aviation pilot/passenger. This factor takes into account airport employees, rental car spaces (if applicable), and visitors as well as pilots/passengers. The area required per automobile is 350

square feet, which includes circulation routes and other necessary clearances within the parking area. The projected general aviation auto parking requirements are summarized in Table 5-10.

There are approximately 71 existing parking spaces provided for general aviation at the terminal building and 102 parking spaces provided throughout the airport. In addition, parking spaces are available in the hangars. The existing auto parking facilities were documented in Chapter 3. As seen in Table 5-10 a requirement of 133 spaces is identified. The present number of parking spaces is adequate to accommodate general aviation users through the year 2030. However, additional parking may be required for specific developments.

Table 5-10
AUTOMOBILE PARKING REQUIREMENTS
FOR GENERAL AVIATION USERS

Item	2015	2020	2030
Peak Hour Operations	23	29	41
Total Occupants	58	73	103
Spaces/Occupant	1.3	1.3	1.3
Total Parking Spaces (Each)	75	94	133
Area/Parking Space (SF)	350	350	350
Total Parking Area (SF)	26,163	32,988	46,638

Source: AECOM.

Aircraft Rescue and Fire Fighting (ARFF) Facilities

The FAA requires Aircraft Rescue and Fire Fighting (ARFF) facilities for airports 14 CFR Part 139 certification. Part 139 certification is required for airports having scheduled air carrier operations. General aviation airports like Cable are not required to obtain Part 139 certification and therefore are not required to have ARFF facilities at the airport. Rescue and fire fighting capabilities are provided by the City of Upland Fire Department located on North Benson Avenue across the street from the airport. Fire Department personnel are trained to respond to aircraft fires. A dedicated fire gate provides direct access to the airport.

Airport Maintenance

Airport maintenance and storage facilities are provided on the northwest corner of the airport, occupying approximately 22,200 square feet. This meets forecast demand. However, if this area is redeveloped for other uses, another area must be designated.

Aviation Fuel Storage

There are currently two fuel storage tanks at the airport. One is a 12,000-gallon above ground tank for Avgas 100LL fuel and the other is a 12,000-gallon above ground tank for Jet A. The Baseline Forecast projects 144,400 gallons of Avgas 100LL and 69,800 gallons Jet A fuel flowage in 2030. Historically, the 12,000 gallon tanks have accommodated up to approximately 184,000 gallons of annual fuel flowage. Based on historical usage, the capacity is deemed adequate.

Summary of Terminal and Support Area Requirements

Table 5-11 summarizes existing facilities and planning requirements for Cable Airport. These requirements accommodate the forecasted 404 based aircraft and 103,300 operations of the Baseline Forecast that was assumed for facility planning purposes. As previously stated, the commitment to build and provide facilities will depend on the actual demand that materializes, and not forecast demand.

Table 5-11
SUMMARY OF TERMINAL AND SUPPORT AREA REQUIREMENTS

Item	Existing	2015	2020	2030	2030 Deficiency
GA Terminal (square feet)	2,670	2,820	3,550	5,020	2,350
Transient Apron (number of aircraft/area in square yards)					
Single engine/Multi-engine	16/5,340	5/1,825	8/2,725	12/3,925	0
Turboprops/Business jets	0 acft.	0	0	0	0
T-hangars and Small Box Hangars (spaces)	358	381	386	395	41
Large Box Hangar Space (square feet)	90,400	92,020	95,260	106,240	15,840
Based Aircraft Tie-downs (number of aircraft)	66	0	0	0	0
Auto Parking (spaces)	173	75	94	133	0
Fuel Storage (gallons)					
Avgas 100LL	12,000	12,000	12,000	12,000	0
Jet A	12,000	12,000	12,000	12,000	0
Aircraft Maintenance	35,750	38,550	39,150	40,340	4,590
Airport Maintenance	22,200	22,200	22,200	22,200	0

Source: AECOM.

GROUND ACCESS

Access to Cable is provided by two highways: Interstate 10 and Highway 210 to the vicinity of Cable Airport. Ground access is provided via West Foothill Boulevard, North Benson Street, and West 13th Street. Adequate ground access is provided to accommodate existing and future airport traffic. However, dedicated ground (landside) access is not available to all aviation related businesses. Consideration should be given to provide landside access to all aviation businesses.

SECURITY

The Transportation Security Administration (TSA), in cooperation with the general aviation community, has developed guidelines to enhance security at general aviation airports. To evaluate security needs at a specific airport, TSA has developed an Airport Characteristics Measurement Tool. Table 5-12 displays the Airport Characteristics Measurement Tool along with Cable's ranking.

Overall risk is measured on a scale of 0 (lowest risk) to 55 (highest risk), and grouped into four levels. Suggested security enhancements are given for each level (see Figure 5-5). Cable Airport falls into the second lowest level of risk, with 20 points. Figure 5-5 displays the suggested security measures for this risk level and are summarized below. Cable Airport has installed an airport perimeter fence and gated access to the airside.

- **Law Enforcement Officer Support.** Airport operators are encouraged to have regular patrols of the airport by local law enforcement. Airport staff, a private security company, and local law enforcement regularly patrol the airport.

  The addition of the security gates at Cable Airport has provide record keeping capability, allowing review of all ingress and egress activities to alert security personnel and/or law enforcement of any unusual activity.

- **Security Committee.** An airport security committee is composed of airport tenants and users drawn from all segments of the airport community. The main goal of the group is to involve airport stakeholders in developing effective and reasonable security measures and disseminating timely security information. Cable has a runway safety action team (RSAT) as well as a security committee formed by the owners and operators at Cable Airport. Information about new security

programs is distributed to all tenants via the Cable Gram, a monthly newsletter, published by the airport.

Table 5-12
AIRPORT CHARACTERISTICS MEASUREMENT TOOL

Security Characteristics	Assessment Scale [a]	Cable Airport	
		Existing	Future
Location			
Within 30 nm of mass population areas [b]	5	5	5
Within 30 nm of a sensitive site [c]	4	0	0
Falls within outer perimeter of Class B airspace	3	0	0
Falls within boundaries of restricted airspace	3	0	0
Based Aircraft			
Greater than 101 based aircraft	3	3	3
26-100 based aircraft	2	-	-
11-25 based aircraft	1	-	-
10 or fewer based aircraft	-	-	-
Based aircraft over 12,500 pounds	3	0	0
Runways [d]			
Runway length equal to or greater than 5,000 feet	5	-	-
Runway length less than 5,000 feet, greater than 2,001 feet	4	4	4
Runway length 2,000 feet or less	2	-	-
Asphalt or concrete runway	1	1	1
Operations			
Over 50,000 annual operations	4	0	4
Part 135 operations	3	0	0
Part 137 operations	3	0	0
Part 125 operations	3	0	0
Flight training	3	3	3
Flight training in aircraft over 12,500 pounds	4	0	0
Rental aircraft	4	4	4
Maintenance, repair, and overhaul facilities conducting long term storage of aircraft over 12,500 pounds	4	0	0
Total	**55**	**20**	**24**

[a] Assess points for every characteristic that applies to the airport.
[b] Mass population area – area with total metropolitan population of at least 100,000 people.
[c] Sensitive sites – areas which would be considered key assets or critical infrastructure of the United States. Sensitive sites can include certain military installations, nuclear and chemical plants, centers of government, monuments and iconic structures, and/or international ports.
[d] Facilities with multiple runways should only consider the longest runway on the airport.
Source: Transportation Security Administration.

<table>
<tr><th colspan="4">Points/Suggested Guidelines</th></tr>
<tr><th>>45</th><th>25-44</th><th>15-24</th><th>0-14</th></tr>
<tr><td colspan="2">Fencing
Hangars
Closed Circuit TV
Intrusion Detection System</td><td rowspan="2"></td><td rowspan="3"></td></tr>
<tr><td colspan="2">Access Controls
Lighting System
Personnel ID System
Vehicle ID System
Challenge Procedures</td></tr>
<tr><td colspan="3">Law Enforcement Officer Support
Security Committee
Transient Pilot Sign-In/Out Procedures</td></tr>
<tr><td colspan="4">Signs
Documented Security Procedures
Positive Passenger/Cargo/Baggage ID
All Aircraft Secured
Community Watch Program
Contact List</td></tr>
</table>

Figure 5-5
Risk Level and Suggested Security Enhancements

- **Transient Pilot Sign-In/Out Procedures.** Sign in and out procedures can help identify non-based (transient) pilots and aircraft using the airport. Cable Airport has a system where the re-fueling manager records aircraft numbers daily for purposes of transient tie-down fees.

- **Signs.** Signs should be posted to warn against unlawful activity. Signs are present at Cable warning that local laws are enforced by the police department and the Airport Watch Program.

- **Documented Security Procedures.** Written procedures to guide airport operators on security guidelines, protocols, and procedures are maintained by airport staff.

- **Positive Passenger/Cargo/Baggage ID.** Prior to boarding the pilot should ensure that the identities of all passengers are verified and all baggage and cargo is known to the occupants. Since Cable Airport does not provide commercial service this is not applicable.

- **All Aircraft Secured.** All aircraft are secured in locked hangar facilities or locked on the apron.

- **Community Watch Program.** The community should pay attention to and report any unusual activities or people on the airport. An Airport Watch Program is in effect at Cable Airport.

- **Contact List.** Including law enforcement and other emergency contacts. FBOs are provided with all necessary emergency and management contacts.

By 2030 Cable Airport will have increased its risk to 24 points, which still maintains the risk assessment to be of the second lowest risk. This is due to the forecast that annual operations will increase to over 50,000. The airport meets all existing security requirements. Future requirements are unknown due to ever changing threats; however, Cable Airport should continue to meet security requirements to the extent practical.

UTILITIES

There are no significant deficiencies with existing utilities. Future development will require design and construction of supporting infrastructure such as electric and water. Specifically, construction of future hangars in the position of the existing shade hangars (as depicted on the 2005 ALP) will require an additional fire and domestic water loop. This line has been designed under AIP 06 funding, but was not built due to a lack of construction funding. This line will be required with construction of the proposed hangars.

AIRPORT LAND REQUIREMENTS

The land use on an airport will vary depending on the role and volume of traffic. For Cable Airport, the on-airport land uses can be broadly categorized into four categories described herein.

The aircraft operating area (AOA) is defined as that area on-airport that lies within the building restriction lines (BRL) and runway protection zones (formerly clear zones). It includes the runways, taxiways, associated safety areas and lateral clearances, and runway approaches. The FAA defines the BRL as a line which identifies suitable building area locations and encompasses the runway protection zones, the runway object free area, the runway visibility zone, NAVAID critical areas, areas required for terminal instrument procedures (TERPS), and areas required for clear line of sight from the control tower (when applicable).

As previously mentioned, based on the existing taxiway location the existing building restriction line should be located 200 feet from the runway centerline of Runway 6-24. As seen above and as defined by FAA, runway protection zones (RPZs) are also encompassed within the BRL. Therefore, the BRL is assumed to be the general boundary of the AOA.

Areas of the airport including general aviation uses such as storage hangars, tie-downs and transient aprons, terminal and administration building, potential FBO sites, aircraft maintenance, and auto parking can be categorized as aeronautical use areas. The Cable Business Park is located on the southwestern corner of airport property.

The current airport is approximately 109 acres. The breakdown of airport property is shown on Table 5-13. Areas classified as "other" reflect undeveloped and vacant areas on the airport. It should be noted that runway protection zones are not entirely within the airport property line.

Table 5-13
LAND AREAS AT CABLE AIRPORT

Category	Acreage	Percent
Aircraft Operating Area (AOA)	37	33
Aeronautical Use Areas	52	48
Cable Business Park	17	15
Other	4	4
Total	109	100

Note: Other reflects undeveloped, vacant area on the airport.
Source: AECOM.

As seen in Table 5-13, approximately 33 percent of the airport is within the aeronautical use category and approximately four percent of the space is designated other space. The Cable Business Park covers approximately 17 acres, which airport has a vested interest. The future planning of the airport must determine the area required for aeronautical use to accommodate forecast demand, currently covering 48 percent of the airport.

There are safety areas and runway protection zones that extend beyond the airport property. For the 200-foot BRL, a corner of the property bordering the airport on the south should be acquired (0.1 acres) as the perimeter fence extends past the BRL. It is important this area be controlled by the airport to ensure safety for both the users of the airport as well as the surrounding community.

Consideration may be given to provide additional property on the north to provide greater separation between the runway and the edge of airport property. Efforts should continue to limit development within the RPZs either through purchasing land in fee or through avigation easements.

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Chapter 6

Concept Development





Chapter 6
Concept Development

INTRODUCTION

This chapter, Concept Development, describes the recommended development concept and different development options that were evaluated. It includes moving the runway to enhance safety areas at the airport. Development concepts were qualitatively evaluated for environmental compatibility. Once a preferred development concept was identified, the remaining tasks in the master plan defined the concept through a series of airport layout drawings and implementation plan. The airport concepts as described herein are based upon the facility requirements discussed in Chapter 5 and the aviation demand forecasts in Chapter 4. The concept defines in general terms, the different areas on-airport and the type of development, to organize the basic land uses and major on-airport facilities, which will ultimately promote the orderly development of the airport.

As with preceding chapters in this study, this section is organized by airfield alternatives and hangar, terminal, and support area alternatives. All alternatives were evaluated and a recommended alternative for each airfield, terminal, and support areas was determined. Based on these three recommended alternatives a recommended composite alternative was created and used as the basis for the Airport Layout Plan. Also included was a discussion of the "no build" or "no action" alternative. Short-term improvements and land acquisition graphics were created to define immediate actions that could be taken.

EXISTING DEVIATIONS FROM FAA DESIGN STANDARDS

As documented in Chapter 5, the following deviations from FAA design standards for an airport reference code of B-I, small airplanes exclusively are present:

- **Runway Safety Area (RSA):** The RSA for Cable Airport is 120 feet wide centered on the runway centerline, and extends 240 feet beyond each runway end. There are specific FAA clearing and grading standards for runway safety areas. The RSAs for Runways 6 and 24 extend beyond airport property and are non-standard as they are traversed by Dewey Way and Benson Avenue, respectively. Both RSAs are also traversed by the airport fence. The Perimeter Road traverses the Runway 24 RSA. Beyond Runway 6 there is 141 feet of clear RSA before reaching the perimeter fence and Runway 24 has 86 feet of clear RSA beyond the runway end prior to intersecting the Perimeter Road.

- **Runway Obstacle Free Zone (OFZ):** The design standards for an ARC of B-I, small airplanes exclusively call for an OFZ extending 200 feet beyond each of the runway ends. For runways serving small airplanes with approach speeds of 50 knots or more, the width of the OFZ is 250 feet, 125 feet on either side of the runway centerline.

  The access road traverses the Runway 6 OFZ so that OFZ is not provided beyond the runway end. The access road parallels the runway on the north for approximately 1,220 feet, 100 feet north of the runway centerline. For that entire length, the access road is within the OFZ. Along

the extended centerline, the OFZ is clear of obstructions as both Dewey Way and the perimeter fence are below the runway threshold elevation.

The OFZ for Runway 24 is non-standard as it is traversed by Benson Avenue and the Perimeter Road 62 feet from the runway end. In addition, FAA standards state that taxiing aircraft are not allowed within the OFZ. Taxiways A and B are within the Runway 6-24 OFZ and therefore do not meet FAA design standards. From the runway centerline to the wingtip of aircraft using Taxiway A is approximately 75 feet and 112 feet for Taxiway B.

- **Runway Object Free Area (ROFA):** The design standards for an ARC of B-I, small airplanes exclusively call for a ROFA extending 125 feet on either side the runway centerline and extending 240 feet beyond the end of the runway.

  Similar to the OFZ, the Access Road parallels the runway for approximately 1,220 feet and is within the ROFA approximately 100 feet from the runway centerline. Along the extended runway centerline of Runway 6, there are no obstructions as Dewey Way (and an assumed vehicle) and the perimeter fence are below the runway threshold elevation. Runway 24 ROFA is non-standard, as it is traversed by the Perimeter Road and Benson Avenue. Along the extended runway centerline of Runway 24, the ROFA is clear for 79 feet before being obstructed by the Perimeter Road.

- **Runway/Taxiway Separation:** Runway centerline to taxiway centerline separation for ARC B-I, small airplanes exclusively is 150 feet. Taxiways A and B are separated by 100 and 137 feet from the runway, respectively.

- **Building Restriction Line (BRL):** The current BRL is set at 200 feet from the runway centerline on either side of Runway 6-24. On the south side, an area of approximately 0.1 acres within the BRL is outside of airport property. The airport perimeter fence in this area has been struck several times by aircraft traveling on Taxiway A.

AIRFIELD ALTERNATIVES

Methodology

Airfield alternatives for Cable Airport were created with the following goals in mind:

- Maintaining financial self-sustenance and promoting economic development;
- Meeting FAA design standards to the extent possible; and,
- Developing and operating with a minimum of adverse effects on the social and natural environment.

As noted above, some FAA design standards are not met at Cable Airport. The most critical of these standards are the runway safety areas for both Runways 6 and 24 as they extend off airport property and are impeded by roads and other obstacles. FAA Order 5200.8 – Runway Safety Area Program states the following alternatives to consider when it is not practicable to obtain the entire safety area by constructing a traditional graded safety area surrounding the runway:

- Relocation, shifting, or realignment of the runway
- Reduction in runway length where the existing runway length exceeds that which is required for the existing or projected design aircraft
- A combination of runway relocation, shifting, grading, realignment, or reduction
- Declared distances
- Engineering Materials Arresting Systems (EMAS)

At Cable Airport providing standard RSA is not practicable due to the presence of North Benson Avenue (a major road) within the Runway 24 RSA and Dewey Way within the Runway 6 RSA, along with a large change in elevation. A project team meeting was conducted on August 16, 2010 to discuss various alternatives and possibilities to accommodate FAA design standards at Cable Airport. Opportunities and constraints defined in the project meeting are presented in the following subsections.

Relocation, Shifting, or Realignment of the Runway

There are several constraints associated with a relocation, shift, or realignment of Runway 6-24 at Cable Airport such as high costs, roads bordering both runway ends, the vicinity of the Los Angeles County line, the proximity to the San Antonio Creek Channel, terrain, and the irregular shape of the airport property. In contrast, there are opportunities associated with a potential relocation, shift, or realignment of the runway including small shifts in the runway location that could have incremental safety area improvements. Major changes in runway alignment will likely reduce runway lengths, cause greater community impacts, and essentially require a redesign of the entire airport infrastructure. Considering these limiting factors and associated costs, a realignment of the runway is not considered feasible.

The closure of Taxiway B can be considered as it is underutilized. Most traffic accesses the north hangar area from Taxiway C or the east end of the runway. Since Taxiway B is not a full length parallel taxiway, pilots performing full stop/taxi back maneuvers typically utilize Taxiway A. Pilots using Runway 24 who cannot exit at Taxiway C are required to back taxi on Taxiway A and cross the runway at Taxiway C to reach the north hangar area.

While major changes to the current runway configuration are impractical, it was discussed during the project meeting that small changes may be feasible, albeit expensive. Upon discussions with the Airport, it was determined that the relocation and shifting of Runway 6-24 was a potential alternative to increase standard RSA at the airport.

On the south side of the airport, the building restriction line (BRL) extends off-airport. The BRL is set at 200 feet from the runway centerline on either side of the runway. The airport operating area is secured by a perimeter fence resulting in a portion of fence extending into the BRL. There have been incidents where aircraft using Taxiway A have struck the perimeter fence. Shifting the runway northward, and/or acquiring this corner of land (approximately 0.1 acres) would increase the wingtip clearance for aircraft taxiing on Taxiway A.

Reduction in Runway Length

An opportunity for reducing the current runway length is that safety areas could be accommodated on airport property, without major construction. This would reduce costs to provide full safety areas at the airport. However, reducing the runway length is not a feasible option at Cable Airport, as this would lessen the utility of the runway and impact current and future users. The design aircraft (and current aircraft using the airport) would be required to operate at the airport with reduced in loads, contrary with the goal of sustaining the business enterprise of the airport and is not consistent with the stated goals of FAA Order 5200.8. Therefore, reducing the runway length will not be considered.

Combination of Runway Relocation, Shifting, Grading, Realignment, or Reduction

As previously mentioned, a reduction of runway length and changes in runway alignment are not feasible options. However, a combination of relocating (but retaining the same runway bearing), shifting, and grading could potentially be taken into consideration and will be further analyzed.

Declared Distances

Declared distances are not commonly applied to general aviation airports such as Cable Airport as it is confusing to general aviation pilots and therefore, typically discouraged by the FAA. Application of declared distances may result in meeting RSA standards, but will also affect usable runway lengths. The potential reduction of take-off and landing distance available for aircraft lessens the utility of the runway. Declared distances will not be considered as a long-term solution at Cable Airport.

Engineering Materials Arresting System (EMAS)

EMAS, in combination with declared distances, provide the benefit of full safety areas at airports. However, EMAS installations are usually ineffective for smaller, light-weight aircraft that are common at Cable Airport and effectively serve as paved safety area. An EMAS is expensive to install and maintain. Given the number and types of operations at Cable Airport, it is assumed that a benefit cost analysis will not justify the installation of EMAS. Therefore, EMAS is not a feasible alternative to providing RSA. However, an area of pea gravel beyond the Runway 6 end provides similar functions to an EMAS and has proven useful in two out of four instances. For the two instances it was not successful in stopping overrunning aircraft, the aircraft exited the runway at a speed which full RSA would not have been sufficient for the aircraft to stop. Consideration may be given to similar applications in the future. However, it is recognized that such applications are non-standard and therefore would require FAA's approval for a modification to design standards.

No Build/No Action

The "no build" or "no action" alternative is a scenario where no projects occur at the airport. Under this alternative there will be no changes to the airport. The runway will remain in its present location and the existing hangar facilities will remain as is, including the airport owned T-hangars which are in poor condition. Under the no action alternative, aviation demand will not be met and existing facilities which are in poor condition will continue to deteriorate to the point of being unusable or unsafe. Figure 6-1 shows existing conditions as a no build/no action concept. This concept will serve as a baseline for comparing other alternatives developed.

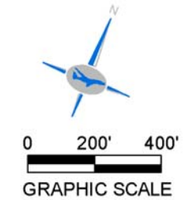
Alternatives

Based on the information presented above, the following alternatives were identified for Cable Airport. There are common features in each of these alternatives that include:

- Maintain a runway length of 3,865 feet
- Minimum runway width of 60 feet – compliant with FAA design standards
- Acquiring 0.1 acres to the south to increase wingtip clearance to the perimeter fence and provide a consistent 200-foot BRL to the south of the runway on airport property
- Locate runway hold lines 125 feet from the runway centerline
- Closing Taxiway B as it is currently underutilized and could provide space to improve safety and operations south of the airport

Alternative 1 – Full Runway Safety Area on Airport Property

This alternative proposes to shift Runway 6-24 northward 50 feet to provide full runway/taxiway separation between the runway and Taxiway A. Furthermore, the runway is translated 122 feet to the west to provide full RSA beyond Runway 24 (240 feet) on airport property. It is noted that the Perimeter Road remains within the RSA in this alternative. The runway will remain at its present length of 3,865 feet and retain its current alignment. The new runway will be 60 feet wide (meeting ARC B-I, small airplanes exclusively design standards).



LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
RUNWAY SAFETY AREA	
RUNWAY OBJECT FREE AREA	
RUNWAY PROTECTION ZONE	
BUILDING RESTRICTION LINE	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

Figure 6-1
No Action

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This alternative also recommends closing the existing Taxiway B and constructing a new section of Taxiway B on the north side of Runway 6 at a standard 150 feet of runway/taxiway separation. The new taxiway will be 25 feet wide and extend from the relocated Runway 6 threshold to Taxiway C (approximately 1,485 linear feet). The new segment of Taxiway B will reduce potential runway incursions of aircraft crossing the runway at Taxiway C to access the north hangar area. The construction of the western segment of Taxiway B would require relocation of the fuel tanks and fuel service island outside of the future taxiway object free area (TOFA).

Taxiway A will remain in its present location but will be extended by approximately 122 feet to the west (the same distance as the runway translation). With the 50-foot runway shift, 150 feet runway centerline to taxiway centerline separation will be provided.

The Access Road will be relocated to the north, outside of the ROFA and TOFA. Approximately 1,188 linear feet of new road (24 feet wide) are required. Of the three alternatives, this alternative requires the most property to be acquired in order to accommodate Taxiway B and associated TOFA. Approximately 5.7 acres of Holliday Rock property are required to the north and west to provide full RSA, ROFA, TOFA, and the relocated Access Road on airport property. Approximately 780 linear feet of Dewey Way will be relocated outside of the safety areas.

The Perimeter Road will remain within the RSA of Runway 24. Instead of 86 feet of full RSA (32 percent), 169 feet of clear RSA (85 percent) will be provided. The Runway 6 RSA will be clear of all obstructions. The OFZ and ROFA for Runway 24 would improve from 32 feet of clear OFZ and ROFA (33 and 27 percent, respectively) to 124 feet (60 and 50 percent, respectively). The threshold of Runway 24 will remain the same distance from Benson Avenue to provide adequate clearance, resulting in a 36-foot displaced threshold. Runway 6 would not have a displaced threshold as Dewey Way will be relocated to remain outside of the safety areas and will be low enough that trucks on the road will not penetrate the approach surface. This allows an increased landing distance for Runways 6 and 24 by 106 and 122 feet, respectively. Alternative 1 is shown in Figure 6-2.

Rough Order of Magnitude Costs. Rough order of magnitude costs indicate that Alternative 1 is the highest at approximately $4.9 million. It should be noted that this does not include the acquisition of 5.7 acres of the north property nor the 0.1 acres of the south property.

Environmental Analysis. Based on preliminary review (mainly utilizing aerial maps and City of Upland planning documents and maps) of the three alternatives, Alternative 1 would result in the most environmental concerns as it has the largest footprint and property acquisition. Specifically, Alternative 1 would trigger the most environmental concerns in the following areas: Noise; Compatible Land Use; Air Quality; Water Quality; Wetlands; Historic, Architectural, Archeological and Cultural; DOT Act, Section 4(f); Energy Supply and Natural Resources; Biotic Communities; Endangered and Threatened Species of Flora and Fauna; Solid Waste; and Construction Impacts. However, Alternative 1 would create less environmental concerns regarding Floodplains in comparison to Alternative 2 and Alternative 3 because Alternative 1 would not extend as far into the existing floodplain (west of Dewey Way). Also, it should be noted that all three alternatives would result in a similar level of environmental concerns in the following areas: Social Impacts including Environmental Justice; Farmlands; Light Emissions; and Induced Socioeconomic Impacts. None of the alternatives impact Wild and Scenic Rivers, Coastal Barriers, or the Coastal Zone Management Program

Alternative 2 – Full Runway Object Free Area on Airport Property

Figure 6-3 shows Alternative 2. This alternative proposes to shift Runway 6-24 to the north by 50 feet (to provide 150 feet runway/taxiway separation to Taxiway A) and approximately 164 feet to the west. This shift accommodates full RSA and ROFA on airport property and ensures that the

Perimeter Road is outside of the RSA. The Airport Access Road will be relocated to the north, outside the ROFA, and includes construction of approximately 1,188 linear feet of new road (24 feet wide). Approximately 927 linear feet of Dewey Way will be relocated to accommodate full safety areas off Runway 6. The new location of Dewey Way comes within approximately 12 feet of the San Antonio Creek Channel west of the airport. Approximately 3.5 acres are to be acquired on the north and west side of the airport to accommodate future Airport Access Road, RSA, and ROFA.

This alternative closes the viewing area near Runway 24. The Perimeter Road is relocated to reduce its impact on the safety areas. Approximately, 216 linear feet of new road will be constructed. The proposed alignment allows for full RSA and OFZ. The Perimeter Road will still traverse ROFA; however, 213 feet of ROFA (98 percent) are provided, up from 32 feet (27 percent). Relocation of the Perimeter Road will also require reconfiguration of the 14th Street gate. It is assumed that the gate could be moved closer to the existing northern-most row of hangars.

Taxiway A remains at 25 feet wide but will be extended by approximately 164 feet to the west, corresponding with the westerly translation of the runway.

Since no displaced thresholds are required in this alternative, the full runway length of 3,865 feet is available for landings in both directions.

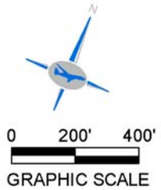
Rough Order of Magnitude Costs. The rough order of magnitude cost estimates for Alternative 2 are the second highest at approximately $4.1 million. This does not include the acquisition of 3.5 acres of the north property nor the 0.1 acres of the south property.

Environmental Analysis. Based on preliminary review (mainly utilizing aerial maps and City of Upland planning documents and maps) of the three alternatives, Alternative 2 would trigger the same environmental concerns as Alternative 1, but to a lesser extent, although Alternative 2 would result in greater environmental concerns than Alternative 3. Specifically, these environmental concerns include the following: Noise; Compatible Land Use; Air Quality; Water Quality; Wetlands; Historic, Architectural, Archeological and Cultural; DOT Act, Section 4(f); Energy Supply and Natural Resources; Biotic Communities; Endangered and Threatened Species of Flora and Fauna; Solid Waste; and Construction Impacts. However, Alternative 2 would result in more environmental concerns to Floodplains than Alternative 1 and Alternative 3 because it would extend further into the existing floodplain (west of Dewey Way). Also, as noted previously, all three alternatives would result in a similar level of environmental concerns in the following areas: Social Impacts including Environmental Justice; Farmlands; Light Emissions; and Induced Socioeconomic Impacts. There are no impacts to Wild and Scenic Rivers, Coastal Barriers, or the Coastal Zone Management Program.

Alternative 3 – Engineered Material Arresting System

Alternative 3 also proposes shifting the Runway 6-24 to the north by 50 feet to provide 150 feet runway/taxiway separation to Taxiway A. As previously noted, a pea gravel bed – or "poor man's EMAS" – exists beyond the Runway 6 end. The existing pea gravel bed is approximately 115 feet long and as wide as the runway (75 feet). This alternative recommends installing pea gravel beds on both runway ends. In order to accommodate a pea gravel bed on Runway 24, the runway will be translated 54 feet to the west. The future pea gravel beds are assumed to be similar in size to the current bed off Runway 6. These gravel beds will be approximately 15 feet from the runway end to provide shoulder paving and threshold lights.

When installing EMAS at an airport declared distances are applied. This is done to ensure that full RSA is provided for both landings and takeoffs. As noted above, declared distances are



LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
FUTURE RUNWAY SAFETY AREA	
FUTURE RUNWAY OBJECT FREE AREA	
FUTURE RUNWAY PROTECTION ZONE	
PROPOSED ROAD	
PROPOSED RUNWAY AND TAXIWAYS	
LAND TO BE ACQUIRED	
FUTURE BUILDING RESTRICTION LINE	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

Figure 6-2
Airfield Alternative 1 –
Full RSA on Airport Property

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0 200' 400'
GRAPHIC SCALE

LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
FUTURE RUNWAY SAFETY AREA	
FUTURE RUNWAY OBJECT FREE AREA	
FUTURE RUNWAY PROTECTION ZONE	
PROPOSED ROAD	
PROPOSED RUNWAY AND TAXIWAYS	
LAND TO BE ACQUIRED	
FUTURE BUILDING RESTRICTION LINE	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

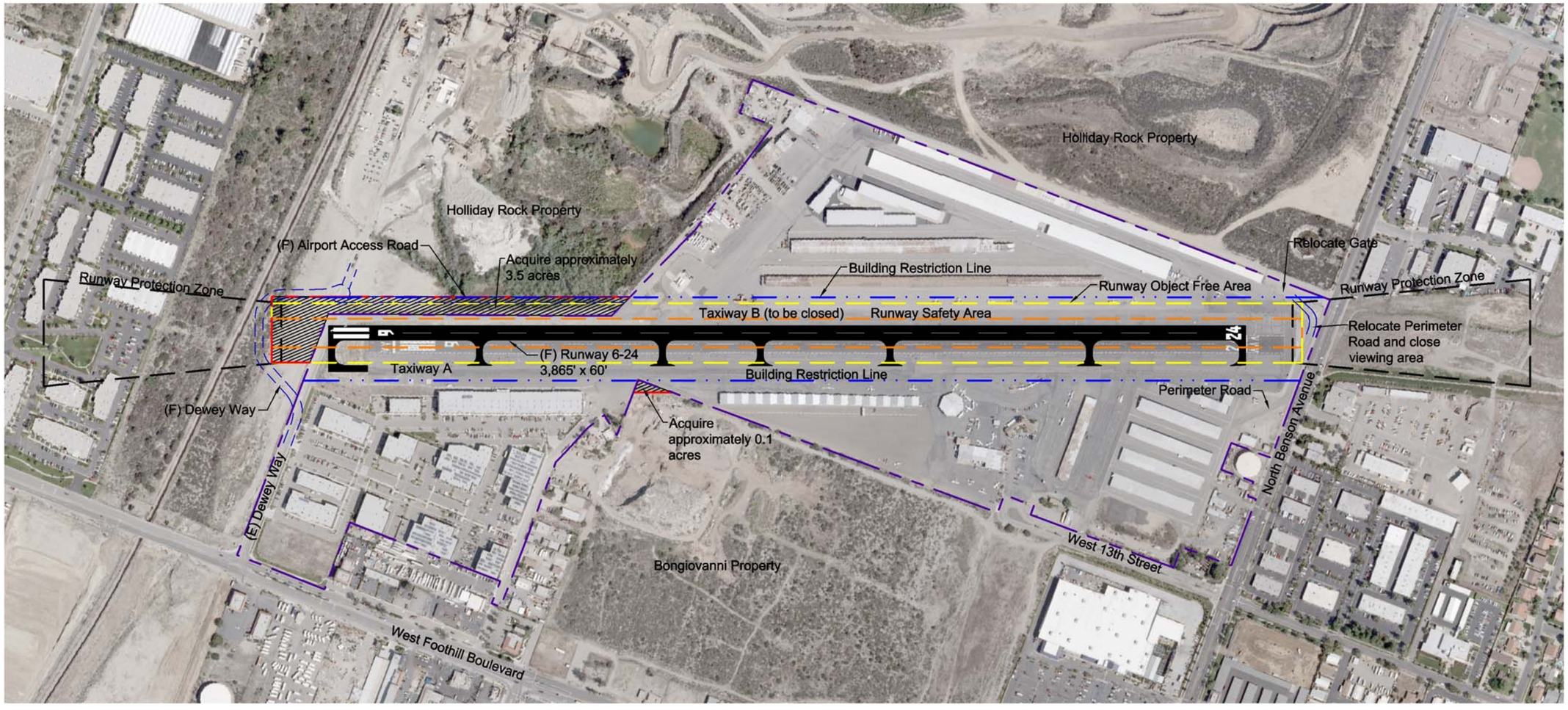

Figure 6-3
Airfield Alternative 2 –
Full ROFA on Airport Property

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typically discouraged at general aviation airports, such as Cable. Instead of applying declared distances, a recommendation is to install distance remaining signs indicating the amount of runway available assuming full safety areas beyond the runway end. Landing thresholds are displaced by 108 feet on both runway ends to provide full safety areas for undershoots. This provides 240 feet of runway safety areas between the displaced threshold and the end of the pea gravel bed.

Dewey Way and the Access Road are relocated to be outside of the ROFA and require approximately 2.2 acres of land to be acquired from Holliday Rock. The relocation of Dewey Way and the Access Road would result in approximately 405 and 1,188 linear feet of new road, respectively.

Runway 6 ROFA, RSA, and OFZ will be clear. The Perimeter Road and North Benson Avenue will traverse the RSA and ROFA for Runway 24 at 103 and 68 feet (49 and 57 percent), respectively. Alternative 3 is shown in Figure 6-4. Taxiway A remains at 25 feet wide but will be extended approximately 54 feet to the west. Landing distance available for Runways 6 and 24 will be increased to 3,757 feet.

Rough Order of Magnitude Costs. The rough order of magnitude cost for Alternative 3 is the lowest of the build alternatives at approximately $3.5 million. This does not include the acquisition of 2.2 acres of the north property nor the 0.1 acres of the south property.

Environmental Analysis. Based on preliminary review (mainly utilizing aerial maps and City of Upland planning documents and maps) of the three alternatives, Alternative 3 would result in the least environmental concerns as it has the smallest footprint and property acquisition. Alternative 3 would trigger the same environmental concerns as Alternative 1 and Alternative 2, but would do so to a much lesser extent. Specifically, these environmental concerns areas include the following: Noise; Compatible Land Use; Air Quality; Water Quality; Wetlands; Floodplains; Historic, Architectural, Archeological and Cultural; DOT Act, Section 4(f); Energy Supply and Natural Resources; Biotic Communities; Endangered and Threatened Species of Flora and Fauna; Solid Waste; and Construction Impacts. Also, as noted previously, all three alternatives would result in a similar level of environmental concerns in the following areas: Social Impacts including Environmental Justice; Farmlands; Light Emissions; and Induced Socioeconomic Impacts. There are no impacts to Wild and Scenic Rivers, Coastal Barriers, or the Coastal Zone Management Program.

Short-Term Improvements

While obtaining necessary funds to develop the ultimate airfield configuration, some projects can be implemented in the short-term. These projects are intended to support the ultimate runway configuration and provide incremental safety enhancements. For example, Dewey Way can be relocated to the west to be outside of the RSA, OFZ/ROFA, TOFA (if Taxiway B is extended), and BRL for the ultimate Runway 6 end configuration. Relocating Dewey Way would provide standard cleared and graded RSA for Runway 6 now and in the ultimate configuration.

The small triangular portion of property (approximately 0.1 acres) adjacent to the south side of the airport, that the existing BRL traverses, can be acquired in the short-term. The property owner has been receptive to selling the property to Cable Airport, but requires additional justification/information regarding the limited uses of this land for non-aviation uses. As previously noted, there have been incidents of aircraft striking the perimeter fence in this location. The acquisition of 0.1 acres of the southern property allows the airport to move the fence further south and provide additional wingtip clearance for aircraft taxiing along Taxiway A.

Consideration may also be given to close Taxiway B in the short-term. There are no significant impacts to

closing this taxiway in the short-term. Lastly, signs should be installed along the airport Perimeter Road off the Runway 24 end advising vehicular traffic to yield to aircraft. Figure 6-5 shows the short-term improvements.

Alternatives Evaluation and Recommended Concept

The four airside alternatives were evaluated based on the following criteria listed in order of importance (from most important to least important). Alternatives were assigned a ranking of excellent, good, fair, or poor, as described below and shown in Table 6-1.

- **FAA Design Standard Improvements.** FAA design standard rankings were rated excellent if most standards were met. A rating of good indicates an alternative to meet some and improve other design standards. A fair rating was given when slight improvements were made to the FAA design standards. A poor rating indicates no change from existing conditions and that design standards are not met.

- **Cost.** Rough order magnitude costs were rated from poor to excellent based on the costs associated with the airside alternatives. The highest cost alternative was rated poor, while the lowest cost was rated excellent. Costs do not include land acquisition expenses as this would create a double counting effect, and further penalize alternatives with larger land acquisition areas.

- **Usable Runway Length.** Useable runway length was rated excellent if the full runway length (3,865 feet) was provided for takeoffs and landings on both Runways 6 and 24. A good rating indicates full landing distance for one runway and an improvement to the other runway. A fair rating indicated an incremental increase in landing length available for one or both runways and a poor rating indicated no improvements in the landing lengths.

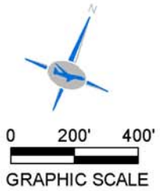
- **Land Acquisition.** Land acquisition ratings were determined based on the total acreage proposed to be acquired. The highest acquisition area was rated as poor, while the lowest acquisition area was rated excellent.

- **Environmental.** Environmental impacts were rated similarly to the land acquisition criterion in that poor indicates the highest environmental impacts to the area and excellent indicates the lowest/no environmental impact.

Table 6-1
AIRFIELD ALTERNATIVE EVALUATION

	Alternative			
Evaluation Criteria	**Airside 1**	**Airside 2**	**Airside 3**	**No Build**
FAA Design Standard Improvements	**Good** - provides full (RW 6) and improved (RW 24) RSA, OFZ, and ROFA. BRL and RW-TW separation requirements met.	**Excellent** - 98 to 100 percent RSA, OFZ, and ROFA provided (both RWs). BRL and RW-TW separation requirements met.	**Fair** - provides full (RW 6) and slightly improved (RW 24) RSA, OFZ, and ROFA. BRL and RW-TW separation requirements met.	**Poor** - Does not meet design standards.
Cost	**Poor** - $4,905,990.	**Fair** - $4,110,670.	**Good** - $3,538,330.	**Excellent** - No cost.
Usable Runway Length	**Good** - full landing length for Runway 6, increase for RW 24.	**Excellent** - full landing length for both runways.	**Fair** - 50-foot increase in landing length for RW 24. No substantial change to RW 6.	**Poor** - No improvements.
Land Acquisition	**Poor** - 5.7 acres.	**Fair** - 3.5 acres.	**Good** - 2.2 acres.	**Excellent** - No land acquisition.
Environmental Impacts	**Poor** - Most environmental impact.	**Fair** - Second highest environmental impact.	**Good** - Second lowest environmental impact.	**Excellent** - No additional environmental impact.

RW = Runway; TW = Taxiway
Source: AECOM analysis.



LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
FUTURE RUNWAY SAFETY AREA	
FUTURE RUNWAY OBJECT FREE AREA	
FUTURE RUNWAY PROTECTION ZONE	
PROPOSED ROAD	
PROPOSED RUNWAY AND TAXIWAYS	
LAND TO BE ACQUIRED	
FUTURE BUILDING RESTRICTION LINE	
PEA GRAVEL BED	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

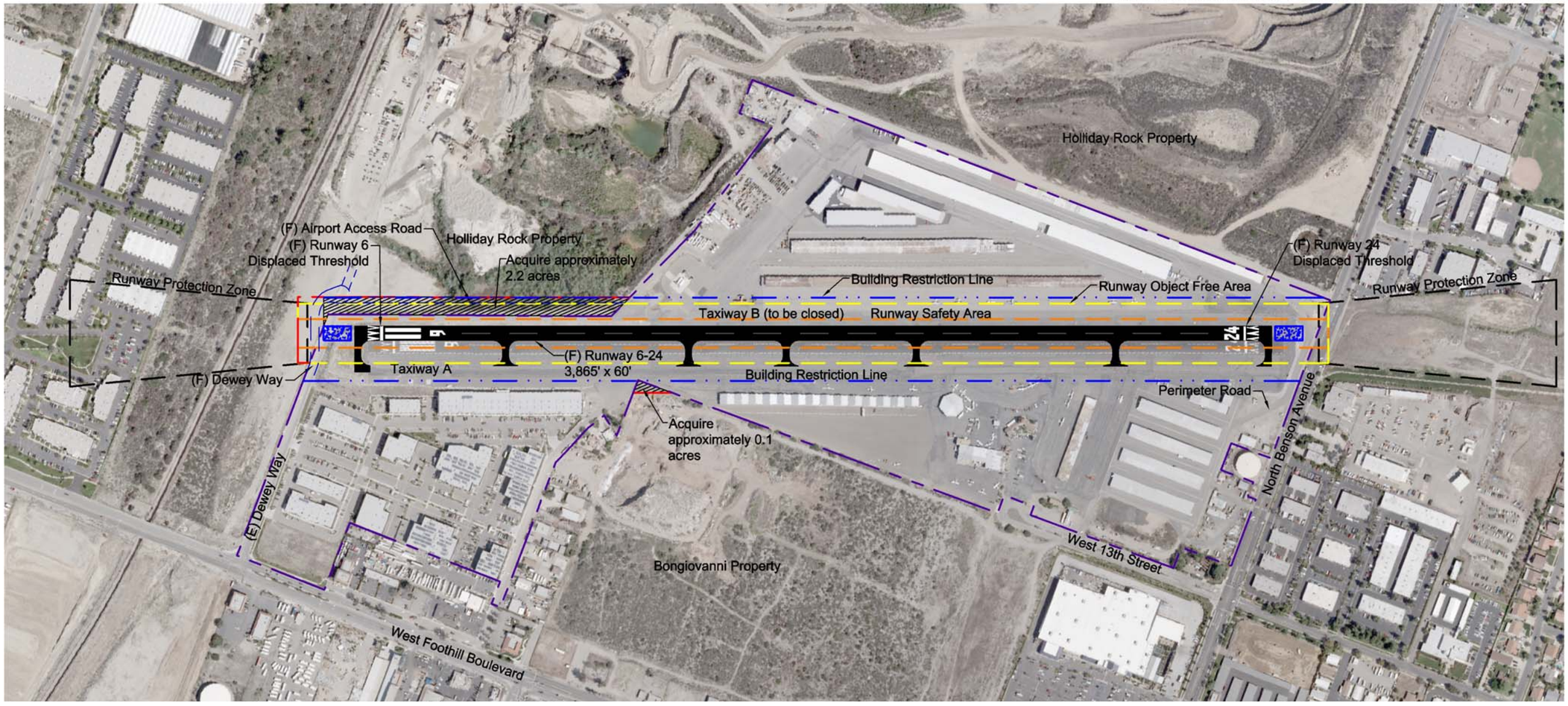


Figure 6-4
Airfield Alternative 3 – EMAS

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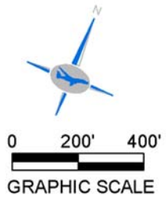

LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
RUNWAY SAFETY AREA	
RUNWAY OBJECT FREE AREA	
RUNWAY PROTECTION ZONE	
LAND TO BE ACQUIRED	
BUILDING RESTRICTION LINE	

Note: The aerial is from May 2007; prior to the restriping of Taxiways A and B.

Figure 6-5
Short-Term Improvements

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Based on the analysis above, Airside Alternative 2 seems to be the most beneficial for Cable Airport to use in the 20-year planning period. FAA design standards are mostly met and the useable runway length is increased to the full length of the runway for both Runways 6 and 24. These improvements have land acquisition associated with them, which increase the environmental impacts and total cost. Overall, Airside Alternative 2 provides the highest benefits for the associated costs and therefore is selected as the recommended airside alternative.

TERMINAL ALTERNATIVE DEVELOPMENT

The purpose of this section is to summarize the terminal development options that were considered and which concepts are most appropriate for Cable Airport. It includes recommendations to address Baseline Forecast needs for the 20-year planning period. For the purposes of this analysis, it is assumed that the terminal area will remain in its present location which was established during the earlier years of the airport and therefore has dedicated ground access from Benson Avenue. Currently the terminal area provides both airside and landside access, and keeping this area as the terminal area allows for businesses to serve both pilots and non-aviation customers with easy vehicular access and auto parking facilities. In addition, the terminal area is the only location on the airport with enough open space and flexibility to provide Baseline Forecast requirements, presented below. Following is a discussion of the terminal alternatives contemplated. Lastly, the alternatives are evaluated and a recommended alternative selected.

Requirements

Baseline Forecast requirements for 2030 pertinent to the terminal area development are estimated as follows:

- General aviation terminal encompassing 5,020 square feet (excluding the Flying Club and Café)
- 133 auto parking spaces (throughout the airport and terminal area)
- Aircraft maintenance hangar space of 40,340 square feet
- 12 transient tie-downs

TERMINAL ALTERNATIVES

Methodology

Terminal area alternatives at Cable Airport were created with the following goals in mind:

- Maintaining financial self-sustenance and promoting economic development.
- Meeting forecast demand during the planning period
- Developing with a minimum of adverse effects on the social and natural environment.

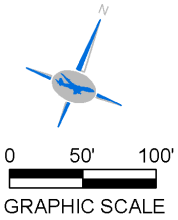
No Build/No Action

Under this alternative there will be no changes to the terminal area. The terminal will remain in its existing location and no expansion projects will be recommended. Under this alternative aviation demand will not be met and facilities in poor condition will continue to deteriorate.

Terminal Area Development Concepts

Alternative 1

Alternative 1 proposes to expand the terminal building in its existing location and provide additional maintenance hangar space as required through the Baseline Forecast (Figure 6-6).



LEGEND	
DESCRIPTION	SYMBOL
EXISTING BUILDING	
FUTURE BUILDING	
BUILDING TO BE REMOVED	
AIRPORT PROPERTY	
PROPOSED FENCE	

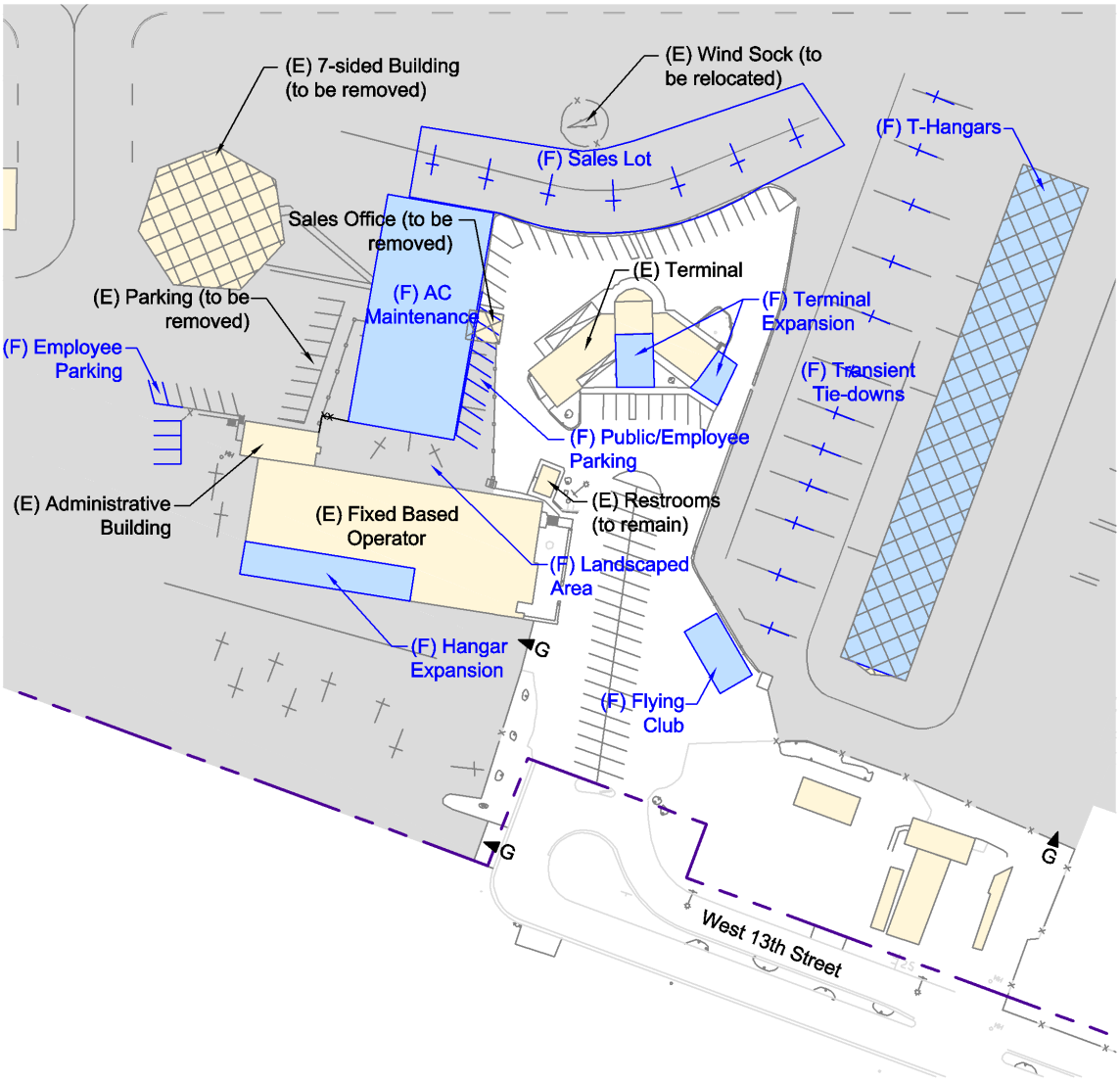


Figure 6-6
Terminal Alternative 1

Terminal Building: The terminal will undergo three main changes. The Flying Club will be relocated to a dedicated 1,300-square foot building located on the south side of the terminal area near the rotating beacon. This enables an additional 624 square feet of public use area in the terminal building. Two expansions will be made to the terminal building. The center of the terminal will be extended outward by approximately 37 feet and built as a two-story section. This will provide an additional 1,500 square feet of terminal space. The east side of the terminal will be expanded by approximately 600 square feet. The entire terminal building (6,500 square feet) will be available to the public, exceeding 2030 facility requirements.

Aircraft Maintenance Facilities: The 7-sided maintenance building (7,463 square feet) will be removed and in its place a 12,000-square foot hangar will be constructed to replace the 7-sided maintenance building and provide the 4,590 square feet of additional maintenance space required to meet facility requirements. The proposed location of the hangar provides both landside and airside access. Existing FBO operations will not change, although an expansion of their existing hangar (providing an additional 2,780 square feet) is planned. Due to the proposed location of the maintenance hangar, the aircraft sales lot will be relocated (see below).

Based Aircraft Hangars: This alternative replaces the T-hangars with a building of the exact same size and shape. This structure can accommodate either small box hangars or T-hangars.

Other: The row of automobile parking along the future aircraft maintenance building will be extended by 10 spaces. These could be designated employee parking for the administrative building or the aircraft maintenance FBOs. Furthermore, the sales lot will be relocated north of the terminal building. The wind sock will need to be relocated to provide open apron access to the sales lot. To provide adequate apron space for the future maintenance hangar, airport employee parking spaces on the airside will be removed and relocated further west and south of the administrative building. The open area between the future maintenance building and the existing FBO hangar will be made into a landscaped area to increase aesthetics and meet any City landscaping requirements. Twelve pull-through transient tie-downs are provided east of the terminal building, west of the planned T-hangars/small box hangars.

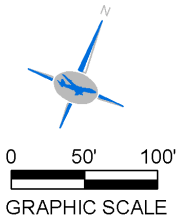
In summary, this alternative provides:

	Requirements	Alternative 1
GA Terminal (square feet)	5,020	6,509
Aircraft Maintenance (square feet)	40,340	43,067
T-Hangars Removed	NA	18
New T-Hangars	NA	18
Transient Tie-downs	12	12
Auto Parking	133	179

Alternative 2

This alternative proposes to restructure and reorganize the entire terminal area, centrally locating all FBOs and aviation services, providing direct access to both the airside and landside (Figure 6-7).

Terminal Building: This alternative proposes to move and expand the terminal building toward the airfield. The new terminal building will be approximately 12,160 square feet. The central portion of the terminal is anticipated to be two stories. The café and Flying Club will remain within



LEGEND	
DESCRIPTION	SYMBOL
EXISTING BUILDING	
FUTURE BUILDING	
BUILDING TO BE REMOVED	
FUTURE PARKING	
AIRPORT PROPERTY	
PROPOSED FENCE	

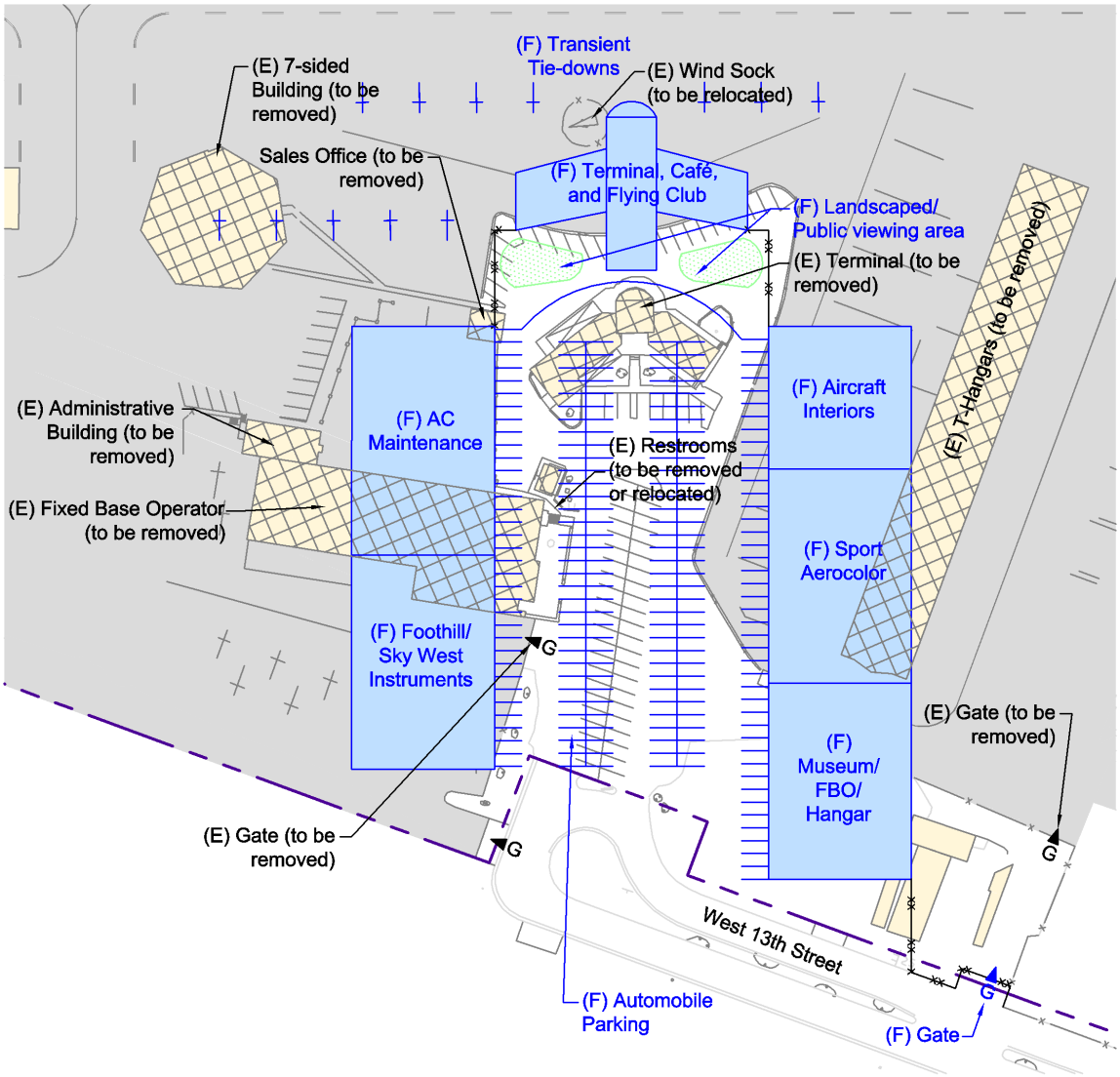


Figure 6-7
Terminal Alternative 2

the future terminal building. This alternative provides more area than required for the planning period for a GA terminal and includes the café and Flying Club within the facility. The existing terminal building will be demolished and the area used for automobile parking.

Aircraft Maintenance Facilities: The 7-sided maintenance building and existing FBO hangar will be removed. This alternative suggests centralizing all FBO operations into the terminal area and therefore allocation of existing areas of aircraft maintenance FBOs in addition to future aircraft maintenance demands. This alternative provides a 10,000-square foot hangar for Aircraft Interiors (presently occupying 9,700 square feet), a 16,000-square foot hangar for future aircraft maintenance needs and to replace space lost in the 7-sided maintenance building demolition, and a 15,000-square foot hangar each for Foothill Aircraft (presently occupying 13,900 square feet) and Sport Aerocolor (currently leases a 12,100-square foot hangar including a second story office). Each FBO being relocated is provided with comparable hangar facilities to conduct business. Additionally, all FBOs will have direct landside access and the ability to have a "storefront" or office space directly accessible by the public.

Based Aircraft Hangars: The T-Hangars within the terminal area will be removed. A 13,700-square foot hangar may be constructed south of the future Sport Aerocolor hangar. This space may be utilized for future based aircraft, additional aircraft maintenance, or a museum.

Other: Additional automobile parking will be provided along the front of all buildings facing the interior of the terminal area along with parking in the center area. This far exceeds parking needs for the planning period. The small restroom building of rock construction will be removed or relocated to accommodate the future parking lot. The apron north of the building will be used for transient tie-downs or to accommodate the relocated aircraft sales lot. An opportunity for a landscaped public viewing area exists adjacent to the future terminal building. In this alternative, additional buildings (for aviation related uses) could be accommodated. Furthermore, open ramp areas could provide for maintenance and tie-down facilities. Transient tie-downs are provided on the northerly side of the new terminal building.

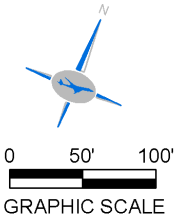
In summary, this alternative provides:

	Requirements	Alternative 2
GA Terminal (square feet)	5,020	12,155
Aircraft Maintenance (square feet)	40,340	41,086
Hangars removed	NA	18
Replacement Hangars	NA	0
Transient Tie-downs	12	12
Auto Parking	133	307

Alternative 3

This alternative (Figure 6-8) proposes to expand the terminal, provide forecast maintenance hangar space, and build a large hangar to house additional airport revenue support space such as FBO, maintenance hangar, or museum. The primary intent of this alternative is to minimize impact to existing facilities.

Terminal Building: The terminal will remain in its existing location. The east wing will be extended to provide an additional 530 square feet. The Flying Club will remain in the terminal building and the café will move to the future museum building. This then provides sufficient terminal space for the public through the 2030 planning period.



LEGEND	
DESCRIPTION	SYMBOL
EXISTING BUILDING	
FUTURE BUILDING	
BUILDING TO BE REMOVED	
AIRPORT PROPERTY	
FUTURE FENCE	

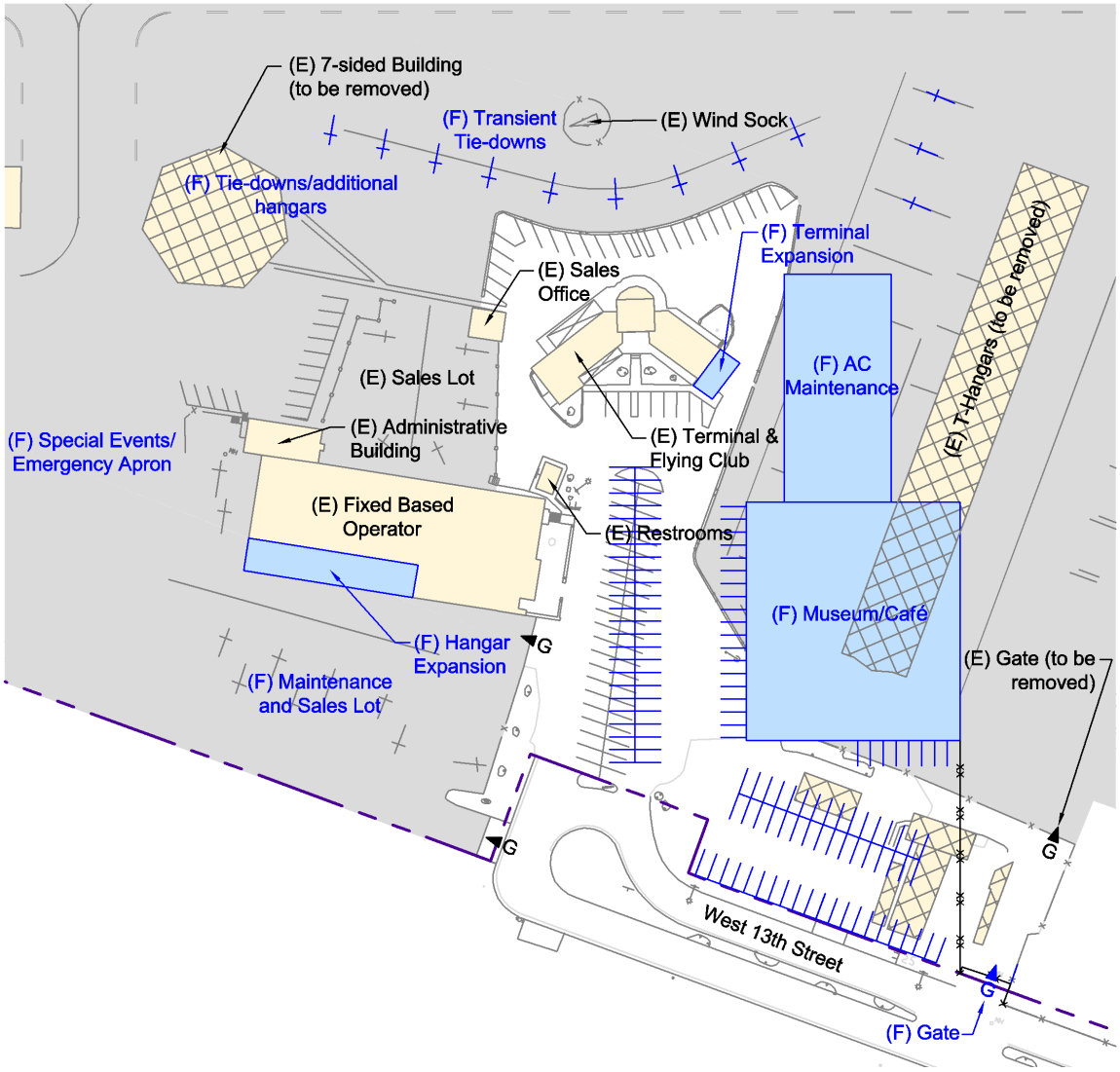


Figure 6-8
Terminal Alternative 3

Aircraft Maintenance Facilities: The 7-sided maintenance building will be removed and a 12,000-square foot hangar will be constructed on the east side of the terminal area. This will meet 2030 planning period requirements and accommodates area lost with the demolition of the 7-sided building. Furthermore, the existing FBO hangar will be expanded by approximately 2,780 square feet.

Based Aircraft Hangars: The T-hangar building east of the terminal area will be removed providing apron space for the future aircraft maintenance building.

Other: In the south-east corner of the terminal area, a 50,000 square feet two-story building (25,000 square feet each floor) will be constructed. This building will house a museum and the relocated café. Additional automobile parking will be provided south of the building through the removal of the buildings and trailers located in the area and along the building edge facing the terminal area. Required transient tie-downs are provided north of the terminal and the proposed aircraft maintenance hangar.

In summary, this alternative provides:

	Requirements	Alternative 3
GA Terminal (square feet)	5,020	5,060
Aircraft Maintenance (square feet)	40,340	43,067
Hangars removed	NA	18
Replacement Hangars	NA	0
Transient Tie-downs	12	12
Auto Parking	133	230

Alternatives Evaluation and Recommended Alternative

The four terminal alternatives were evaluated based on the following criteria:

- **General Aviation (GA) Terminal Forecast Requirements.** The ranking is determined as Does not Meet, Meets, and Meets and Exceeds requirements of the Baseline Forecast.
- **Automobile Parking Forecast Requirements.** The ranking is determined as Does not Meet, Meets, and Meets and Exceeds requirements of the Baseline Forecast.
- **Aircraft Maintenance Forecast Requirements.** The ranking is determined as Does not Meet, Meets, and Meets and Exceeds requirements of the Baseline Forecast.
- **Cost.** Construction costs are defined as Low, Medium, and High costs associated with the alternative development. This is a qualitative analysis of construction costs.
- **Provides Additional Revenue Support/FBO/Museum Space.** This criterion is a pass/fail, which is delineated as "Yes" or "No." A "Yes" indicates that additional space is provided whereas "No" indicates no additional spaces are defined.
- **Impacts to Operations during Construction.** Impacts to operations during construction of the alternative are ranked Low, Medium, or High. Low impacts indicate that operations will continue normally with little or no impact during construction. Medium indicates that some operations may be affected by construction. High indicates significant impacts to operations may occur and that certain businesses may need to move to a temporary location prior to occupying the new facility and therefore create disruptions in operations.

Analysis of the above criteria for each alternative is presented below and summarized in Table 6-2.

Table 6-2
TERMINAL AREA ALTERNATIVE EVALUATION

Evaluation Criteria	Alternatives			
	Terminal 1	**Terminal 2**	**Terminal 3**	**No Build**
GA Terminal	Meets and Exceeds	Meets and Exceeds	Meets	Does not Meet
Auto Parking	Meets and Exceeds	Meets and Exceeds	Meets and Exceeds	Meets and Exceeds
Aircraft Maintenance	Meets and Exceeds	Meets and Exceeds	Meets and Exceeds	Does not Meet
Cost	Medium	High	Medium	Low (No cost)
Provides Additional Airport Revenue Support/FBO/Museum Space	No	Yes	Yes	No
Impacts to Operations during Construction	Medium	High	Low	Low

Source: AECOM analysis.

General Aviation Terminal: Terminal Alternatives 1 and 2 meet and exceed general aviation (GA) terminal requirements. Alternative 3 meets the Baseline Forecast requirements, while the No Build Alternative does not meet forecast requirements. Alternatives 1 and 3 provide more economical solutions to the GA terminal requirements as they meet and exceed requirements without constructing a new terminal building.

Auto Parking: All four alternatives meet and exceed forecast auto parking requirements. It should be noted that enough parking for the whole airport is provided in the terminal area. Additional developments throughout the airport may need their own dedicated parking for convenience, safety, or operations.

Aircraft Maintenance: All three terminal development alternatives meet and exceed aircraft maintenance hangar space requirements to accommodate the Baseline Forecast. The No Build Alternative, on the other hand, does not meet these requirements. Alternatives 1 and 3 provide the most maintenance hangar space.

Cost: The lowest cost alternative is the No Build Alternative. Medium costs are associated with development alternatives 1 and 3. Terminal Alternative 2 is expected to have high costs of construction due to the fact that the entire terminal area is demolished and new facilities provided.

Provides Additional Revenue Support/FBO/Museum Space: Terminal Alternatives 2 and 3 provide additional airport revenue support hangar space, while Alternative 1 and the No Build Alternative do not.

Impacts to Operations during Construction: The No Build Alternative has no impact due to the fact that no construction is planned. Alternative 3 has low impacts to operations. Future development in Alternative 3 is planned so that operation impacts are minimized during construction. Medium impacts to operations are expected for development Alternative 1. Due to the complete restructuring of the terminal area, Alternative 2 is expected to have high impacts to operations.

Based on the discussion presented above, it was determined that Terminal Alternative 3 is the recommended alternative. This development alternative meets or exceeds all required forecast criteria with medium costs and low impacts to operations during construction. Additional revenue support area is also provided in Alternative 3. Although Alternative 1 is also a feasible option, comparatively, Alternative 3 provides additional revenue support space and lower impacts to operations. However, should it be desired, the terminal building in Alternative 3 could be expanded as shown in Alternative 1.

AIRSIDE (HANGAR) ALTERNATIVE DEVELOPMENT

This section reviews the Baseline Forecast for the planning period and how forecasted based aircraft hangar and aircraft maintenance can be accommodated on the airport.

2030 Baseline Forecast Requirements

The airfield (hangar) alternative was developed to provide facilities for the Baseline Forecast. As noted in Chapter 5, the facilities shown in Table 6-3 are required.

Table 6-3
2030 BASELINE FORECAST REQUIREMENTS

Item	Existing	2030	2030 Deficiency
Transient Apron (number of aircraft/area in square yards)			
Single engine/Multi-engine	16/5,340	12/3,925	0
Turboprops/Business jets	0 acft.	0	0
T-hangars and Small Box Hangars (spaces)	358	395	41
Large Box Hangar Space (square feet)	90,400	106,240	15,840
Based Aircraft Tie-downs (number of aircraft)	66	10	0
Auto Parking (spaces)	173	133	0
Aircraft Maintenance	35,750	40,340	4,590
Airport Maintenance	22,200	22,200	0

Source: AECOM analysis.

AIRSIDE (HANGAR) ALTERNATIVE DEVELOPMENT

Based on the information above, facility suggestions were made to accommodate the Baseline Forecast needs.

The airside (hangar) alternative incorporates the recommended airfield and terminal alternatives described in the sections above. In summary, these alternatives include:

- Shifting Runway 6-24 50 feet north and 164 feet west
- Relocating a portion of Dewey Way and the Access Road
- Acquiring approximately 3.5 acres north and west of Cable Airport
- Relocating a portion of the Airport Perimeter Road
- Extending Taxiway A 164 feet to the west
- Closing Taxiway B
- Extending the east wing of the terminal building
- Relocating the café/restaurant to a new building
- Removing the 7-sided maintenance building
- Constructing a 12,000-square foot maintenance building east of the terminal
- Expanding the existing FBO building west of the terminal
- Constructing a 50,000-square foot two-story building for the restaurant and museum
- Providing additional auto parking and relocating transient tie-downs north of the terminal

Described below are the recommended hangar improvements at Cable Airport to meet the forecasted demand. These are also shown in Figure 6-9.

Transient Tie-Downs: Transient tie-downs will be provided to meet forecast requirements north and east of the existing terminal locations. The required 12 tie-down will be provided in this area.

T-Hangars and Small Box Hangars: A need for 395 T-hangars or small box hangars have been identified for the planning period. Currently, there are 358 such hangars on the airport. Two hangar buildings are in poor condition and are proposed to be removed: including 71 shade hangars on the north and the 18 nested T-hangars east of the terminal area. To replace these spaces, and provide enough

hangar space to meet forecast demand, additional small box hangars and nested T-hangars will be constructed throughout the airport. On the north side, 19 small box hangars will be added onto existing rows of small box hangars. To replace the shade hangars, 74 small box hangars will be constructed in the same location. This development has already been designed and construction plans prepared.

On the south side of the airport, 16 small box hangars will be constructed in the existing open apron designated for emergency and special events. These hangars will only take up a small portion of the apron and allow most of the apron to continue to be used in case of emergencies or special events. A total of 14 T-hangars will be constructed on the south east portion of the airport near the location where the existing T-hangar building will be demolished. Including the three small box hangar-extension near the Runway 24 end, forecast requirements for T-hangars and small box hangars will be met.

Large Box Hangars: As previously noted, the need for approximately 106,000 square feet (total) of large box hangar space may be needed by 2030 according to the Baseline Forecast. It is recommended that five additional large box hangars be constructed on the north side of the airport and eight large box hangars along West 13th Street. These hangar developments have been fully designed. However, in order to allow additional ramp space, the five hangars on the north side have been shifted approximately 100 feet west. These proposed hangar developments provide approximately 153,000 square feet of large box hangar space, exceeding 2030 forecast requirements.

Based Aircraft Tie-Downs: There are 66 based aircraft tie-downs at the airport. The Baseline Forecast assumes that all based aircraft will be stored in either large or small box hangars or nested T-hangars. Therefore, existing conditions exceed forecast requirements. Tie-downs dispersed throughout the airport may be removed to provide open ramp space or for the construction of hangars. To accommodate the proposed hangar development, 17 tie-downs east and west of the two northern most rows of small box hangars will be removed. In addition, three tie-downs east and west of the existing shade hangars will be removed to provide a future taxilane. Along the western airport property border, nine tie-downs will be removed to allow the construction of additional large box hangars. While all based aircraft are assumed to be hangared, planning for provision of a nominal apron for approximately 10 based aircraft tie-downs is prudent. The airside alternative will provide 37 based aircraft tie-downs and therefore exceeds requirements.

Auto Parking: Existing conditions at the airport provide 173 auto parking spaces, which exceeds the 133 forecast need. Additional auto parking spaces will be provided, though, to allow cars to be parked near existing and future hangars, the museum, and the terminal. This allows for convenience of access and does not inhibit the airport from meeting its forecast requirements of other needs.

Aircraft Maintenance: Forecast aircraft maintenance needs may be up to 40,300 square feet by 2030. To meet this demand, an FBO building west of the terminal will be expanded and a new 12,000-square foot hangar constructed east of the terminal. These construction and expansion projects provide enough space to exceed 2030 forecast requirements. Should an unanticipated need arise for additional space, one or more of the large box hangars constructed along the north-western property line could be used for aircraft maintenance.

Airport Maintenance: Airport maintenance needs for 2030 are met and no additional space will need to be provided in the planning period.

Helicopter Operating Area: The four helipads on the south side of the airport will be relocated to the north to create one helicopter operating area on the airport that does not interfere with runway operations. This will require relocation of emergency service operators (REACH and Ontario PD) to the adjacent hangar facilities.

2030 FORECAST REQUIREMENTS			
REQUIREMENT	EXISTING	REQUIRED	PROVIDED
GENERAL AVIATION TERMINAL	2,670 SF	5,020 SF	5,060 SF
TRANSIENT TIE-DOWNS	16	12	12
T-HANGARS AND SMALL BOX HANGARS	358	395	395
LARGE BOX HANGARS	90,400 SF	106,240 SF	153,090 SF
BASED AIRCRAFT TIE-DOWNS	66	10	37
AUTO PARKING	173	133	306*
FUEL - AVGAS 100LL	12,000 GAL	12,000 GAL	12,000 GAL
FUEL - JET A	12,000 GAL	12,000 GAL	12,000 GAL
AIRCRAFT MAINTENANCE	35,750 SF	40,340 SF	43,070 SF
AIRPORT MAINTENANCE	22,220 SF	22,220 SF	22,220 SF
* Includes parking for the proposed restaurant and museum			

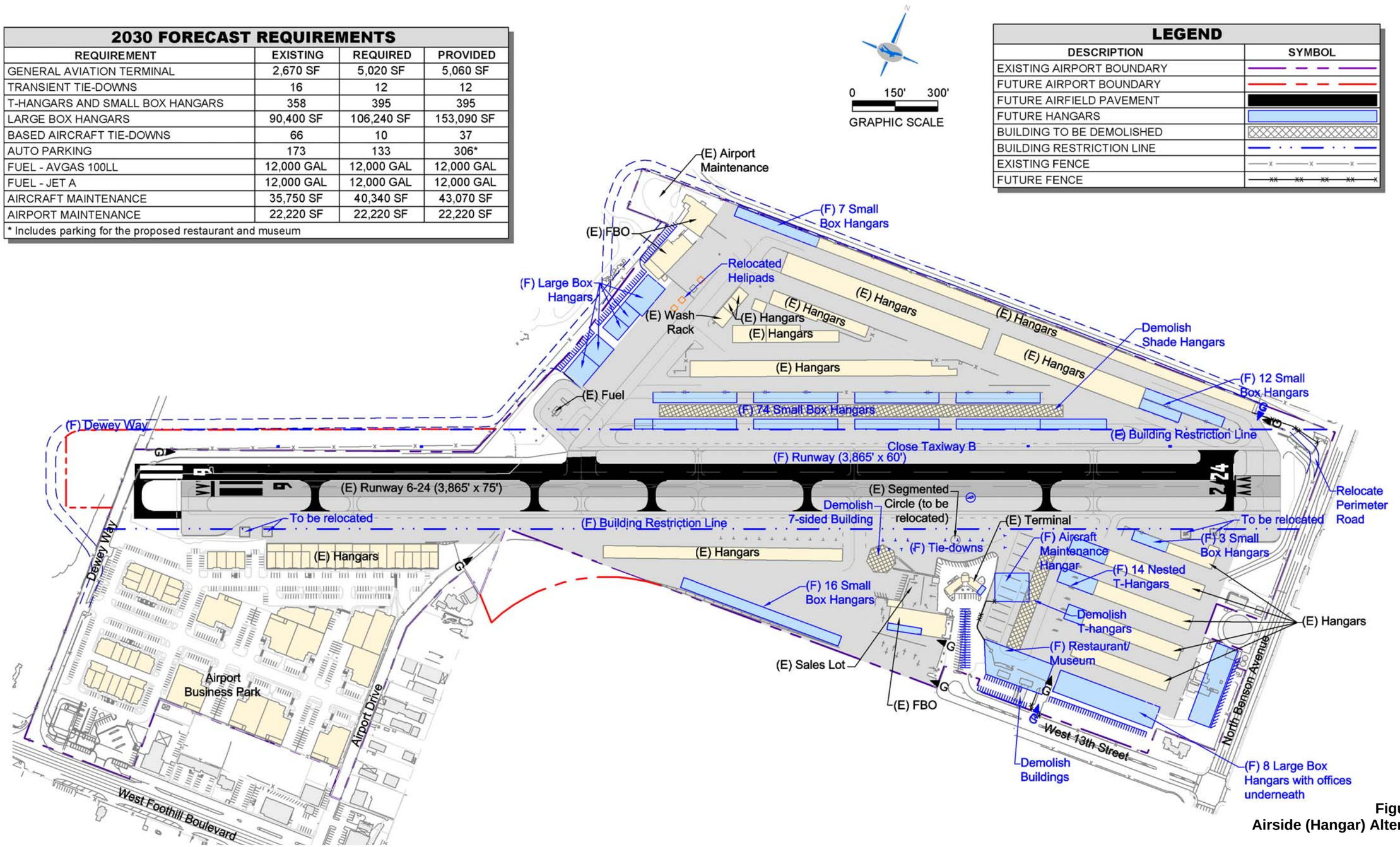


Figure 6-9
Airside (Hangar) Alternative

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Building Restriction Line

Due to the shift of the runway, the building restriction line (BRL) will also be shifted. On the south side the BRL will be located 200 feet from the runway centerline. Given that Taxiway B will be closed in the proposed airfield alternative, the BRL on the north side will be located 150 feet from the runway centerline providing protection for the ROFA. The aforementioned hangar developments are all located outside of the BRL. It is noted that the BRL does not account for FAR Part 77 imaginary surfaces. Therefore, hangar developments should strive to accommodate Part 77 height limits when practical. All on-airport developments require submission of FAA Form 7460-1 Notice of Proposed Construction to determine if the development is a hazard to air navigation.

Summary

In summary, the airside (hangar) alternative presented in Figure 6-9 meets 2030 Baseline Forecast requirements. The table below shows existing, required, and proposed facilities as previously described.

Requirement	Existing	Required	Provided
General Aviation Terminal	2,670 SF	5,020 SF	5,060 SF
Transient Tie-downs	16	12	12
T-hangars and Small Box Hangars	358	395	395
Large Box Hangars	90,400 SF	106,240 SF	153,090 SF
Based Aircraft Tie-downs	66	10	37
Auto Parking	173	133	306*
Fuel - Avgas 100LL	12,000 GAL	12,000 GAL	12,000 GAL
Fuel - Jet A	12,000 GAL	12,000 GAL	12,000 GAL
Aircraft Maintenance	35,750 SF	40,340 SF	43,070 SF
Airport Maintenance	22,220 SF	22,220 SF	22,220 SF

* Includes parking for the proposed restaurant and museum.

ADDITIONAL LAND ACQUISITION AREAS

Additional land acquisition areas are being considered for the airport in the future. These areas are to enhance revenue generating opportunities for the airport, and are not required to meet aviation demand. Therefore, the use of Federal funds for acquisition of these areas is not anticipated. Approximately 0.05 acres along North Benson Avenue, just south of the water tank should be acquired. This area may require some environmental cleanup, but the land is not large enough to support stand alone development and should be combined with airport property. A residence located on the corner of West 13th Street and North Benson Avenue encompassing 0.5 acres of land should be acquired. Again, due to set back requirements imposed by the City of Upland, redevelopment of this property for uses other than those associated with the airport is not feasible. South of the airport, a 25.6-acre area is being considered to be acquired for future aviation and non-aviation development considerations. A potential use of this land would be a "hangar hotel." Potential acquisition areas and areas to be acquired for the recommended alternatives are shown on Figure 6-10.

TECHNICAL ADVISORY COMMITTEE INPUT

During the Technical Advisory Committee (TAC) meeting conducted on November 16, 2010, initial concepts were presented. Concerns were raised about the potential of acquiring land from adjacent property owners. The airport will make attempts to contact the two owners of the surrounding land that is proposed to be acquired both north and south to improve FAA design standard conditions at the airport. The airport representative assured the TAC that it would like to continue having good relations with the community and local municipalities and will include future plans of theirs in the considerations being taken for airport improvements.

Furthermore, the general grading and drainage of the existing terminal area and airport was brought up when reviewing the terminal area alternatives. A member of the TAC stated that the ground slopes downward from north to south. Should additional buildings be constructed, consideration should be given to allow proper drainage and meet ADA requirements for both automobile parking and ramps to and from the buildings.

As discussed at the TAC meeting, these alternatives are conceptual in nature and intended to show that facilities can be accommodated. No preliminary engineering has been performed, and adjustments to the alternatives can be made during design. In order to accommodate grading, drainage, and ADA requirements the proposed buildings on the east side of the terminal have been shifted northward. This provides opportunities for slopes, grade transitions, retaining walls, and ramps to be included in the final design.

Another topic that was discussed is the potential for additional land acquisition south of the airport toward the area that the City of Upland General Plan is depicting Central Avenue and West 13th Street extensions. Rather than acquiring 0.1 acres of Bongiovanni's property, the TAC recommended acquiring up to the proposed road right-of-way. Due to differences in elevation, the area would be undevelopable for all but airport uses.

FEDERAL AVIATION ADMINISTRATION INPUT

A meeting with the Federal Aviation Administration (FAA) was conducted on November 18, 2010 to review the airside alternatives presented above. The FAA expressed concern that if the airport could not acquire some of the surrounding land, improvements to FAA design standards at Cable Airport would not occur, as all alternatives rely on land acquisition. Therefore, should the airport be unable to acquire the land, alternative actions are to be taken to improve conditions as much as practical within the existing confines of the airport boundary.

While opportunities to enhance safety on airport property are limited, the following actions could be taken:

- **Install Runway Distance Remaining Signs:** The installation of runway distance remaining signs increases safety at the airport by providing pilots runway length remaining information, including full safety area.

- **Use Declared Distances (TORA & LDA):** Although not commonly used at general aviation airports like Cable Airport, declared distances are a means of obtaining safety at an airport by reducing the useable runway length and therefore increasing safety areas. The take-off run available (TORA) would still allow full runway length usage. The landing distance available (LDA) would also be the same as it is now, as the displaced thresholds are located in the correct location to provide full safety areas.

- **Close Taxiway B:** The closure of Taxiway B allows for clear ROFA areas on the north side of the runway. In addition, the runway-taxiway centerline separation requirements between Runway 6/24 and Taxiway B are not currently met. With the closure of Taxiway B, one FAA design standard deviation will be eliminated.

- **Close Viewing Area and Reconfigure 14th Street Entrance; includes relocating Perimeter Road:** The relocation of the Perimeter Road would increase safety at the airport by moving the Perimeter out of the runway safety area. The relocated road, requires the closure of the viewing area and a reconfiguration of the 14th Street entrance to the airport and relocation of one gate.

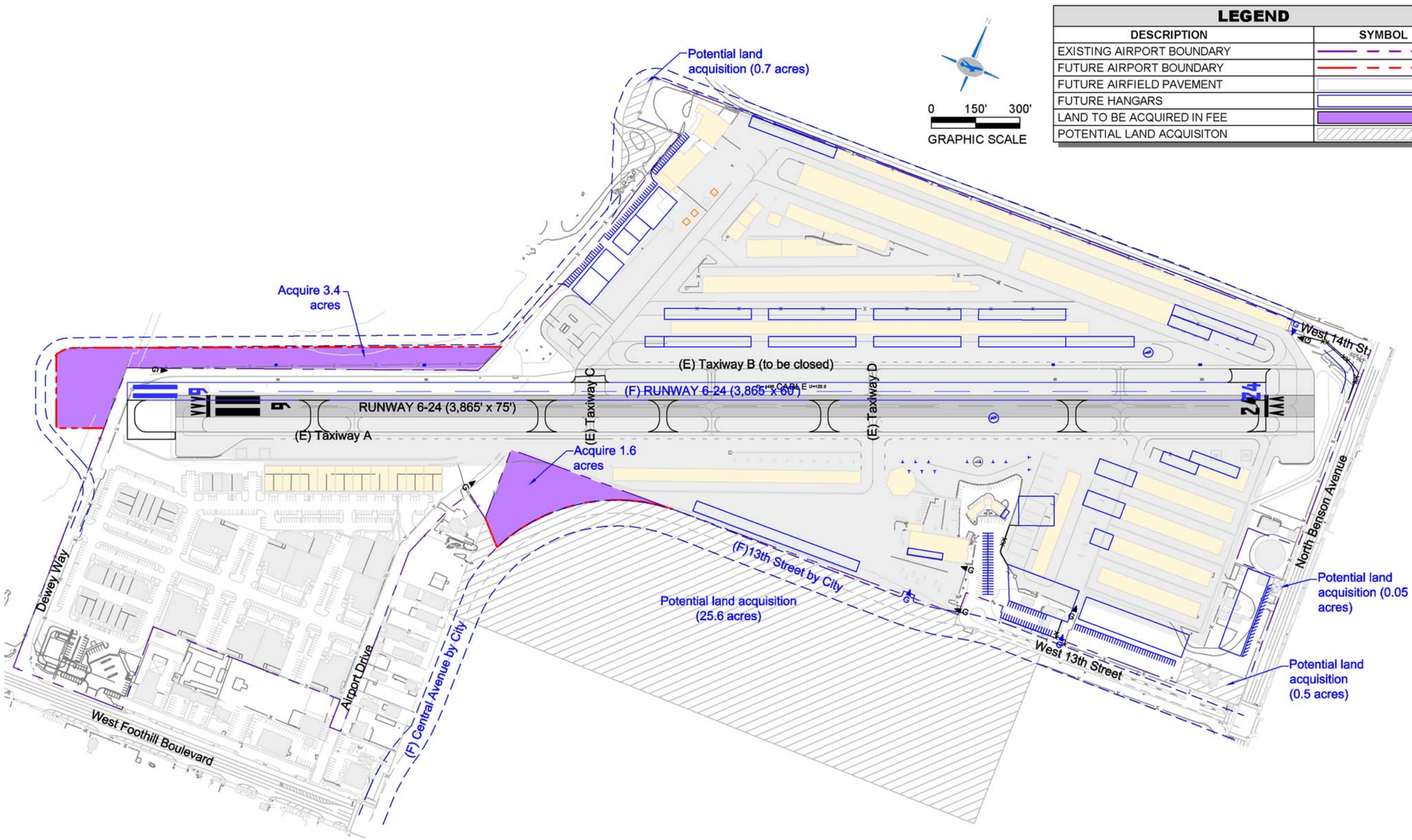

Figure 6-10
Recommended Land Acquisition

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- **Move helipads:** The four helipads located on the south side of the airport are within the ROFA of the runway. The airport could increase safety by moving these helipads to the north side of the airport. This project does not relocate Taxiway A.

RECOMMENDED CONCEPT

The recommended concept is shown in Figure 6-11 and was compiled by combining the recommended individual airfield, terminal, and airside alternatives into one composite concept. In addition, the proposed land acquisition as shown in Figure 6-10 is included. Recommended alternatives were carried forward unchanged except some minor improvements were made to the terminal area, including:

- Moving the aircraft maintenance and hangar/FBO/museum/café buildings 50 feet north and modifying the associated parking lot
- Reconfiguring transient tie-down layout
- Adding a new gate along the West 13th Street extension proposed in the City of Upland General Plan

A graphic showing the complete recommended concept is shown in Figure 6-11. This incorporates Airfield Alternative 2, Terminal Area Alternative 3, and the Airside Alternative as discussed previously.

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2030 FORECAST REQUIREMENTS			
REQUIREMENT	EXISTING	REQUIRED	PROVIDED
GENERAL AVIATION TERMINAL	2,670 SF	5,020 SF	5,060 SF
TRANSIENT TIE-DOWNS	16	12	12
T-HANGARS AND SMALL BOX HANGARS	358	395	395
LARGE BOX HANGARS	90,400 SF	106,240 SF	176,090 SF
BASED AIRCRAFT TIE-DOWNS	66	10	37
AUTO PARKING	173	133	306*
FUEL - AVGAS 100LL	12,000 GAL	12,000 GAL	12,000 GAL
FUEL - JET A	12,000 GAL	12,000 GAL	12,000 GAL
AIRCRAFT MAINTENANCE	35,750 SF	40,340 SF	43,070 SF
AIRPORT MAINTENANCE	22,220 SF	22,220 SF	22,220 SF
* Includes parking for the proposed restaurant and museum			

LEGEND	
DESCRIPTION	SYMBOL
EXISTING AIRPORT BOUNDARY	
FUTURE AIRPORT BOUNDARY	
FUTURE AIRFIELD PAVEMENT	
FUTURE HANGARS	
EXISTING BUILDING TO BE DEMOLISHED	
LAND TO BE ACQUIRED IN FEE	
POTENTIAL LAND ACQUISITON	

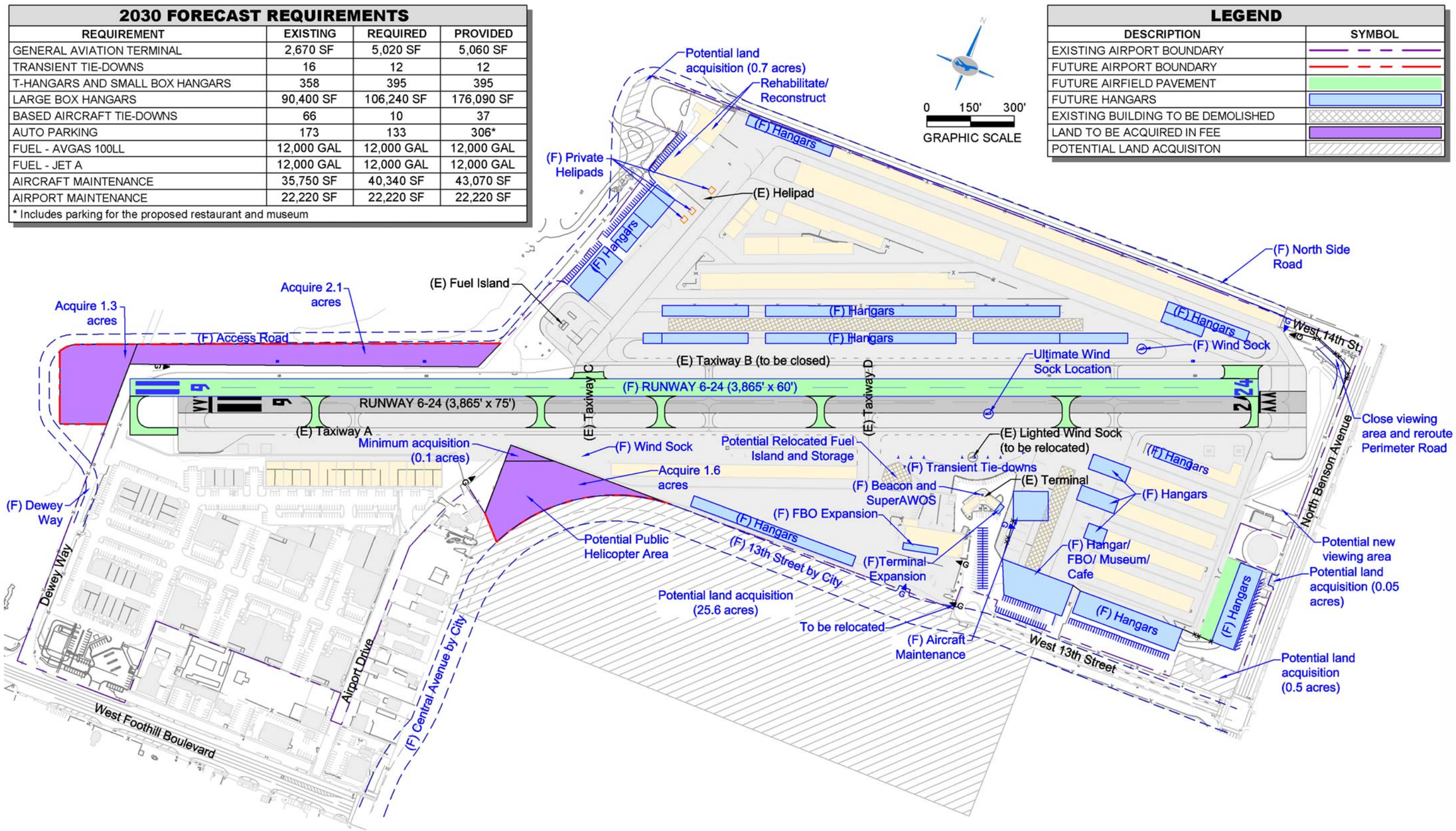

Figure 6-11
Recommended Concept

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Chapter 7

Airport Plans





Chapter 7
Airport Plans

INTRODUCTION

This chapter, Airport Plans, was intended to detail the 20-year development program, as recommended by this master plan for Cable Airport. The design of the airport system, as described herein, is based upon the facility requirements discussed in Chapter 5 and the recommended development concept presented in Chapter 6. This airport development program is intended to integrate existing facilities and improvements needed over the next twenty years within the framework of an implementation schedule.

This chapter is comprised of a text discussion and accompanying graphics, some of which are reductions of large-scale plans prepared during the course of this study, which graphically depict the recommended development plan for Cable Airport. The overall development plan for the airport is depicted on the Airport Layout Plan (ALP). The ALP is a graphic presentation of existing and ultimate airport facilities and is a key document that serves as a reference of aviation requirements, as well as land use and financial planning. In order to receive federal funding assistance, proposed projects must be consistent with the ALP, and thus the ALP must be revised and periodically updated.

Many development recommendations contained in this report, and indicated on the airport plans, are based on projected traffic levels and attainment of these levels. It cannot be overemphasized that where development is recommended based upon demand or traffic levels (such as hangars), it is ***actual***, not forecast, demand that dictates the timing of construction. This is true except in the case where hangars are recommended to be replaced due to poor or deteriorated conditions. For planning purposes, a schedule must be provided, and this schedule is based upon the forecasts of aviation demand presented in Chapter 4.

It is also important to point out the schedule of improvements proposed in this plan is contingent upon the availability of Federal, State, and airport funds, and investment from the private sector. While improvements are scheduled for specific years in this report, it must be remembered the programming of the Airport Improvement Program by the FAA will determine the timing of many projects. Development projects at Cable Airport must be reconciled with development priorities of other airports in the region. Therefore, implementation of projects will then depend on the availability of funds and FAA programming, as well as attainment of activity levels. Chapter 8 addresses financial aspects of the plan, including FAA funding, and presents a funding plan to implement improvements shown on the ALP.

In addition to the ALP, four other drawings are included in the set of plans prepared as part of this Master Plan. These are the Airport Airspace Drawing, Inner Portion of the Approach Surface Drawing, On-Airport Land Use Plan, and "Exhibit A" – Property Map.

AIRPORT LAYOUT PLAN

The Airport Layout Plan, Figure 7-1, delineates the overall development plan for Cable Airport as recommended in this master plan. This section discusses, by phase, the projects shown on the ALP. Project phasing is not depicted on the ALP drawing, which gives the airport additional flexibility with the

FAA to program projects as needed to satisfy demand. However, the phasing of the development presented herein is used to assess funding requirements described in Chapter 8. The development phases used within this study are as follows: the short-term or Phase 1 (1-5 years); the intermediate-term or Phase 2 (6-10 years); the long-term or Phase 3 planning period (11-20 years).

As a graphic overview of the recommended airport development, the ALP is supported by the other plans discussed in this section. The Airport Layout Plan conforms to guidelines set forth by the FAA for the preparation of this plan. The ALP is the principal plan depicting the recommended improvements and changes to the airport configuration, and support areas. The recommended development program shown on the ALP is summarized below on a phase-by-phase basis.

Phase 1 Development (2011 – 2015)

Phase 1 development at Cable Airport encompasses the first five-year period (2011-2015) of the overall plan. The improvements discussed below are considered to be of the highest priority in the total development plan, but are coordinated with the remainder of the plan and are supported by findings reached during previous portions of the study. The primary focus of Phase 1 improvements is to enhance the safety of the airport. The phase includes construction and replacement of individual hangars and construction and replacement aircraft maintenance hangar space. Improvements for Phase 1 are summarized in Table 7-1.

Table 7-1
RECOMMENDED PHASE 1 DEVELOPMENT

Project	Timing
Acquire Bongiovanni Property - 1.6 acres	2011
Install SuperAWOS	2011
Acquire Holliday Rock Property - 2.1 acres	2011
Close Taxiway B and Apply Declared Distances	2012
Remove Shade Hangars	2012
Relocate Airport Access Road	2012
Construct Individual Hangars	2013
Remove T-Hangars	2013
Construct Aircraft Maintenance Hangar	2014
Remove Maintenance Hangar	2015
Construct Large Box Hangar	2015

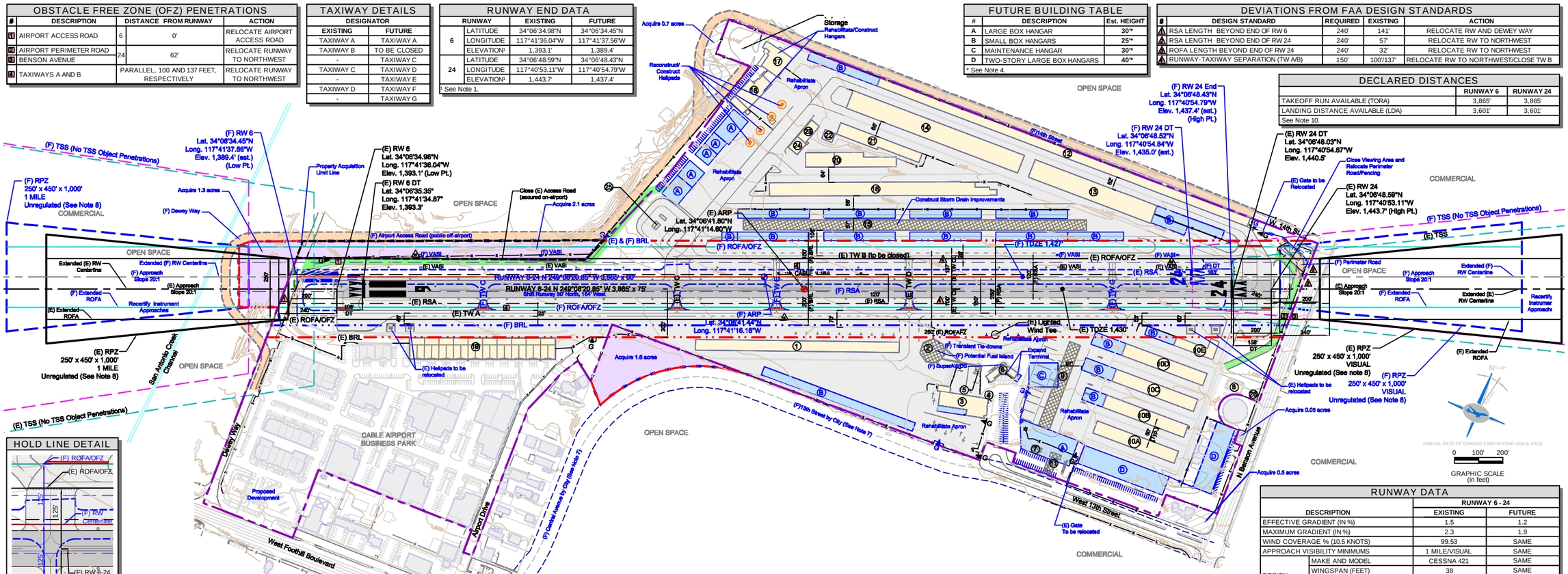
Source: AECOM analysis.

Acquire Bongiovanni Property – 1.6 acres (2011)

There is a corner of approximately 0.1 acres of Bongiovanni property that is within the building restriction line (BRL) of Cable Airport on the south side of airport property near Taxiway A. Incidents have occurred where aircraft have clipped their wings on the fence along the airport property when taxiing along Taxiway A. As noted in the Runway Safety Action Plan (RSAP) this area is recommended to be acquired as soon as possible. In addition, 1.5 acres are to be acquired with this corner. This area encompasses the land between the current airport property and the proposed Central Avenue and West 13th Street extensions in the City of Upland General Plan. This area is recommended to be acquired because differences in elevation, and the required slope stabilization, will render this area unusable for anything other than airport property. A 744-foot long perimeter fence is included in this project.

Install SuperAWOS (2011)

Currently Cable Airport has no FAA certified weather station to provide pilots with accurate weather data. It is recommended that a SuperAWOS be installed at the airport within the short-



OBSTACLE FREE ZONE (OFZ) PENETRATIONS

#	DESCRIPTION	DISTANCE FROM RUNWAY		ACTION
1	AIRPORT ACCESS ROAD	6	0'	RELOCATE AIRPORT ACCESS ROAD
2	AIRPORT PERIMETER ROAD	24	62'	RELOCATE RUNWAY TO NORTHWEST
3	BENSON AVENUE			
4	TAXIWAYS A AND B		PARALLEL, 100 AND 137 FEET, RESPECTIVELY	RELOCATE RUNWAY TO NORTHWEST

TAXIWAY DETAILS

DESIGNATOR	
EXISTING	FUTURE
TAXIWAY A	TAXIWAY A
TAXIWAY B	TO BE CLOSED
-	TAXIWAY C
TAXIWAY C	TAXIWAY D
-	TAXIWAY E
TAXIWAY D	TAXIWAY F
-	TAXIWAY G

RUNWAY END DATA

RUNWAY		EXISTING	FUTURE
6	LATITUDE	34°06'34.98"N	34°06'34.45"N
	LONGITUDE	117°41'36.04"W	117°41'37.56"W
	ELEVATION[1]	1,393.1'	1,389.4'
24	LATITUDE	34°06'48.59"N	34°06'48.43"N
	LONGITUDE	117°40'53.11"W	117°40'54.79"W
	ELEVATION[1]	1,443.7'	1,437.4'

[1] See Note 1.

FUTURE BUILDING TABLE

#	DESCRIPTION	Est. HEIGHT
A	LARGE BOX HANGAR	30'*
B	SMALL BOX HANGARS	25'*
C	MAINTENANCE HANGAR	30'*
D	TWO-STORY LARGE BOX HANGARS	40'*

* See Note 4.

DEVIATIONS FROM FAA DESIGN STANDARDS

#	DESIGN STANDARD	REQUIRED	EXISTING	ACTION
A	RSA LENGTH BEYOND END OF RW 6	240'	141'	RELOCATE RW AND DEWEY WAY
A	RSA LENGTH BEYOND END OF RW 24	240'	57'	RELOCATE RW TO NORTHWEST
A	ROFA LENGTH BEYOND END OF RW 24	240'	32'	RELOCATE RW TO NORTHWEST
A	RUNWAY-TAXIWAY SEPARATION (TW A/B)	150'	100'/137'	RELOCATE RW TO NORTHWEST/CLOSE TW B

DECLARED DISTANCES

	RUNWAY 6	RUNWAY 24
TAKEOFF RUN AVAILABLE (TORA)	3,865'	3,865'
LANDING DISTANCE AVAILABLE (LDA)	3,601'	3,601'
See Note 10.		

HOLD LINE DETAIL

Scale: 1" = 100'

LEGEND

DESCRIPTION	EXISTING	FUTURE
AIRPORT BOUNDARY		
AIRFIELD PAVEMENT (RW/TW AND APRON)		
BUILDING RESTRICTION LINE (BRL)		
FUTURE LAND TO BE ACQUIRED	NONE	
ULTIMATE LAND TO BE ACQUIRED	NONE	
RUNWAY OBJECT FREE AREA (ROFA)/ OBSTACLE FREE ZONE (OFZ)		
RUNWAY SAFETY AREA (RSA)		
RUNWAY PROTECTION ZONE (RPZ)		
BUILDINGS		
BUILDINGS TO BE REMOVED	NONE	
GROUND CONTOURS		SAME
AIRPORT REFERENCE POINT (ARP)		
THRESHOLD SITING SURFACE		
ON-AIRPORT FENCE		
ROAD		
SECURED ON-AIRPORT ROAD		
ROTATING BEACON		
MONUMENT		SAME
HOLDLINE		
RUNWAY LIGHTS		
RUNWAY END THRESHOLD LIGHTS		
HELIPORTS/HELIPADS		
LIGHTED WINDSOCK		SAME

NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88 feet above MSL.
2. There are no Threshold Siting Surface (TSS) penetrations.
3. Hangar layouts shown are conceptual to depict potential future capacities. Future configurations will be determined based on demand and final design.
4. All future elevations are estimated.
5. Building heights have been estimated using non-survey techniques. Top elevations should be verified using survey methods.
6. Monument protection is unknown.
7. As depicted on the City of Upland General Plan.
8. Runway 24 RPZ is over an area that is proposed to be a secured detention pond that inhibits public access according to the City of Upland. Runway 6 RPZ is over open space and commercial areas. No changes in land uses in these areas are anticipated.
9. Section corners are located at the intersections of Foothill Boulevard and Benson Avenue and Foothill Boulevard and Monte Vista Avenue. See Sheet 6 for locations.
10. Declared distances are applied to the existing runway and will not be applied to the future runway. FAA approval is required.
11. The change to the runway location will require an amendment to the current Instrument Flight Procedures. The ADO will need to contact the Flight Procedures Office to coordinate the desired publication date and any changes to that date.
12. Object existence was verified through a field visit. These object elevations are estimated. A survey is required prior to the runway relocation and threshold siting.

AIRPORT DATA

DESCRIPTION		EXISTING	FUTURE
AIRPORT ELEVATION (MSL)		1,444'	1,437'
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	34°06'41.80"N	34°06'41.44"N
	LONGITUDE	117°41'14.60"W	117°41'16.18"W
NAVAIDS (i.e. ILS, BEACON)		BEACON/GPS	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		92.4° (July)	SAME
AIRPORT REFERENCE CODE		B-I, SMALL	SAME
GPS AT AIRPORT		YES	SAME

FAA APPROVAL

Approved conditionally MAY – 8 2012

Subject to comments contained in our letter dated: MAY – 8 2012

FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region

By _____
Manager - LAX/ADO

EXISTING BUILDING/FACILITY TABLE

#	DESCRIPTION (SEE NOTE 5)	TOP ELEV.
1	HANGARS A-N	1,431'
2	7-SIDED MAINTENANCE BUILDING (TO BE REMOVED)	1,427'
3	AIRPORT OFFICE/MAINTENANCE (TO BE REMOVED)	1,424'
4	RESTROOMS	1,420'
5	AIRCRAFT SALES OFFICE	1,423'
6	TERMINAL BUILDING	1,451'
7	FLIGHT SCHOOL ANNEX (TO BE REMOVED)	1,412'
8	CIVIL AIR PATROL	1,434'
9	HANGARS 401-419 (TO BE REMOVED)	1,429'
10A	HANGARS 1-16	1,425'
10B	HANGARS 17-32	1,430'
10C	HANGARS 33-48	1,430'
10D	HANGARS 49-64	1,435'
10E	HANGARS 65-69	1,440'
11	CAF BUILDINGS (TO BE REMOVED)	1,412'
12	HANGARS 200-238	1,458'
13	HANGARS 239-269	1,458'
14	HANGARS 270-277	1,458'
15	OPEN HANGARS 80-149 (TO BE REMOVED)	1,451'
16	HANGARS 150-199	1,454'
17	HANGAR 40 - UPHOLSTERY SHOP	1,458'
18	HANGAR 42 - PAINT SHOP	1,465'
19	HANGARS Q-Z	1,415'
20	HANGARS 308-314	1,465'
21	HANGARS 301-307	1,465'
22	HANGAR 300	1,460'
23	HANGARS 315-316	1,457'
24	COVERED WASH RACK	1,453'
25	FUEL SELF SERVICE ISLAND AND RESTROOM	1,424'
26	BOY SCOUTS OF AMERICA BUILDING	1,437'

RUNWAY DATA

DESCRIPTION			RUNWAY 6 - 24 EXISTING	RUNWAY 6 - 24 FUTURE
EFFECTIVE GRADIENT (IN %)			1.5	1.2
MAXIMUM GRADIENT (IN %)			2.3	1.9
WIND COVERAGE % (10.5 KNOTS)			99.53	SAME
APPROACH VISIBILITY MINIMUMS			1 MILE/VISUAL	SAME
DESIGN AIRCRAFT	MAKE AND MODEL		CESSNA 421	SAME
	WINGSPAN (FEET)		38	SAME
	UNDERCARRIAGE WIDTH		21	SAME
	APPROACH SPEED (KNOTS)		96	SAME
	MAX. TAKEOFF WEIGHT (LBS)		6,840	SAME
RUNWAY MARKING			NPI/BASIC	SAME
APPROACH CATEGORY (FAR PART 77)		RUNWAY 6	NON-PRECISION	SAME
		RUNWAY 24	VISUAL	SAME
RUNWAY ℄ TO PARALLEL TAXIWAY ℄			VARIES	150'
TAXIWAY ℄ TO FIXED OR MOVABLE OBJECT			44.5'	SAME
TAXIWAY OBJECT FREE AREA WIDTH			89'	SAME
TAXIWAY SAFETY AREA WIDTH			49'	SAME
TAXIWAY WINGTIP CLEARANCE			20'	SAME
RUNWAY ELEVATIONS (NAVD 88) (See Note 4)	TOUCHDOWN ZONE (TDZ)		1,430'/NONE	1,427'/NONE
	HIGH POINT		1,443.7'	1,437.4'
	LOW POINT		1,393.1'	1,389.4'
	END POINT (RUNWAY 6/24)		1,393.1'/1,443.7'	1,389.4'/1,437.4'
LINE OF SIGHT REQUIREMENT MET			YES	SAME
RUNWAY LENGTH			3,865'	SAME
RUNWAY WIDTH			75'	60'
RUNWAY/TAXIWAY PAVEMENT MATERIAL			ASPHALT	SAME
APPROACH SLOPE			20:1	SAME
PAVEMENT STRENGTH (S/D/DT) (000 LBS)			12.5	SAME
RUNWAY LIGHTING			MIRL	SAME
NAVIGATIONAL AIDS			BEACON/GPS	SAME
VISUAL AIDS			VASI/BEACON	SAME
RUNWAY SAFETY AREA		LENGTH[1]	141'/57'	240'
		WIDTH	120'	SAME
RUNWAY OBJECT FREE AREA		LENGTH[1]	141'/32'	213'/240'
		WIDTH	250'	SAME
OBSTACLE FREE ZONE		LENGTH[1]	141'/32'	200'
		WIDTH	250'	SAME
RUNWAY CENTERLINE TO HOLD LINE			VARIES	125'

[1]Length beyond stop end of runway

Figure 7-1
Airport Layout Plan

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term. In addition to pilots benefiting from more accurate weather data, a SuperAWOS also provides an automated UNICOM system. This SuperAWOS will be installed on top of the terminal building. After 10 years of data is accumulated crosswind coverage can once again be analyzed at the airport and the runway alignment confirmed.

Acquire Holliday Rock Property – 2.1 acres (2011)

Property north of the airport, owned by Holliday Rock, and paralleling Runway 6-24 is to be acquired. This acquisition includes approximately 2.1 acres land and is needed to enhance safety areas for the existing and proposed runway locations. This acquisition area encompasses the width of the runway object free area for the future location of Runway 6-24 and is approximately 80 feet wide.

Close Taxiway B and Apply Declared Distances (2012)

Cable Airport has an airport reference code of B-I, small airplanes exclusively. The FAA design standards require a runway-taxiway centerline separation of 150 feet. Currently Taxiway B is 137 feet from the runway and does not meet these standards. Since Taxiway A is the full length parallel taxiway, it is used by most aircraft, and Taxiway B is rarely used. Therefore, it is recommended that Taxiway B be closed as it is underutilized and does not meet separation standards.

Existing conditions at Cable Airport include displaced thresholds on both Runways 6 and 24. This reduces the distance available for landing. To further enhance safety of the airport in the short-term, it is recommended that declared distances be implemented. This includes designating a landing distance available (LDA) for Runways 6 and 24 of 3,601 feet. Furthermore, the take off run available (TORA) will be noted as 3,865 feet for Runways 6 and 24. This project includes issuing NOTAMs (notices to airmen) and updating airport diagrams and publications.

Remove Shade Hangars (2012)

There are 70 shade hangars that are in very poor condition. They are situated parallel to the runway on the north side. It is recommended that these hangars be removed. The shade hangars occupy approximately 60,000 square feet.

Relocate Airport Access Road (2012)

The Airport Access Road located adjacent to Runway 6 should be relocated outside of future safety areas. Approximately 1,200 linear feet of new road will be constructed to parallel the runway and then turn to follow the property line northward toward future airport development and auto parking. The future Airport Access Road will be 36 feet wide and accommodate two lanes per City of Upland street standards, including curb, gutter, and shoulders. The road will have one lane in each direction and provide direct public access to airport buildings on the north side of the airport property (currently, the public must enter this secured area of the airport.) This will provide landside access to FBOs that currently only have airside access. The existing gate for the Airport Access Road should be removed and relocated near the fuel island. The Access Road will be a public road providing access to the north side of Cable Airport.

Construct Individual Hangars (2013)

With the removal of the shade hangars, additional space will need to be provided for aircraft to meet short-term forecast baseline demand. To meet short-term forecast baseline demand, it is recommended that 112 hangars be built, including installing electricity, water, fire protection, sewer, and storm drain systems. The shade hangars will be replaced by 74 small box hangars (64 – 37-foot by 37-foot hangars, two – 32-foot by 37-foot hangars, and eight – 29-foot by 37-foot hangars). These buildings total approximately 95,600 square feet. The existing apron requires

rehabilitation (approximately 6,700 square yards). It should be noted that since the removal of tie-downs parallel to the runway, the airport has lost revenue due to the reduced parking spaces, but did so with the understanding that these hangars could be constructed in the future. Previous tie-downs were located closer to the runway than these proposed hangars, which are 200 feet from the runway centerline (same as existing developments to the south).

In addition, 12 small box hangars (37-foot by 37-foot hangars) should be built extending the second hangar row from the north (near Hangars 239 and 298) toward Runway 24. These buildings occupy approximately 16,500 square feet. The northern-most hangar row is to be extended by seven small box or shade hangars (37-foot by 37-foot hangars), covering approximately 11,100 square feet. This area requires rehabilitation of approximately 1,900 square yards of pavement that is currently in poor condition.

On the south side of the airport, 18 new small box hangars (37-foot by 37-foot hangars) totaling approximately 22,000 square feet are to be constructed along the southern airport property adjacent to the proposed West 13th road extension on the apron pavement south of Hangars A-N. Row 10B will accommodate an additional four small box hangars (27-foot by 45-foot hangars; approximately 4,800 square feet) and includes the removal of five tie-downs. This addition of individual hangars includes approximately 1,140 square yards of apron rehabilitation.

Remove T-Hangars (2013)

The T-hangars adjacent to and east of the terminal area are in poor condition and are proposed to be removed. This building houses approximately 19 T-hangars and is approximately 17,900 square feet.

Construct Aircraft Maintenance Hangar (2014)

In the short-term, the Baseline Forecast shows the need for an additional 2,800 square feet of aircraft maintenance space. It is recommended that a 12,000-square foot hangar be constructed east of the terminal area to accommodate the Baseline Forecast needs as well as to replace lost aircraft maintenance space from the proposed removal of the 7-sided maintenance hangar (see next project).

This project includes the rehabilitation of the apron east of the terminal area, which is in very poor condition. This area includes approximately 17,800 square yards of apron pavement. In addition, utilities and adequate drainage will need to be provided for the maintenance hangar. Due to the ground sloping at Cable Airport, the maintenance hangar will be put on a platform to have two sides provide ADA requirements and proper drainage, while the other two sides will be surrounded by walls.

Remove Maintenance Hangar (2015)

With the construction of a new aircraft maintenance hangar, the 7-sided maintenance building (7,500 square feet) west of the terminal area can be removed. This building is in poor condition and should be demolished in the short-term.

Construct Large Box Hangar (2015)

In the short-term the Baseline Forecast shows a need for an additional 2,000 square feet of large box hangar space. It is recommended that a 10,000-square foot hangar be constructed on the north side of the airport to meet this demand and provide space for fixed base operators. This project constructs one of the hangars in the north area that is currently in design. Approximately 11,100 square feet of apron in this area should be rehabilitated as part of this project as it is in poor condition. This project also includes the construction of auto parking adjacent to the new

hangar, and providing auto parking for both the new hangar and Hangar 42. A total of 35 parking stalls and 1,460 square yards will be provided for auto parking.

This project includes the relocation of the two helipads near the Runway 6 end to the north side of the airport, adjacent to the existing helipad and the newly constructed large box hanger. These helipads will be 36 feet by 36 feet.

Phase 2 Development (2016 – 2020)

Development for Phase 2, or the intermediate-term development phase, encompasses the second five-year period (2016 – 2020). Phase 2 improvements are listed in Table 7-2 and focus on further enhancements to safety at the airport. This phase also includes expansion of the terminal and a continuation of hangar construction to accommodate based aircraft.

Table 7-2
RECOMMENDED PHASE 2 DEVELOPMENT

Project	Timing
Relocate Helipad on North and Rehabilitate Existing	2016
Construct Individual Hangars	2017
Expand Terminal	2018
Reconfigure 14th Street Entrance and Relocate Perimeter Road	2020
Relocate Transient Tie-downs	2020

Source: AECOM analysis.

Relocate Helipad on North and Rehabilitate Existing (2016)

The existing helipad (21-foot by 21-foot) on the north side of the airport should be rehabilitated and expanded to be 36-foot by 36-foot. A new helipad should also be constructed (36-foot by 36-foot). Adequate clearance should be provided around the helipads. Approximately 600 square yards, of apron surrounding the helipads should be rehabilitated as it is in poor condition. The helipad relocation was recommended in the RSAP.

Construct Individual Hangars (2017)

This project extends hangar row 10C to accommodate 6 individual hangars. This extension will increase the hangar space by approximately 7,200 square feet. This project also includes taxilane striping (approximately 400 linear feet) between these new hangars and the terminal area/new maintenance hangar.

Expand Terminal (2018)

This phase includes expansion of the terminal by approximately 530 square feet on the eastern wing. The central portion of the building will be extended approximately 18 feet toward the parking area on both the first and second floors, providing an additional 390 square feet per floor. This will meet intermediate-term baseline forecast needs. The new additions to the terminal total approximately 1,200 square feet and could be used by FBOs or for public space, depending upon demand.

Reconfigure 14th Street Entrance and Relocate Perimeter Road (2020)

The north-eastern most corner of the airport property including the 14th Street entrance will be reconfigured to accommodate the future new runway location and provide an incremental improvement to the existing ROFA. This project includes the relocation of the gate entrance further west than the existing gate and oriented perpendicular to 14th Street, closing the viewing area, and relocating the Perimeter Road outside of the future runway safety area. The relocation

of the Perimeter Road will require the construction of approximately 216 linear feet of 26-foot wide road (same as the existing width) and 332 linear feet of new perimeter fencing. The existing Perimeter Road pavement will be removed (approximately 230 square yards) and replaced with landscaping to prevent confusion.

The viewing area could potentially be relocated to the south side of Runway 6, outside of runway safety and object free areas. However, it is noted that due to the changes in elevation, the view provided from the south side of the airport is not as appealing as the present viewing area.

Relocate Transient Tie-Downs (2020)

The apron between the terminal area and runway is in fair condition and should be rehabilitated (approximately 6,300 square yards). After the rehabilitation is complete, 11 transient tie-downs will be installed adjacent to the terminal and north of the aircraft maintenance hangar constructed in Phase 1. Three of these tie-downs will be pull-through tie-downs. This will meet transient tie-down requirements for the planning period. Should additional tie-downs be needed, vacant tie-downs along hangar row A-N could be utilized.

Phase 3 Development (2021 – 2030)

The long-term developments are to be constructed in Phase 3. This phase focuses on translating and relocating the runway, acquiring land, and constructing hangars. These projects will occur between 2021 and 2030. Table 7-3 summarizes Phase 3 projects. Additional projects are noted that are not required to meet forecasted demand, but are included should specific demand for these potential projects arise.

Table 7-3
RECOMMENDED PHASE 3 DEVELOPMENT

Project	Timing
Construct Large Box Hangars	Long-term
Expand FBO Hangar (Foothill)	Long-term
Demolish Terminal Area Buildings	Long-term
Construct Large Box Hangar and Relocate Airport Beacon	Long-term
Expand Terminal Auto Parking	Long-term
Acquire Holliday Rock Property - 1.3 acres	Long-term
Relocate Dewey Way	Long-term
Translate and Relocate Runway and Taxiways	Long-term
Recertify Approaches	Long-term
Construct Individual Hangars	Long-term
Construct Additional Large Box Hangars	Long-term/As needed
Acquire Additional Land - 1.3 acres (Total)	Long-term/As needed
Construct North Side Road	Long-term/As needed
Construct Benson Hangar	Long-term/As needed
Rehabilitate or Reconstruct Hangars 40 and 42	Long-term/As needed

Source: AECOM analysis.

Construct Large Box Hangars (Long-Term)

In the long-term, additional large box hangar space will be needed to accommodate the Baseline Forecast. This project includes the construction of two 4,200-square foot hangars on the northern property and adjacent to the new 10,000-square foot hangar constructed in Phase 1. This project also includes the construction of approximately 850 square yards of auto parking apron for 14 parking spaces. The apron in front of these hangars (1,100 square yards) is in poor condition and needs to be rehabilitated.

Expand FBO Hangar (Foothill) (Long-Term)

The existing FBO hangar in the terminal area is adequate to meet Phase 1 and 2 requirements. However, in the long-term the FBO would like to expand the hangar by approximately 2,780 square feet and install a hangar door. This project also includes the rehabilitation of the apron around the FBO hangar building, encompassing approximately 5,000 square yards. This apron area is public space.

Demolish Terminal Area Buildings (Long-Term)

This project proposes to demolish five buildings located along West 13th Street in the terminal area and rough grading of the area for future development anticipated to take place in that area. The buildings cover a total area of approximately 4,200 square feet.

Construct Large Box Hangar and Relocate Airport Beacon (Long-Term)

The airport beacon is located south and east of the terminal area. This area is proposed to be used for a large hangar in the long-term. To accommodate this hangar development, the airport beacon is proposed to be relocated from its existing location to on top of or near the terminal building or on top of the proposed hangar included in this project.

This project proposes constructing a 26,500-square foot hangar in the terminal area south of the aircraft maintenance building constructed in Phase 1. The area will be graded to provide adequate drainage and meet ADA requirements. Retaining walls and slope stabilization techniques will be employed as required to account for existing terrain and changes in elevation. It is anticipated that the hangar will be constructed so that half of it is subterranean. This hangar will have two-stories (26,500 square feet on each story) with the potential of a third-story expansion. With the construction of this hangar, the restaurant/café located in the terminal building will be relocated and provided space to expand. The remaining space could be used for additional FBO or other aviation-use space or as a museum.

This project proposes to relocate the existing gate from east of the airport beacon to between the new maintenance hangar and this large box hangar. This project includes the construction of 137 feet of new fencing.

Expand Terminal Auto Parking (Long-Term)

The area previously cleared, graded, and fenced off will be developed into parking for the new buildings in the terminal area as well as the aircraft maintenance building constructed in Phase 1. Existing terminal parking will be modified and rehabilitated. A total area of approximately 4,600 square yards will be rehabilitated and/or constructed for the modified terminal parking spaces and an additional 35 parking spaces.

Acquire Holliday Rock Property - 1.3 acres (Long-Term)

This project acquires 1.3 acres of Holliday Rock Property west of Cable Airport. This area encompasses the future RSA and ROFA when the runway shift and translation are complete. In addition, this project includes the construction of approximately 2,030 linear feet of new perimeter fencing that encompasses the future property area.

Relocate Dewey Way (Long-Term)

This project relocates Dewey Way to its future location. Dewey Way will be outside of the future RSA and ROFA and lower than the future Runway 6. The future segment of Dewey Way is approximately 930 linear feet in length. The 36-foot wide road will continue to serve 3-lane public

traffic (one northbound and two southbound lanes). Grading is required to meet RSA slope requirements. A retaining wall will be constructed at the end of the RSA as there will be a significant change in elevation. In addition, the new road should be constructed to include curb, gutter, and storm-drain improvements. Curve radii should consider the predominance of truck traffic that uses this road. The alignment reflected on the ALP is conceptual and will be refined during the design of this roadway.

Translate and Relocate Runway and Taxiways (Long-Term)

This development proposes shifting the runway 50 feet to the north and translating it 164 feet to the west. This project includes an extension of Taxiway A by a corresponding distance (164 feet). This runway shift and translation provide full safety areas along the runway and improved safety areas beyond the runway ends. The full length of the future runway (3,865 feet) is available for landings on Runway 6. With the 163-foot displaced threshold on future Runway 24, landing distance available is 3,702 feet (up from 3,601 feet).

With the relocation of the runway, surface painted signs should be installed. Once the relocation of the runway is complete, signs and lights for both the runway and taxiways should be installed. This project also includes the repainting and renaming of existing taxiways connecting Taxiway A and the future runway and installing appropriate signage. VASIs on both runway ends need to be relocated.

Recertify Approaches (Long-Term)

With the shift and translation of the runway, the non-precision instrument approaches for the airport will need to be recertified by the FAA Flight Procedures Office.

Construct Individual Hangars (Long-Term)

This project extends hangar rows 10D and 10E to accommodate 9 individual hangars. Row 10D will increase the hangar space by approximately 7,200 square feet to accommodate 6 new hangars. Hangar row 10E will be expanded to accommodate 4,700 square feet of new hangar space for 3 individual hangars.

Construct Additional Large Box Hangars (Long-Term/As needed)

This project is an "as needed" project, should more large box hangar space be needed than anticipated with the Baseline Forecast. This project proposes to construct two large box hangars encompassing 6,400 and 8,000 square feet, respectively on the north property near the new Airport Access Road and Hangars 40 and 42. These hangar constructions include the rehabilitation of the adjacent apron, encompassing approximately 1,600 square yards. Furthermore, this project includes the construction of 20 auto parking spaces and connecting these spaces to the Airport Access Road constructed in Phase 1, including constructing approximately 1,400 square yards of pavement.

In addition, a 30,000-square foot building along West 13th Street could be constructed to provide similar space to existing Hangars Q-Z; where the top floor provides large box hangar space, and the bottom floor provides office space. This project includes the construction of the pavement in front of the hangar, auto parking, and driveway connections to West 13th Street. This area will require the construction of approximately 4,200 square yards of pavement for 40 parking spaces. A 32-foot long fence will be constructed between this building and the 26,500 square foot building near the terminal area.

Acquire Additional Land - 1.3 Acres (Total) (Long-Term/As needed)

This project is proposed on an "as needed" basis, and proposes to acquire approximately 1.3 acres of land.

This project includes acquiring approximately 0.5 acres on the corner of West 13th Street and North Benson Avenue and a small parcel of approximately 0.05 acres near the water tower along North Benson Avenue. Some existing tanks occupy the 0.05 acres along North Benson Avenue. Environmental remediation or clean up may be required on this property. These parcels are unsuitable for redevelopment due to their size, shape, and building setbacks. These parcels could be integrated into larger development projects at Cable Airport. All of these land areas are to be acquired should the owners be willing to sell.

Additionally, with the extension of West 14th Street, to connect with the relocated and extended Access Road, a small parcel of land (0.7 acres) will be isolated from the rest of the property. Therefore, it is proposed that this area near Hangar 42 be acquired.

Construct North Side Road (Long-Term/As needed)

This project proposes to construct approximately 2,900 linear feet of new road along the northern airport property boundary. This road will connect to the proposed Airport Access Road to provide access to large box hangars on the north side of property from Benson Avenue. This road is proposed to be a public two-lane, two-way, 36-foot wide road (includes curb, gutter, and shoulders), per City of Upland street standards and will provide direct public access to all sides of the airport.

Construct Benson Hangar (Long-Term/As needed)

Similarly to the West 13th Street hangar construction, this project proposes the construction of a 23,000 square foot two-story (with an optional third story) hangar that will be used both for hangar as well as commercial/office space. The building will be located along North Benson Avenue on the corner of W 13th Street. This project also includes the construction of 108 linear feet of fencing between buildings, 1,500 square yards of aircraft apron, 1,700 square yards of auto parking pavement for 20 parking spaces, and a driveway connection from North Benson Avenue.

Rehabilitate or Reconstruct Hangars 40 and 42 (Long-Term/As needed)

Hangars 40 and 42 may need rehabilitation during the planning period. This project proposes to rehabilitate or reconstruct these hangars (as needed). In addition, the apron area, encompassing approximately 26,700 square feet, will be rehabilitated.

AIRPORT AIRSPACE DRAWING

The Airport Airspace Drawing depicts the Part 77 imaginary surfaces on and around Cable Airport. An isometric view of these surfaces is presented in Figure 7-2. Figure 7-3 shows the Airport Airspace Drawing for Cable Airport and reflects the future runway location. The dimensions and criteria employed in determining the Part 77 surfaces are those contained in Federal Aviation Regulations (FAR), Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Section 77.25). These surfaces are defined for the purpose of identifying natural (terrain or trees) and man-made objects that could affect air navigation at an airport.

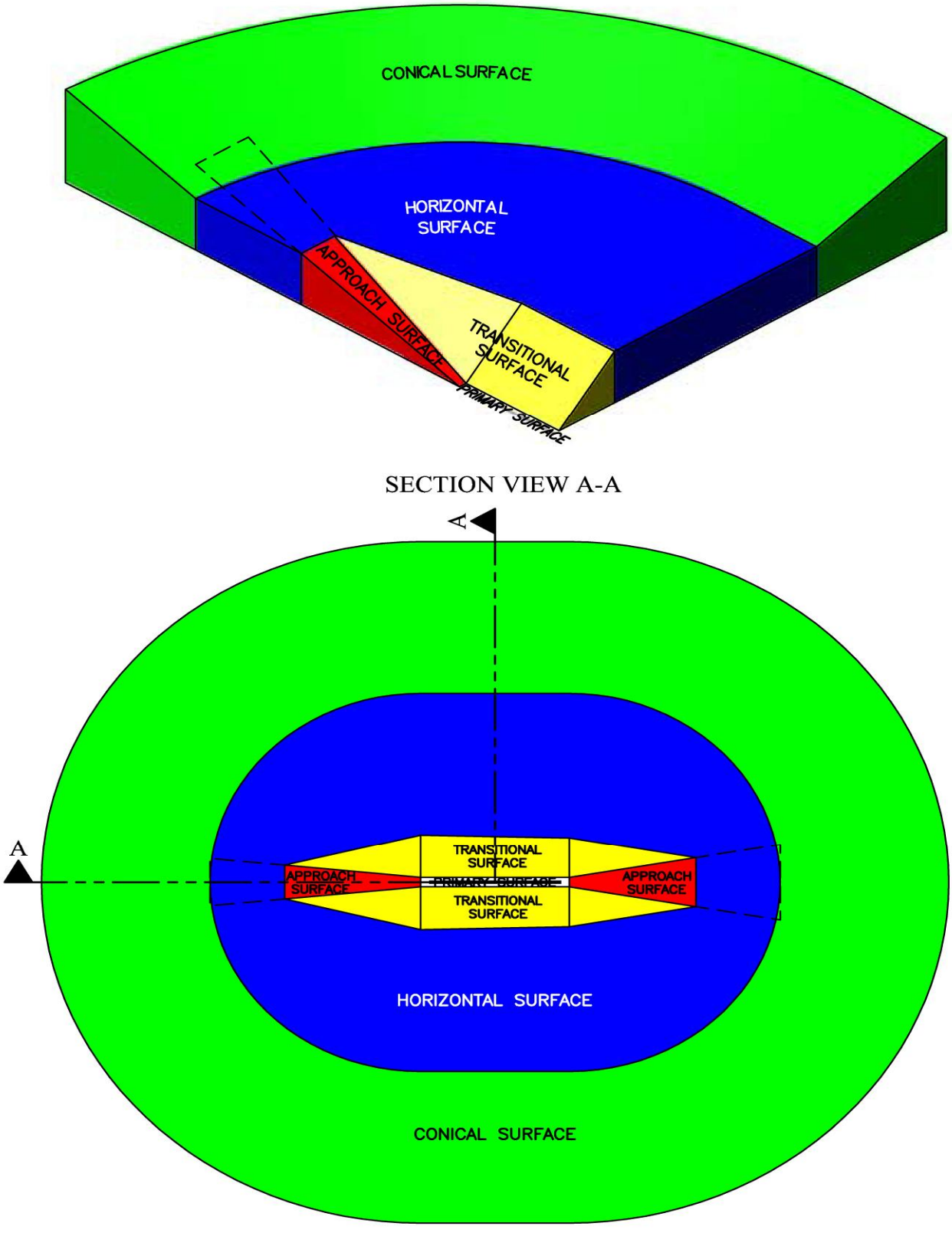
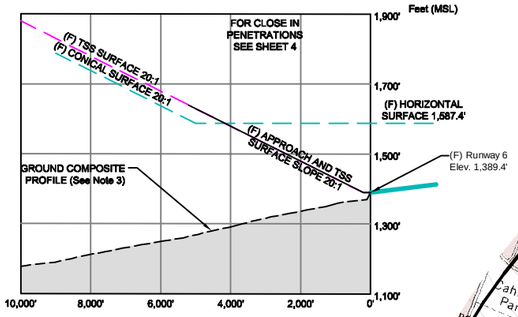
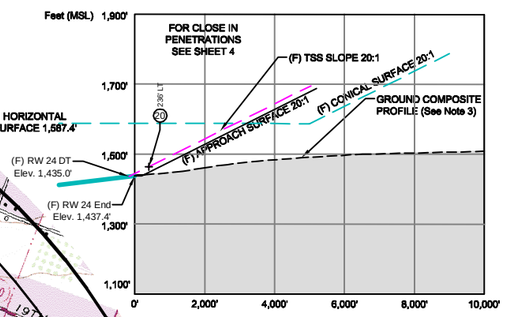


Figure 7-2
Isometric View of FAR Part 77 Surfaces



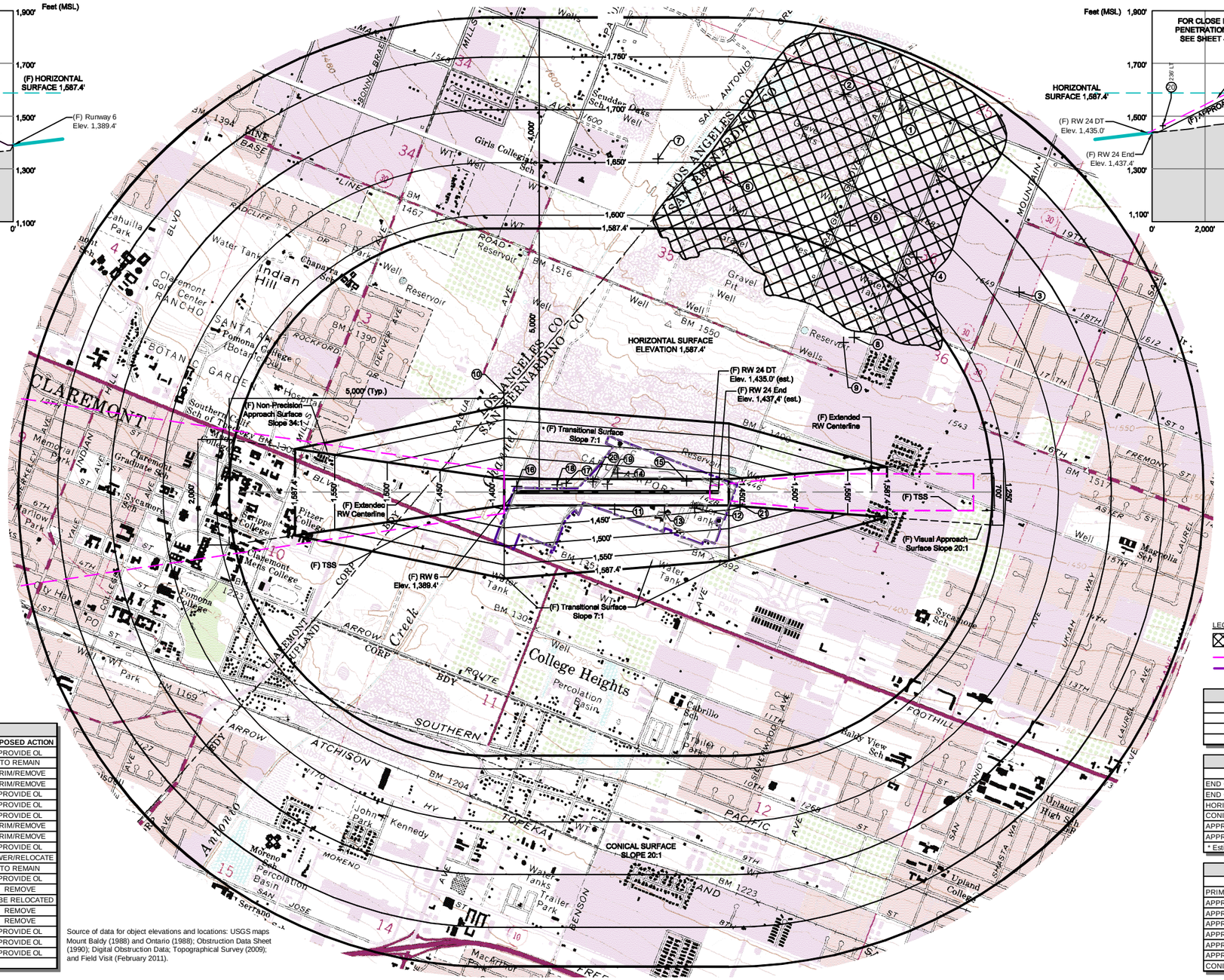
Runway 6

SCALE: HORIZONTAL 1" = 2,000'
VERTICAL: 1" = 200'



Runway 24

SCALE: HORIZONTAL 1" = 2,000'
VERTICAL: 1" = 200'


HORIZONTAL SURFACE ELEVATION 1,587.4'
(F) RW 24 DT Elev. 1,435.0' (est.)
(F) RW 24 End Elev. 1,437.4' (est.)
(F) Extended RW Centerline
(F) Transitional Surface Slope 7:1
(F) Non-Precision Approach Surface Slope 34:1
5,000' (Typ.)
(F) TSS
(F) Visual Approach Surface Slope 20:1
(F) RW 6 Elev. 1,389.4'
CONICAL SURFACE SLOPE 20:1
CLAREMONT
College Heights
Indian Hill
SANTA ANA
SAN BERNARDINO CO
LOS ANGELES CO
ATCHISON
TOPEKA
SOUTHERN
PACIFIC
FOOTHILL
ARROW
CORR
Creek
Water Tanks
Trailer Park
Percolation Basin
Reservoir
Well
Park
Pomona College
Claremont Colleges
Scripps College
Pitzer College
Claremont Graduate Sch
Sycamore Sch
Girls Collegiate Sch
Chaparral Sch
Cabrillo Sch
Baldy View Sch
Upland High Sch
Magnolia Sch
Upland College
John F. Kennedy Memorial Park
MacArthur Park
Marlow Park
Lahuilla Park
Claremont Golf Center
BOTANIC GARDEN
RANCHO
Pomona College Botanic Gardens
Hospital
Water Tank
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BM 1467
BM 1516
BM 1550
BM 1390
BM 1204
BM 1223
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FAR Part 77 Imaginary Surfaces

The dimensions of the FAR Part 77 imaginary surfaces depend on the size of aircraft using the airport and the type of instrument approach procedures. The FAR Part 77 criteria applied to Runway 24 is "utility" runway with a visual approach. The FAR Part 77 criteria applied to Runway 6 is "utility" runway with a non-precision instrument approach and visibility minimums "no less than one mile."

The descriptions of the surfaces and their dimensions for Cable Airport, along with a description of how to determine the height of the surface at any point follows.

Horizontal Surface

The horizontal surface is a horizontal plane 150 feet above the established airport elevation. The airport elevation, measured at the highest point along the runway, is estimated to be 1,437.4 feet above mean sea level (MSL). This point occurs at the future Runway 24 threshold. Therefore, the elevation of the horizontal surface at Cable Airport is approximately 1,587 feet MSL.

The perimeter of the horizontal surface is delineated by arcs with radii of either 5,000 feet or 10,000 feet from the center of the ends of the primary surface, depending on the type of runway. Runway 24 is a visual runway and therefore has a 5,000-foot radius. Runway 6 has a published non-precision instrument approach procedure, but due to the fact that it is served by small aircraft exclusively, the radius of the horizontal surface is 5,000 feet from the end of the primary surface. Adjacent arcs are connected by lines that are tangent to these arcs.

Conical Surface

The conical surface extends outward and upward from the edge of the horizontal surface at a slope of 20:1, for a horizontal distance of 4,000 feet. The elevation of the conical surface at its outermost edge is approximately 1,787 feet MSL.

The elevation of any point on the conical surface is found by starting at the intersection of the horizontal surface and conical surfaces (where the elevation is approximately 1,587 feet MSL) and increasing one foot in elevation for every 20 feet measured laterally from the intersection.

Primary Surface

The primary surface is defined as being longitudinally centered on the runway, the width dependent on the type of runway, and extending 200 feet beyond each end of the runway. The primary surface at Cable Airport is 500 feet wide (due to the non-precision approaches at the airport). The elevation of any point on the primary surface is the same as the closest point on the runway centerline.

Approach Surfaces

The slope and configuration of a runway approach surface varies as a function of the type of aircraft served and availability of instrument approach procedures. Approach surfaces terminate at the primary surface, where their width is equal to the width of the primary surface. The approach surface for Runway 6 is 2,000 feet wide at its beginning point, 5,200 feet from the runway. The Runway 24 approach surface is 1,250 feet wide at its beginning point, 5,200 feet from the runway end. The approach surfaces at Cable extend outward and upward at a slope of 20:1.

The elevation of any point on the Runway 6 and 24 approach surfaces is found by starting at the intersection of the approach and primary surfaces (where the elevations are approximately 1,389 feet and 1,437 feet MSL, respectively), and increasing one foot in elevation for every 20 feet

measured laterally from the intersection. Once the approach surface elevation reaches 1,587 feet MSL, the horizontal surface is the controlling surface.

Transitional Surfaces

The transitional surfaces extend outward and upward at right angles to the runway centerline (and the extended runway centerline) at a slope of 7:1 from the edges of the primary and approach surfaces.

The elevation of any point on a transitional surface is found by starting at the intersection of the transitional surface with the approach or primary surface and increasing one foot in elevation for every 7 feet measured laterally from the intersection. Once the transitional surface reaches the horizontal surface elevation (1,587 feet MSL), the horizontal surface is the controlling surface.

Obstructions Identified Under FAR Part 77

The airport imaginary surfaces shown on Figure 7-3 are superimposed on United States Geological Survey (USGS) topographic maps. The USGS map was reviewed, as was the NGS Aeronautical Data file for Cable Airport, the digital obstacle data file, and the digital topographic files obtained as part of this master plan study. Field visits were conducted in February 2011 to verify obstacles and estimated top elevations. The following obstructions were identified. These are also shown on Figure 7-3.

It should be noted that building heights on and off-airport are unknown but have been estimated. It is important that a survey be conducted to assess obstacles for existing and future conditions prior to the runway relocation and threshold siting.

Obstructions within the Horizontal Surface

There are terrain obstructions within the horizontal surface that are expected to remain. Two trees penetrate the horizontal surface by approximately 41 and 52 feet, and should be trimmed or removed. These trees are located approximately 3,900 and 3,600 feet, respectively, north-northeast of Runway 24.

Obstructions within the Conical Surface

Approximately 442 acres of terrain penetrates the conical surface. Located within this area are three poles, a tree, and a floodlight on an elevator that penetrate the surface. The floodlight on the elevator penetrates by approximately 119 feet and is anticipated to remain, while the tree penetrates approximately 100 feet and is proposed to be trimmed or removed. The poles penetrate from 75 to 106 feet. It is recommended that obstruction lights be placed on the poles. All of these objects are located north of and perpendicular to the Runway 24 end and range from 5,000 to 8,200 feet from the runway.

There is a tree within the conical surface approximately 6,900 feet northeast of Runway 24 that penetrates the surface approximately 24 feet. The tree is proposed to be trimmed or removed. A pole located approximately 6,400 feet northwest of Runway 24 penetrates the conical surface by approximately 30 feet. It is anticipated that the pole will stay in place, but an obstruction light should be installed.

Obstructions within Transitional Surfaces

Four objects penetrate the transitional surface of Cable Airport. A hangar, obstruction light on the windsock, and the obstruction light on the anemometer (on the terminal building) are located to the south of the runway, perpendicular to it. These objects penetrate the transitional surface from 1 to 5 feet and are anticipated to remain at their current location.

Located approximately 330 feet north of and perpendicular to the runway is a vent on a hangar that penetrates the transitional surface by approximately 21 feet. It is recommended that an obstruction light be installed.

Obstructions within the Primary Surface

There are six obstructions to the primary surface including hangars, fuel island, road, and trees. Future hangars paralleling the runway pose an obstruction of approximately 19 feet and are located to the northwest of the runway, but reduce the penetration by approximately 10 feet of the existing hangars to be removed. These hangars should be marked with obstruction lights. The fuel island is north of and parallel to the runway and obstructs the primary surface by approximately 23 feet. It is anticipated the fuel island will remain. Obstruction lights should be provided for better visibility and avoidance. Alternatively, the ALP designates a potential area the fuel island could be relocated to.

Two trees parallel to the runway and west of the fuel island penetrate by approximately 33 and 35 feet. It is recommended these trees be trimmed or removed.

The intersection of Dewey Way and Airport Access Road penetrates the transitional surface by approximately 5 feet. Both roads are proposed to be relocated as part of the master plan proposed developments.

Obstructions within the Approach Surfaces

An antenna on a building is located within the Runway 24 approach surface and penetrates it by approximately 15 feet. It is recommended that an obstruction light be added. Other obstructions to the approach surface are located within the inner approach surface and are shown on Figure 7-4 and discussed under the Inner Portion of the Approach Surface Plan.

INNER PORTION OF THE APPROACH SURFACE PLAN

Figure 7-4 depicts the Inner Portion Approach Surface Drawing. Also depicted on this figure are the land uses within the RPZs. The RPZs for Runways 6 and 24 have an inner width of 250 feet, an outer width of 450 feet, are 1,000 feet long, and encompass 8.035 acres.

The existing RPZs for Runways 6 and 24 are completely off airport property except for a 0.1 acre corner of the existing Runway 6 RPZ. The future Runway 24 RPZ encompasses 0.6 acres on airport property. The remaining property is traversed by North Benson Avenue, the Perimeter Road, and open space. Cable Airport has an agreement with the City of Upland to maintain this area clear of development. A fenced detention pond is proposed to be built within the Runway 24 RPZ, preventing any other construction and inhibiting public access. However, with the runway shift this will result in small portions of five buildings being located within the RPZ.

The future Runway 6 RPZ is completely off airport property. Approximately half of the RPZ is over open space. The other half encompasses portions of five commercial industrial buildings, but is mostly located above a parking lot and green area.

Approach Surfaces

As previously mentioned approach surfaces start 200 feet from the ends of Runway 6 and 24 and extend out at a 20:1 slope. The Runway 6 existing and future approach surfaces are penetrated by a tree by approximately 5 and 17 feet, respectively. This tree is proposed to be trimmed or removed.

The existing and future Runway 24 approach surfaces are penetrated by eight objects. At the highest point the Perimeter Road penetrates the existing and future surfaces by 6 and 9 feet, respectively. The future perimeter road will penetrate the future approach surface by approximately 13 feet.

North Benson Avenue, at its highest point, penetrates the existing and future Runway 24 approach surfaces by 18 and 16 feet, respectively. Relocation of the runway improves existing conditions. Also, the landing threshold will be appropriately located to accommodate North Benson Avenue.

Five objects: a two power poles, a light pole, an antenna on a building, and an obstruction light on a building penetrate both the existing and future surfaces. Only one object, a power pole, penetrates the future approach surface more than the existing surface; it penetrates the future surface by 40 feet and the existing surface by 39 feet. This power pole is proposed to be removed.

The remaining four objects will have reduced penetrations after the runway relocation: the obstruction light on a building reduces from 15 to 13 feet of penetration. This obstruction light is proposed to remain. The power pole and the light pole penetrate the future approach surface for Runway 24 by 34 and 11 feet, respectively. It is proposed that the light pole be relocated or lowered, and the power pole be removed and the power lines placed underground. The tree penetrates the future Runway 24 approach surface by approximately 22 feet and is proposed to be trimmed or removed.

Threshold Siting Surfaces

Threshold siting surfaces are imaginary inclined planes extending outward and upward from the ends of the runways that are used to establish the location of landing thresholds. They are not specified in FAR Part 77, but since they are similar in concept to Part 77 imaginary surfaces, they are shown on the Airport Airspace Drawing (Figure 7-3) and the Inner Portion of the Approach Surface Plan (Figure 7-4).

Threshold siting standards are applied for the following runway types as defined in AC 150/5300-13:

- Runway 6: "Approach end of runways expected to support instrument straight in night operations serving greater than approach category B aircraft."

- Runway 24: "Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more. (Visual runways only, day/night.)"

Based on a review of known obstacles, the future Runway 6 threshold siting surface is clear of obstructions after the trimming/removal of one tree. The future Runway 24 landing threshold should be displaced by approximately 163 feet. This removes potentially obstructing obstacles such as North Benson Avenue and the future Perimeter Road. As previously mentioned, an obstruction survey should be conducted prior to the relocation of the runway and threshold siting.

ON-AIRPORT LAND USE PLAN

The On-Airport Land Use Plan is shown on Figure 7-5 and shows on-airport land uses for existing conditions and proposed developments/acquisitions. The land uses shown include the following:

- **Airport Operating Area**: This area includes the runway, taxiways, and associated safety areas including the area on airport that is between the building restriction lines excluding helicopter operating areas and transient tie-downs.

- **Based Aircraft Storage**: Hangars and associated taxilanes and apron are considered part of the based aircraft storage area.

- **Terminal Operating Area**: This area includes the terminal, auto parking, aircraft apron, and the access road to the airport.

- **Transient Aircraft**: Tie-downs reserved for transient aircraft parking.

- **Helicopter Operating Area**: Helipads and helicopter parking spaces.

- **Aircraft Maintenance**: FBO hangars and areas associated with FBOs that perform aircraft maintenance activities.
- **Airport Support**: Northern corner next to Hangars 40 and 42.
- **Aviation Related Revenue Support**: Fuel storage and sales and REACH area.
- **Non-Aviation Related Revenue Support**: The stretch of land along W 13th Street and North Benson Avenue not used for aviation uses, currently non-aviation storage. In addition, the land that is currently being used to store old military vehicles.
- **Cable Airport Business Park**: The business park located on the southwestern corner of the airport.
- **Other/Roads**: Open/Empty space and otherwise non-designate-able areas, such as roads or slope stabilization areas.

A break-down of the existing and future land uses is provided in Table 7-4. Please note these are estimated.

Table 7-4
EXISTING AND FUTURE LAND USES

Land Use	Existing Acreage	Existing Percentage	Future Acreage	Future Percentage
Airport Operating Area	33.4	30.5%	34.6	30.3%
Based Aircraft Storage	36.2	15.4%	45.3	14.7%
Terminal Operating Area	4.1	33.1%	2.6	39.6%
Transient Aircraft	0.8	3.7%	1.4	2.2%
Helicopter Operating Area	0.6	0.8%	0.4	1.2%
Aircraft Maintenance	3.6	0.6%	4.3	0.4%
Airport Support	0.5	3.3%	0.5	3.8%
Aviation Related Revenue Support	1.3	0.5%	1.2	0.5%
Non-Aviation Related Revenue Support	7.6	1.2%	1.3	1.1%
Cable Airport Business Park	16.8	7.0%	16.8	1.1%
Other/Roads	4.4	4.0%	5.9	5.2%
Totals	109.3	100.0%	114.3	100.0%

Source: AECOM analysis.

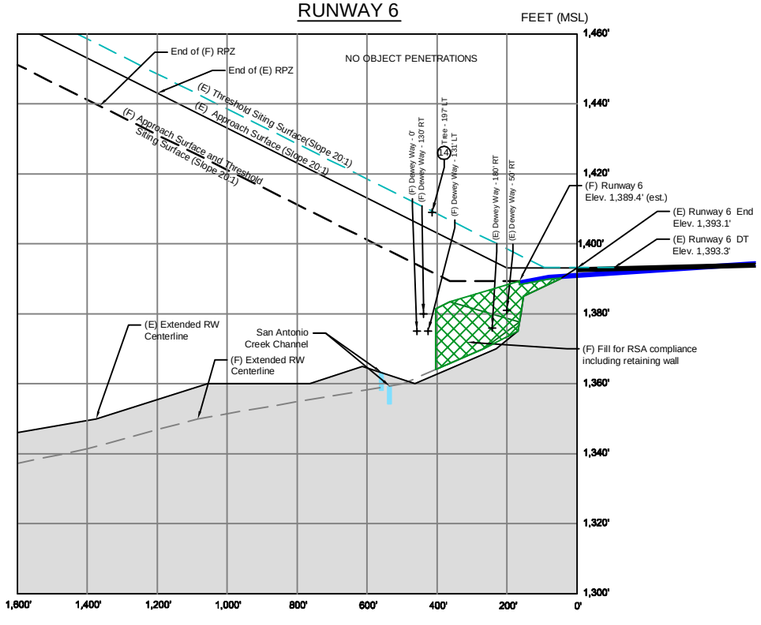
Table 7-4 shows that approximately one-third of the airport is airport operating area. Based aircraft storage area increases from approximately 33 to 40 percent. The Cable Airport Business Park encompasses approximately 15 percent of airport property.

EXHIBIT "A" – PROPERTY MAP

The Exhibit "A" – Property Map for the airport is illustrated on Figure 7-6. The primary intent of the Exhibit "A" property map is to identify all land which is designated airport property and to provide an inventory of all parcels which make-up the airport. Based on the proposed development shown on the ALP, it is recommended that four complete parcels and six partial parcels are acquired in fee. It should be noted that all acquisitions shown on the ALP for Cable Airport are to be in fee.
In Phase 1, parts of parcels numbered 10, 15, and 17 should be acquired to enhance the safety at the airport by providing full BRL on airport property and protecting for the future BRL before the runway shift and translation. Phase 2 does not propose any land acquisition.

Phase 3 acquisition occurs in two projects, one of which is proposed in the long-term and the other is proposed for the long-term/as needed. The long-term project proposes to acquire 1.3 acres beyond the future end of Runway 6 and is labeled as 16 on Figure 7-6. The long-term/as needed acquisition proposes to acquire a total of approximately 1.3 acres adjacent to the airport. This includes the acquisition of parcels 9, 10 (the area that had not previously been acquired), 11, and 12. In addition, portions of parcels 13 and 14 should be acquired.

In addition, the Exhibit "A" – Property Map identifies existing on and off-airport easements. These callouts include a short title/description of the easement and where it is documented in the County of San Bernardino assessor maps.



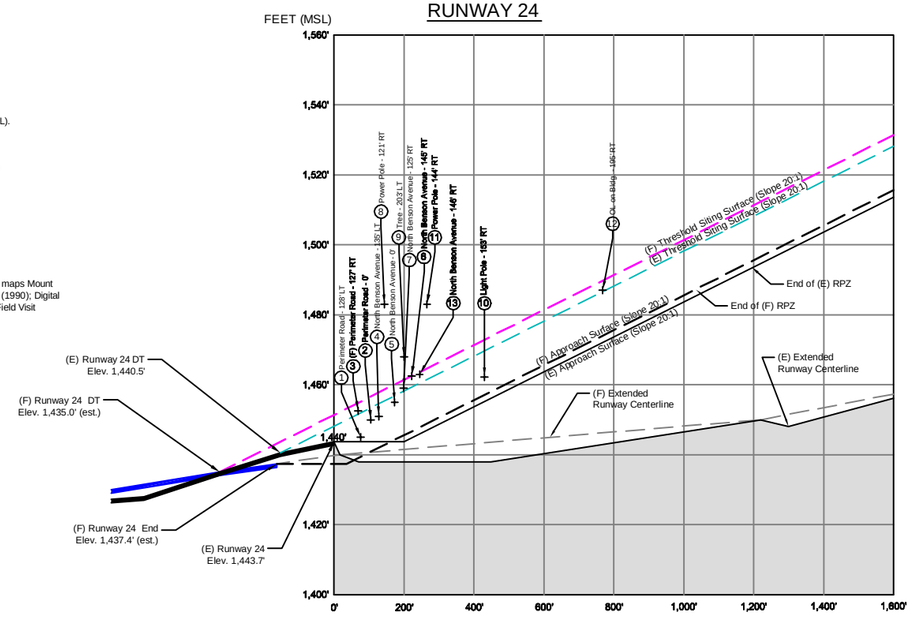
SCALE: HORIZONTAL 1" = 200'
VERTICAL: 1" = 20'

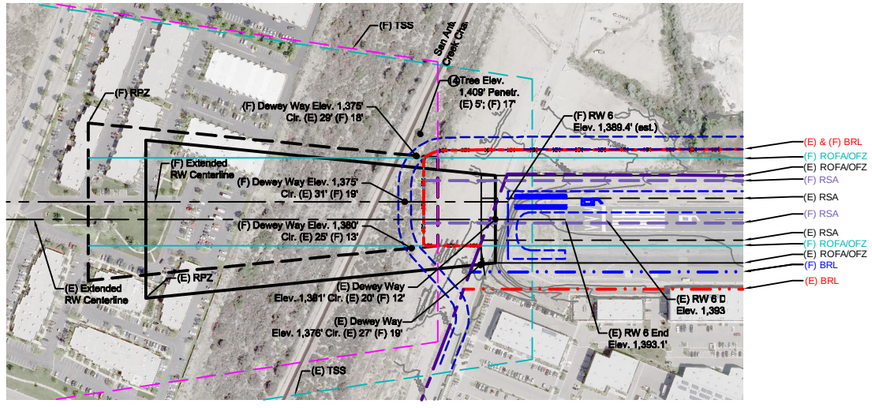
NOTES:

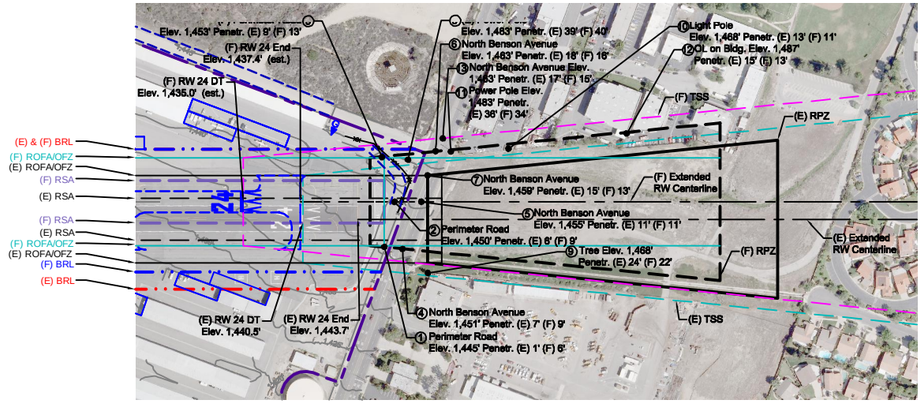
1. All elevations are in feet above mean sea level (MSL).
2. All future elevations are estimated.
3. A field visit was conducted in February 2011 to confirm the existence of objects and estimate their elevation. An obstruction survey is required prior to the runway relocation and threshold siting.

Source of data for object elevations and locations: USGS maps Mount Baldy (1988) and Ontario (1988); Obstruction Data Sheet (1990); Digital Obstacle File (2009); Topographical Survey (2009); and Field Visit (February 2011).

Date of Aerial Photo: 2009







LEGEND		
DESCRIPTION	**EXISTING**	**FUTURE**
AIRPORT BOUNDARY		
BUILDING RESTRICTION LINE (BRL)		
RUNWAY OBJECT FREE AREA (ROFA)/ OBSTACLE FREE ZONE (OFZ)		
RUNWAY SAFETY AREA (RSA)		
RUNWAY PROTECTION ZONE (RPZ)		
EXTENDED RUNWAY CENTERLINE		SAME
GROUND CONTOURS	1,400'	SAME
THRESHOLD SITING SURFACE		
ROAD		

THRESHOLD SITING SURFACE PENETRATIONS - RUNWAY 24

OBS. No.	DESCRIPTION	ELEVATION	(E) PENETR.	(F) PENETR.	PROPOSED ACTION
7	NORTH BENSON AVENUE	1,459'	1'	-2'	RELOCATE RUNWAY
8	POWER POLE	1,483'	NA	25'	TO BE REMOVED
9	TREE	1,468'	9'	NA	TRIM/REMOVE
10	LIGHT POLE	1,468'	NA	3'	TO BE RELOCATED/SHORTENED
11	POWER POLE	1,483'	NA	18'	TO BE RELOCATED

THRESHOLD SITING SURFACE PENETRATIONS - RUNWAY 6

OBS. No.	DESCRIPTION	ELEVATION	(E) PENETR.	(F) PENETR.	PROPOSED ACTION
14	TREE	1,409'	-1'	17'	TRIM/REMOVE

PART 77 OBSTRUCTION IDENTIFICATION TABLE - RUNWAY 6

OBS. No.	DESCRIPTION	ELEVATION	(E) PENETR.	(F) PENETR.	PROPOSED ACTION
14	TREE	1,409'	5'	17'	TRIM/REMOVE

PART 77 OBSTRUCTION IDENTIFICATION TABLE - RUNWAY 24

OBS. No.	DESCRIPTION	ELEVATION	(E) PENETR.	(F) PENETR.	PROPOSED ACTION
1	PERIMETER ROAD	1,445'	1'	6'	RELOCATE RUNWAY/TO REMAIN
2	PERIMETER ROAD	1,450'	6'	9'	RELOCATE RUNWAY/TO REMAIN
3	(F) PERIMETER ROAD	1,453'	9'	13'	RELOCATE RUNWAY/TO REMAIN
4	NORTH BENSON AVENUE	1,451'	7'	9'	RELOCATE RUNWAY/TO REMAIN
5	NORTH BENSON AVENUE	1,455'	11'	11'	RELOCATE RUNWAY/TO REMAIN
6	NORTH BENSON AVENUE	1,463'	18'	16'	RELOCATE RUNWAY/TO REMAIN
7	NORTH BENSON AVENUE	1,459'	15'	13'	RELOCATE RUNWAY/TO REMAIN
8	POWER POLE	1,483'	39'	40'	TO BE REMOVED
9	TREE	1,468'	24'	22'	TRIM/REMOVE
10	LIGHT POLE	1,468'	13'	11'	TO BE RELOCATED/SHORTENED
11	POWER POLE	1,455'	36'	34'	TO BE RELOCATED
12	OL ON BUILDING	1,487'	15'	13'	TO REMAIN
13	NORTH BENSON AVENUE	1,463'	17'	15'	RELOCATE RUNWAY/TO REMAIN

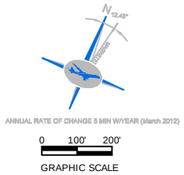


Figure 7-4
Inner Portion of the Approach Surface Plan

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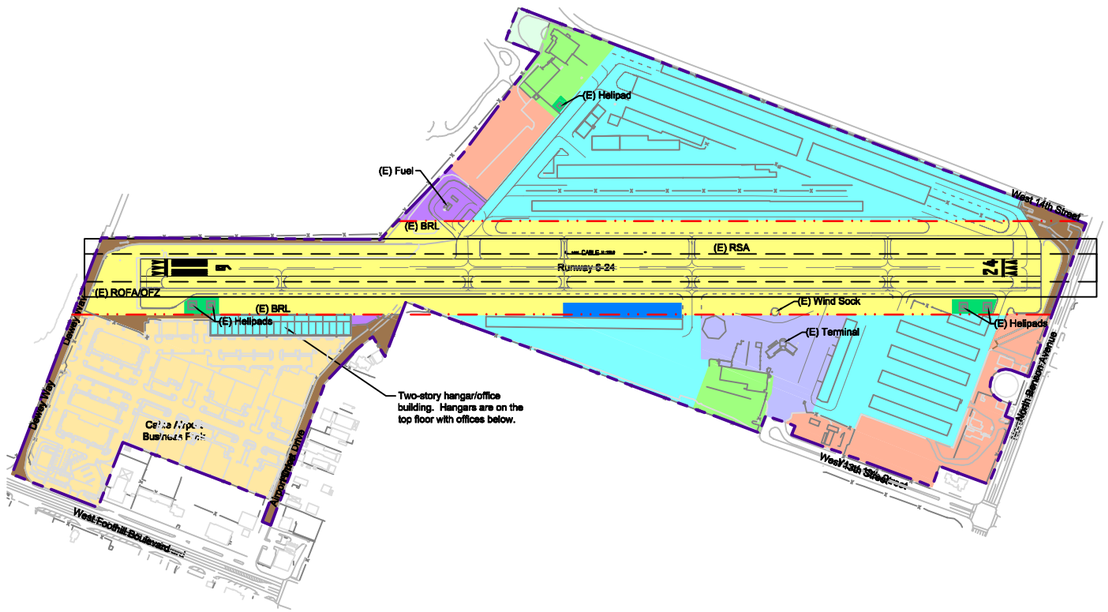
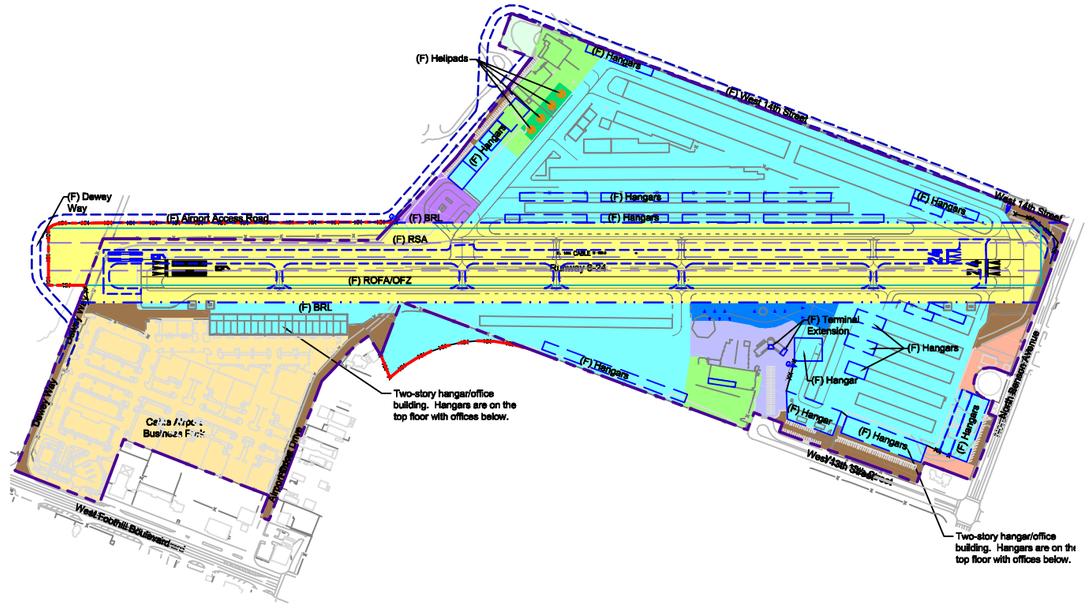
LEGEND	
DESCRIPTION	**SYMBOL**
AIRCRAFT OPERATING AREA	
CABLE AIRPORT BUSINESS PARK	
BASED AIRCRAFT STORAGE	
TERMINAL OPERATING AREA	
TRANSIENT AIRCRAFT	
HELICOPTER OPERATING AREA	
AIRCRAFT MAINTENANCE	
AIRPORT SUPPORT	
AVIATION RELATED REVENUE SUPPORT	
NON-AVIATION RELATED REVENUE SUPPORT	
OTHER/ROADS	
EXISTING PROPERTY LINE	
FUTURE PROPERTY LINE	

NOTES:

1. Future land uses are based on future construction. Changes will occur as future development occurs.



EXISTING



FUTURE

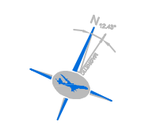


Figure 7-5
On-Airport Land Use Plan

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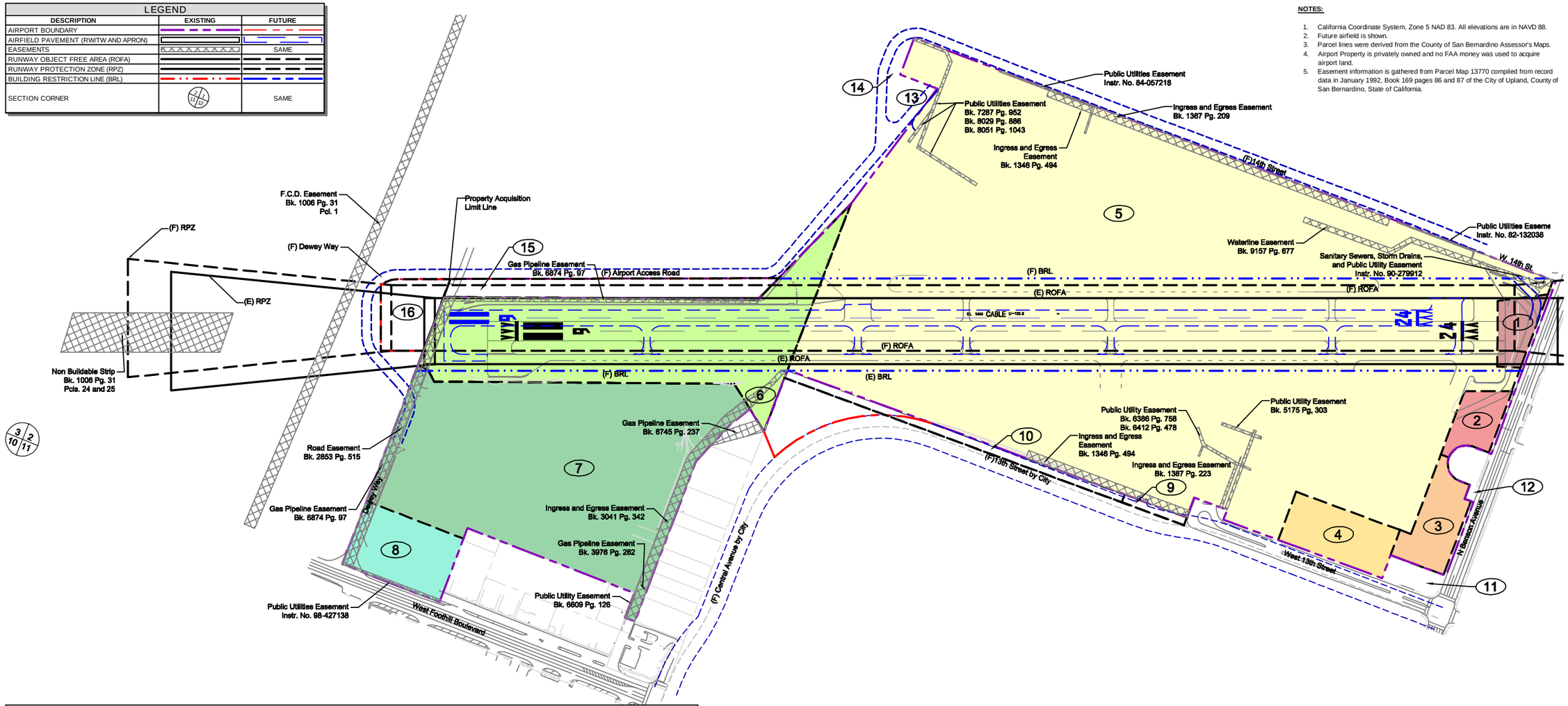
LEGEND		
DESCRIPTION	EXISTING	FUTURE
AIRPORT BOUNDARY		
AIRFIELD PAVEMENT (RW/TW AND APRON)		
EASEMENTS		SAME
RUNWAY OBJECT FREE AREA (ROFA)		
RUNWAY PROTECTION ZONE (RPZ)		
BUILDING RESTRICTION LINE (BRL)		
SECTION CORNER		SAME

NOTES:

1. California Coordinate System, Zone 5 NAD 83. All elevations are in NAVD 88.
2. Future airfield is shown.
3. Parcel lines were derived from the County of San Bernardino Assessor's Maps.
4. Airport Property is privately owned and no FAA money was used to acquire airport land.
5. Easement information is gathered from Parcel Map 13770 compiled from record data in January 1992, Book 169 pages 86 and 87 of the City of Upland, County of San Bernardino, State of California.



PROPERTY TABLE								
#	TYPE OF INTEREST	GRANTOR	GRANTEE	BOOK/PAGE	PARCEL	ACREAGE	DATE OF RECORDING	COMMENTS
1	FEE	UNKNOWN	CABLE LAND COMPANY	1006/351	26	0.84	UNKNOWN	UNKNOWN
2	FEE	UNKNOWN	CABLE LAND COMPANY	1006/351	25	0.93	UNKNOWN	UNKNOWN
3	FEE	UNKNOWN	CABLE LAND COMPANY	1006/351	24	1.52	UNKNOWN	UNKNOWN
4	FEE	UNKNOWN	CABLE LAND COMPANY	1006/351	23	1.88	UNKNOWN	UNKNOWN
5	FEE	UNKNOWN	CABLE LAND COMPANY	1006/351	27	71.56	UNKNOWN	UNKNOWN
6	FEE	UNKNOWN	CABLE LAND COMPANY	1006/331	33	11.98	UNKNOWN	UNKNOWN
7	FEE	CABLE DEVELOPMENT	CABLE LAND COMPANY	1006/331	37	18.15	UNKNOWN	UNKNOWN
8	FEE	CABLE FF	CABLE LAND COMPANY	1006/331	35	1.89	UNKNOWN	UNKNOWN
9	FEE	BONGIOVANNI CONSTRUCTION CO.	CABLE LAND COMPANY	1006/351	09	0.18*	FUTURE	TO BE ACQUIRED IN FEE
10	FEE	BONGIOVANNI CONSTRUCTION CO.	CABLE LAND COMPANY	1006/351	10	1.00	FUTURE	TO BE ACQUIRED IN FEE
11	FEE	CAIRRAO FAMILY TRUST	CABLE LAND COMPANY	1006/351	07	0.48*	FUTURE	TO BE ACQUIRED IN FEE
12	FEE	MOLLEN, PATRICIA M	CABLE LAND COMPANY	1006/351	04	0.05*	FUTURE	TO BE ACQUIRED IN FEE
13	FEE	HOLLIDAY MARITAL ESTATE/BUBIR, PEGGY A.	CABLE LAND COMPANY	1006/351	12	0.45	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE
14	FEE	HOLLIDAY ROCK CO.	CABLE LAND COMPANY	1006/331	14	0.24	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE
15	FEE	HOLLIDAY FAMILY TRUST/BUBIER, PEGGY A.	CABLE LAND COMPANY	1006/331	13	2.09	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE
16	FEE	HOLLIDAY MARITAL ESTATE TRUST	CABLE LAND COMPANY	1006/311	03	1.32	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE
17	FEE	BONGIOVANNI CONSTRUCTION CO.	CABLE LAND COMPANY	1006/551	12	18.18	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE
18	FEE	BONGIOVANNI CONSTRUCTION CO.	CABLE LAND COMPANY	1006/551	22	7.82	FUTURE	PORTION OF PARCEL TO BE ACQUIRED IN FEE

* ACREAGE IS CALCULATED

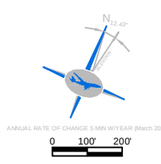


Figure 7-6
Exhibit "A" - Property Map

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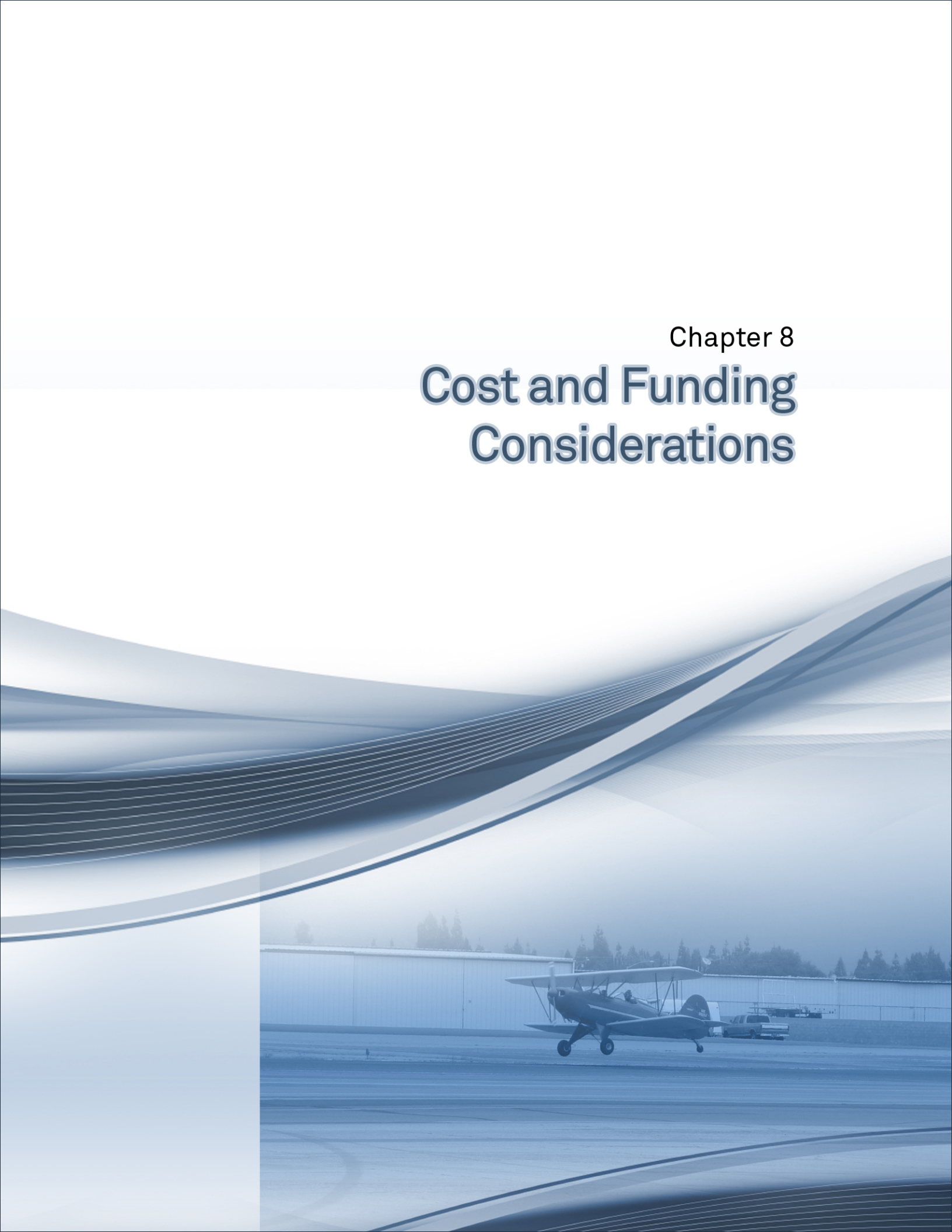
Chapter 8

Cost and Funding Considerations





Chapter 8
Cost and Funding Considerations

INTRODUCTION

This chapter contains an overview of cost and funding considerations that support the implementation of the Cable Airport Master Plan capital improvements. It identifies the estimated capital costs and sequencing of the proposed development, and describes the funding plan to implement the planned improvements. The funding plan consists of two basic elements – the capital improvement costs associated with recommended development and the staging of development and improvement costs. Consistent with the rest of this study, the aviation development costs were shown for three phases of development: Phase 1 (2011 – 2015), Phase 2 (2016 – 2020), and Phase 3 (2021 – 2030). Although airport improvements are planned according to these phases, development at the airport will not occur unless needed to accommodate aviation demand or in the case of the older hangars at the time when continued use is not feasible. Construction could happen earlier or later than shown here, depending on future needs and the availability of FAA grants and other sources of funding.

CAPITAL COST ESTIMATES AND PHASING

Tables 8-1 through 8-3 present the estimated schedule of improvements by phase. Costs are shown in constant 2011 dollars. These costs were developed based on recent construction costs at similar airports, contacting suppliers, and construction experience on recent projects.

The following conditions and assumptions apply to the cost estimates:

- Project costs include estimated architectural and engineering design fees, mobilization, and contingency allowances. Mobilization and contingency allowances are 30 percent and architectural/engineering allowances are 20 percent of project cost.

- Due to the fact that property acquisitions noted in this study involve private parties, property acquisition costs are order-of-magnitude planning estimates and are made without the benefit of appraisals. The acquisition costs shown do not represent estimates of true market value or purchase offers by the owners, but an estimated constant per area acquisition cost. It is anticipated that property acquisition costs may be inflated because of demand pricing.

- New runway, taxiway, and apron pavement will be 4 inches of bituminous asphalt over 8 inches of crushed aggregate base.

- Proposed hangar construction will include building construction, permits and fees, utilities, and fire sprinklers, bi-fold doors and tenant improvements.

- Utilities for new hangar construction include: all water mains (including the ones to meet fire demands such as fire sprinklers), sewer mains, and storm drains that will be outside of the reconstruction footprint.

- Gate costs include the cost and installation of keyed entry automatic gates.

- Runway and taxiway lighting costs include: conduit, cable/wire, light fixtures, and base cans.

As seen in Table 8-1, Phase 1 improvements total $26.1 million and focus on constructing individual, large box and maintenance hangars, and acquiring property. Approximately 78 percent of Phase 1 costs are related to hangar construction.

Phase 2 totals approximately $1.6 million and focuses on additional construction of individual hangars (42 percent). In addition, the terminal will be expanded and transient tie-downs relocated. Phase 2 projects also include the reconfiguration of the 14th Street entrance, relocation of the Perimeter Road, relocation of two helipads and rehabilitation apron.

The total cost for Phase 3 is approximately $38 million. This phase focuses on hangar construction (74 percent) and the relocation of the runway and taxiways (14 percent). Additional property acquisition is recommended both in the long-term and as needed, which represents approximately 7 percent of Phase 3 costs ($2.7 million). Figures 8-1 through 8-3 identify the recommended improvements in each of the three development phases. The figures depict the location of each project along with the funding source.

The total cost attributed to proposed projects within the planning period total approximately $66 million. More than two thirds of that cost is associated with hangar construction ($45.1 million) and approximately 10 percent is due to land acquisition ($6.5 million).

It is important to remember that the real determinant of the specific timing of demand-related improvements (capacity oriented) is the actual traffic experienced. Therefore, the schedule presented does not commit the airport to provide such development until traffic levels reach those projected in this study.

FUNDING SOURCES

Funding sources available to finance the master plan capital improvement program (CIP) include: the FAA's Airport Improvement Program (AIP), private capital, and airport revenues.

FAA Airport Improvement Program (AIP)

On the federal level, the FAA's Aid to Airports Program provides funding for planning, construction, or rehabilitation at any public airport. The current grant program, known as the AIP, was established by the Airport and Airway Improvement Act of 1982 and amended most recently by the FAA Modernization and Reform Act of 2012. Prior to the FAA Modernization and Reform Act of 2012, the program was administered under the Vision 100 – Century of Aviation Reauthorization Act of 2003 and ended on September 30, 2007. Between the current act and the previous one, a series of short term extensions (over 20) authorized the FAA to continue operations and provide grant funding to airports.

The AIP provides funding from the Airport and Airway Trust Fund for airport development, airport planning, noise compatibility planning and to carrying out noise compatibility programs. The Trust Fund provides the revenues used to fund AIP projects. The Trust Fund concept guarantees a stable funding source whereby users pay for the services they receive. Taxes or user fees are collected from the various segments of the aviation community and placed in the Trust Fund.

Table 8-1
SUMMARY OF PHASE 1 IMPROVEMENTS (2011 Dollars)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 1 (2011 - 2015)					
1	**Acquire Bongiovanni Property - 1.6 Acres**					**2011**
	a. Acquire Bongiovanni Property	1.6	AC	$871,200.00	$1,393,920	
	b. Remove Existing Perimeter Fence	570	LF	$12.00	$6,840	
	c. Install New Perimeter Fence	750	LF	$35.00	$26,250	
	Sub Total				$1,427,010	
	d. Design and Engineering				$7,000	
	e. Construction Management / Contingency				$219,015	
	Total Project				**$1,653,025**	
2	**Install SuperAWOS**					**2011**
	a. Purchase SuperAWOS	1	LS	$30,000.00	$30,000	
	b. Install SuperAWOS	1	LS	$10,000.00	$10,000	
	Sub Total				$40,000	
	c. Design and Engineering				$8,000	
	d. Construction Management / Contingency				$12,000	
	Total Project				**$60,000**	
3	**Acquire Holliday Rock Property - 2.1 acres**					**2011**
	a. Acquire Holliday Rock Property	2.1	AC	$871,200.00	$1,829,520	
	Sub Total				$1,829,520	
	b. Contingency				$274,428	
	Total Project				**$2,103,948**	
4	**Close Taxiway B and Apply Declared Distances**					**2012**
	a. Remove Paint	5,520	SF	$4.50	$24,840	
	b. Remove Signs	3	EA	$500.00	$1,500	
	c. Slurry Seal	139,900	SF	$1.00	$139,900	
	d. Paint TW Edge Striping	2,330	SF	$2.50	$5,825	
	e. Issue NOTAMs and Update Diagrams	1	LS	$5,000.00	$5,000	
	Sub Total				$177,065	
	f. Design and Engineering				$36,000	
	g. Construction Management / Contingency				$54,000	
	Total Project				**$267,065**	
5	**Remove Shade Hangars**					**2012**
	a. Remove Shade Hangars	60,600	SF	$2.50	$151,500	
	Sub Total				$151,500	
	b. Design and Engineering				$31,000	
	c. Construction Management / Contingency				$46,000	
	Total Project				**$228,500**	
6	**Relocate Airport Access Road**					**2012**
	a. Demolish Existing Road	27,000	SF	$1.25	$33,750	
	b. Remove Existing Fence	200	LF	$12.00	$2,400	
	c. Relocate Access Gate	1	LS	$50,000.00	$50,000	
	d. AC Road	80,000	SF	$4.00	$320,000	
	e. PCC Curb	4,500	LF	$25.00	$112,500	
	f. Import Fill	18,500	CY	$18.00	$333,000	
	Sub Total				$851,650	
	g. Design and Engineering				$171,000	
	h. Construction Management / Contingency				$256,000	
	Total Project				**$1,278,650**	

Table 8-1
SUMMARY OF PHASE 1 IMPROVEMENTS (2011 Dollars)
(continued)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 1 (2011 - 2015)					
7	**Construct Individual Hangars**					**2013**
	a. Construct AC	60,600	SF	$5.00	$303,000	
	b. New hangars A1, A2, B1, B2, C1, C2, D1, D2,D3	95,600	SF	$60.00	$5,736,000	
	c. Remove AC	237,000	SF	$1.25	$296,250	
	d. Replace AC	141,400	SF	$5.00	$707,000	
	e. Construct Utilities (Water, Sewer, Electricity, Telephone)	1	LS	$300,000.00	$300,000	
	f. Extend Hangar 10B	4,800	SF	$60.00	$288,000	
	g. Remove AC	15,100	SF	$1.25	$18,875	
	h. Replace AC	10,300	SF	$5.00	$51,500	
	i. Extend Hangar 21	16,500	SF	$60.00	$990,000	
	j. Remove AC	21,500	SF	$1.25	$26,875	
	k. Replace AC	5,000	SF	$5.00	$25,000	
	l. Extend Hangar 20	11,100	SF	$60.00	$666,000	
	m. Remove AC	28,200	SF	$1.25	$35,250	
	n. Replace AC	17,100	SF	$5.00	$85,500	
	o. New Hangar at South Property Line	22,000	SF	$60.00	$1,320,000	
	p. Remove AC	25,000	SF	$1.25	$31,250	
	q. Replace AC	3,400	SF	$5.00	$17,000	
	Sub Total				$10,897,500	
	r. Design and Engineering				$2,180,000	
	s. Construction Management / Contingency				$3,270,000	
	Total Project				**$16,347,500**	
8	**Remove T-Hangars**					**2013**
	a. Remove T-Hangars	17,900	SF	$3.00	$53,700	
	Sub Total				$53,700	
	b. Design and Engineering				$11,000	
	c. Construction Management / Contingency				$17,000	
	Total Project				**$81,700**	
9	**Construct Maintenance Hangar**					**2014**
	a. Construct Maintenance Hangar	12,000	SF	$85.00	$1,020,000	
	b. AC Apron Rehabilitate	160,200	SF	$3.00	$480,600	
	c. Construct Hangar Utilities	1	LS	$150,000.00	$150,000	
	Sub Total				$1,650,600	
	d. Design and Engineering				$331,000	
	e. Construction Management / Contingency				$364,000	
	Total Project				**$2,345,600**	
10	**Remove Maintenance Hangar**					**2015**
	a. Remove Maintenance Hangar	7,500	SF	$4.00	$30,000	
	Sub Total				$30,000	
	b. Design and Engineering				$6,000	
	c. Construction Management / Contingency				$9,000	
	Total Project				**$45,000**	
11	**Construct Large Box Hangar**					**2015**
	a. Construct Large Box Hangar	10,000	SF	$85.00	$850,000	
	b. AC Apron	11,000	SF	$5.00	$55,000	
	c. AC Parking Lot and Striping	6,500	SF	$4.00	$26,000	
	d. Construct Utilities (Water, Sewer, Electricity, Telephone)	1	LS	$120,000.00	$120,000	
	e. PCC Lighted Helipads	2	EA	$40,000.00	$80,000	
	Sub Total				$1,131,000	
	f. Design and Engineering				$227,000	
	g. Construction Management / Contingency				$340,000	
	Total Project				**$1,698,000**	
	Phase 1 Total				**$26,108,988**	

Table 8-2
SUMMARY OF PHASE 2 IMPROVEMENTS (2011 Dollars)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 2 (2016 - 2020)					
12	**Relocate Helipad on North and Rehabilitate Apron**					**2016**
	a. PCC Lighted Helipads	2	EA	$40,000.00	$80,000	
	b. AC Apron	5,400	SF	$3.00	$16,200	
	c. Retaining Wall	170	LF	$80.00	$13,600	
	Sub Total				$109,800	
	d. Design and Engineering				$22,000	
	e. Construction Management / Contingency				$33,000	
	Total Project				**$164,800**	
13	**Construct Individual Hangars**					**2017**
	a. Extend Hangar 10C	7,200	SF	$60.00	$432,000	
	b. Stripe Taxilane	200	SF	$2.50	$500	
	Sub Total				$432,500	
	c. Design and Engineering				$87,000	
	d. Construction Management / Contingency				$130,000	
	Total Project				**$649,500**	
14	**Expand Terminal**					**2018**
	a. East Wing Expansions (1-Story)	530	SF	$160.00	$84,800	
	b. Main Building Expansion (2-Story)	390	SF	$300.00	$117,000	
	Sub Total				$201,800	
	d. Design and Engineering				$41,000	
	e. Construction Management / Contingency				$61,000	
	Total Project				**$303,800**	
15	**Reconfigure 14th Street Entrance and Relocate Perimeter Road**					**2020**
	a. Remove AC Perimeter Road	3,300	SF	$1.25	$4,125	
	b. Replace AC Perimeter Road	5,700	CY	$4.00	$22,800	
	c. Remove Viewing Area	10,800	LF	$1.50	$16,200	
	d. Relocate Gate	1	LF	$50,000.00	$50,000	
	e. Install Perimeter Fence	340	LF	$35.00	$11,900	
	f. Place New Landscaping	2,100	EA	$2.00	$4,200	
	Sub Total				$109,225	
	g. Design and Engineering				$22,000	
	h. Construction Management / Contingency				$33,000	
	Total Project				**$164,225**	
16	**Relocate Transient Tie-downs**					**2020**
	a. Rehabilitiate AC Apron	56,700	SF	$3.00	$170,100	
	b. Install Tie-downs	11	EA	$1,250.00	$13,750	
	Sub Total				$183,850	
	c. Design and Engineering				$37,000	
	d. Construction Management / Contingency				$56,000	
	Total Project				**$276,850**	
	Phase 2 Total				**$1,559,175**	

Table 8-3
SUMMARY OF PHASE 3 IMPROVEMENTS (2011 Dollars)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
17	**Construct Large Box Hangars**					**Long-Term**
	a. Construct Large Box Hangars	8,400	SF	$85.00	$714,000	
	b. Rehabilitiate AC Apron	9,900	SF	$3.00	$29,700	
	c. AC Parking Lot and Striping	6,000	SF	$4.00	$24,000	
	Sub Total				$767,700	
	d. Design and Engineering				$154,000	
	e. Construction Management / Contingency				$231,000	
	Total Project				**$1,152,700**	
18	**Expand FBO Hangar**					**Long-Term**
	a. Expand FBO Hangar	2,800	SF	$85.00	$238,000	
	b. Rehabilitiate AC Apron	45,000	SF	$3.00	$135,000	
	Sub Total				$373,000	
	c. Design and Engineering				$75,000	
	d. Construction Management / Contingency				$112,000	
	Total Project				**$560,000**	
19	**Demolish Terminal Area Buildings**					**Long-Term**
	a. Demolish Terminal Area Buildings	4,200	SF	$4.00	$16,800	
	Sub Total				$16,800	
	b. Design and Engineering				$4,000	
	c. Construction Management / Contingency				$6,000	
	Total Project				**$26,800**	
20	**Construct Large Box Hangar and Relocate Airport Beacon**					**Long-Term**
	a. Relocate Airport Beacon	1	LS	$45,000.00	$45,000	
	b. Construct Large Box Hangar (2-Story)	26,500	SF	$170.00	$4,505,000	
	c. Install Perimeter Fence	137	LF	$35.00	$4,795	
	d. Relocate Gate	1	LS	$50,000.00	$50,000	
	e. Relocate Restaurant	1	LS	$20,000.00	$20,000	
	f. Rough Grading	27,000	SF	$0.50	$13,500	
	Sub Total				$4,638,295	
	g. Design and Engineering				$928,000	
	h. Construction Management / Contingency				$1,392,000	
	Total Project				**$6,958,295**	
21	**Expand Terminal Auto Parking**					**Long-Term**
	a. AC Parking Lot and Striping	12,600	SF	$4.00	$50,400	
	b. Reconfigure Existing AC Parking Lot and Striping	27,000	SF	$0.50	$13,500	
	c. Slurry Seal Existing Parking Lot	27,000	SF	$1.00	$27,000	
	Sub Total				$90,900	
	d. Design and Engineering				$19,000	
	e. Construction Management / Contingency				$28,000	
	Total Project				**$137,900**	
22	**Acquire Holliday Rock Property - 1.3 Acres**					**Long-Term**
	a. Acquire Holliday Rock Property	1.3	AC	$871,200.00	$1,133,000	
	b. Remove Existing Perimeter Fence	460	LF	$12.00	$5,520	
	c. Install New Perimeter Fence	2,100	LF	$35.00	$73,500	
	Sub Total				$1,212,020	
	d. Design and Engineering				$16,000	
	e. Construction Management / Contingency				$194,000	
	Total Project				**$1,422,020**	

Table 8-3
SUMMARY OF PHASE 3 IMPROVEMENTS (2011 Dollars)
(continued)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
23	**Relocate Dewey Way**					**Long-Term**
	a. AC Road	33,500	SF	$4.00	$134,000	
	b. PCC Curb	1,900	LF	$25.00	$47,500	
	c. Storm Drain and Other Utilities	1	LS	$120,000.00	$120,000	
	d. Fill	1,000	CY	$18.00	$18,000	
	Sub Total				$319,500	
	e. Design and Engineering				$64,000	
	f. Construction Management / Contingency				$96,000	
	Total Project				**$479,500**	
24	**Translate and Relocate Runway and Taxiways**					**Long-Term**
	a. Remove Runway 6-24	258,000	SF	$2.00	$516,000	
	b. Remove AC in Future Location	154,200	SF	$1.25	$192,750	
	c. Reconstruct Runway 6-24	231,900	SF	$5.00	$1,159,500	
	d. Construct Taxiway Extentions	34,900	SF	$5.00	$174,500	
	e. New Striping	28,600	SF	$2.50	$71,500	
	f. New Signage	33	EA	$4,000.00	$132,000	
	g. New Runway Lighting	7,900	LF	$10.00	$79,000	
	h. New Runway Lights	1	LS	$52,000.00	$52,000	
	i. New Taxiway Lighting	6,200	LF	$15.00	$93,000	
	j. New Taxiway Lights	1	LS	$100,000.00	$100,000	
	k. New VASIs	2	LS	$25,000.00	$50,000	
	l. New Vault Building (incl. Generator)	1	LS	$250,000.00	$250,000	
	m. Construct Retaining Wall	990	LF	$80.00	$79,200	
	n. Import Fill	33,000	CY	$18.00	$594,000	
	Sub Total				$3,543,450	
	o. Design and Engineering				$709,000	
	p. Construction Management / Contingency				$1,064,000	
	Total Project				**$5,316,450**	
25	**Recertify Approaches**					**Long-Term**
	a. Recertify Non-Precision Approaches	1	LS	$10,000.00	$10,000	
	Sub Total				$10,000	
	b. Design and Engineering				$2,000	
	c. Construction Management / Contingency				$3,000	
	Total				**$15,000**	
26	**Construct Individual Hangars**					**Long-Term**
	a. Extend Hangar 10D	7,200	SF	$60.00	$432,000	
	b. Extend Hangar 10E	4,700	SF	$60.00	$282,000	
	c. Remove Existing AC Pavement	11,900	SF	$1.25	$14,875	
	Sub Total				$728,875	
	d. Design and Engineering				$146,000	
	e. Construction Management / Contingency				$219,000	
	Total				**$1,093,875**	

Table 8-3
SUMMARY OF PHASE 3 IMPROVEMENTS (2011 Dollars)
(continued)

Project		Quantity	Unit	Unit Cost	Total Cost	Timing
	Phase 3 (2021 - 2030)					
27	**Construct Additional Large Box Hangars**					**Long-Term/As needed**
	a. New Hangar 1	6,400	SF	$85.00	$544,000	
	b. New Hangar 2	8,000	SF	$85.00	$680,000	
	c. AC Apron Repair	14,400	SF	$3.00	$43,200	
	d. AC Parking Lot and Striping	10,800	SF	$4.00	$43,200	
	e. New Hangar 3 - 2-Story (on 13th)	30,000	SF	$170.00	$5,100,000	
	f. New AC Apron	14,350	SF	$5.00	$71,750	
	g. New AC Parking Lot and Striping	31,500	SF	$4.00	$126,000	
	h. Install Perimeter Fence	32	LF	$35.00	$1,120	
	Sub Total				$6,609,270	
	i. Design and Engineering				$1,322,000	
	f. Construction Management / Contingency				$1,983,000	
	Total				**$9,914,270**	
28	**Acquire Additional Land - 1.3 acres (Total)**					**Long-Term/As needed**
	a. Acquire Additional Land	1.3	AC	$871,200.00	$1,132,600	
	Sub Total				$1,132,600	
	b. Contingency				$170,000	
	Total				**$1,302,600**	
29	**Construct North Side Road**					**Long-Term/As needed**
	a. AC Road	104,400	SF	$4.00	$417,600	
	b. PCC Curb	5,800	LF	$25.00	$145,000	
	c. Fill	1,000	CY	$18.00	$18,000	
	Sub Total				$580,600	
	d. Design and Engineering				$117,000	
	e. Construction Management / Contingency				$175,000	
	Total				**$872,600**	
30	**Construct Benson Hangar**					**Long-Term/As needed**
	a. New Hangar 4 - 2-Story (on Benson)	23,000	SF	$170.00	$3,910,000	
	b. New AC Apron	1,400	SF	$5.00	$7,000	
	c. New AC Parking Lot and Striping	15,300	SF	$4.00	$61,200	
	d. Install Perimeter Fence	108	LF	$35.00	$3,780	
	e. PCC Driveway	600	SF	$20.00	$12,000	
	f. Connect to Utilities in Benson Ave	1	LS	$50,000.00	$50,000	
	Sub Total				$4,043,980	
	g. Design and Engineering				$809,000	
	h. Construction Management / Contingency				$1,214,000	
	Total				**$6,066,980**	
31	**Rehabilitate or Reconstruct Hangars 40 and 42**					**Long-Term/As needed**
	a. Construct Paint Hangar	12,000	SF	$85.00	$1,020,000	
	b. Construct Upholstery Hangar	9,700	SF	$85.00	$824,500	
	c. AC Apron Repair	26,700	SF	$6.25	$166,875	
	Sub Total				$2,011,375	
	d. Design and Engineering				$403,000	
	e. Construction Management / Contingency				$604,000	
	Total				**$3,018,375**	
	Long-term Projects				$17,162,540	
	Long-term/As Needed Projects				$21,174,825	
	Phase 3 Total				**$38,337,365**	
	Total All Phases				**$66,005,528**	

PHASE 1 (2010 - 2015)

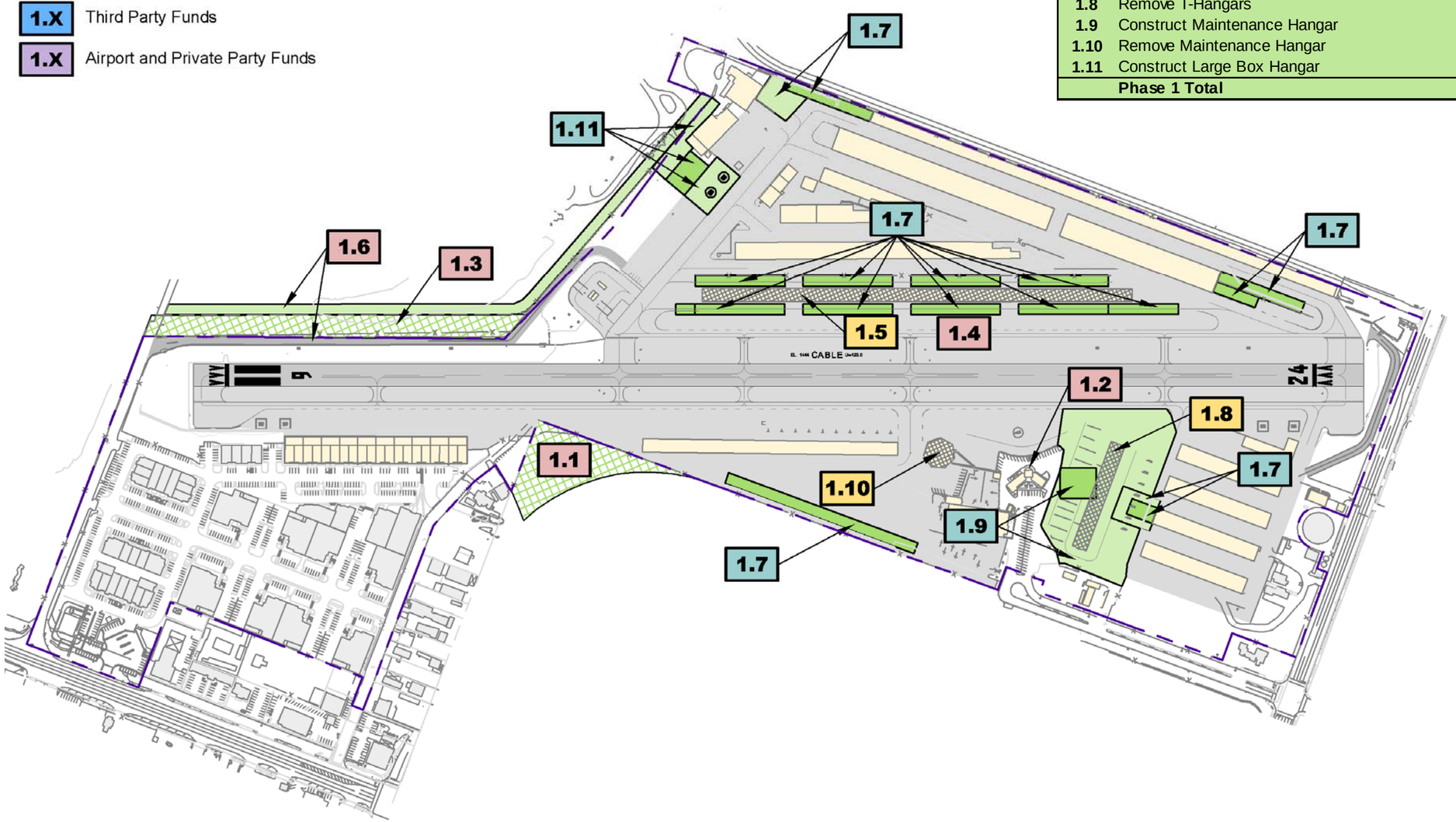
FUNDING SOURCES KEY

- 1.X FAA and Airport Funds
- 1.X Airport Funds
- 1.X FAA, Airport, and Private Party Funds
- 1.X Third Party Funds
- 1.X Airport and Private Party Funds

LEGEND

- Future Buildings
- Future Pavement (Airfield and Roads)
- Future Land Acquisition

Scale: 1" = 400'



	Project	Airport Cost	Project Cost	Timing
	Phase 1 (2011 - 2015)			
1.1	Acquire Bongiovanni Property - 1.6 Acres	$ 82,651	$ 1,653,025	2011
1.2	Install SuperAWOS	$ 3,000	$ 60,000	2011
1.3	Acquire Holliday Rock Property - 2.1 acres	$ 105,197	$ 2,103,948	2011
1.4	Close Taxiway B and Apply Declared Distances	$ 13,353	$ 267,065	2012
1.5	Remove Shade Hangars	$ 228,500	$ 228,500	2012
1.6	Relocate Airport Access Road	$ 63,933	$ 1,278,650	2012
1.7	Construct Individual Hangars	$ 45,228	$ 16,347,500	2013
1.8	Remove T-Hangars	$ 81,700	$ 81,700	2013
1.9	Construct Maintenance Hangar	$ 34,148	$ 2,345,600	2014
1.10	Remove Maintenance Hangar	$ 45,000	$ 45,000	2015
1.11	Construct Large Box Hangar	$ 21,094	$ 1,698,000	2015
	Phase 1 Total	**$ 723,805**	**$ 26,108,988**	

Figure 8-1
Phase 1 Improvements

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PHASE 2 (2016 - 2020)

FUNDING SOURCES KEY

- **2.X** FAA and Airport Funds
- **2.X** Airport Funds
- **2.X** FAA, Airport, and Private Party Funds
- **2.X** Third Party Funds
- **2.X** Airport and Private Party Funds

LEGEND

- Future Buildings
- Future Pavement (Airfield and Road)
- Future Land Acquisition

Scale: 1" = 400'

	Project	Airport Cost	Project Cost	Timing
	Phase 2 (2016 - 2020)			
2.1	Relocate Helipad on North and Rehabilitate Apron	$ 16,480	$ 164,800	2016
2.2	Construct Individual Hangars	$ 649,500	$ 649,500	2017
2.3	Expand Terminal	$ 103,800	$ 303,800	2018
2.4	Reconfigure 14th Street Entrance and Relocate Perimeter Road	$ 44,028	$ 164,225	2020
2.5	Relocate Transient Tie-downs	$ 27,685	$ 276,850	2020
	Phase 2 Total	**$ 841,493**	**$ 1,559,175**	

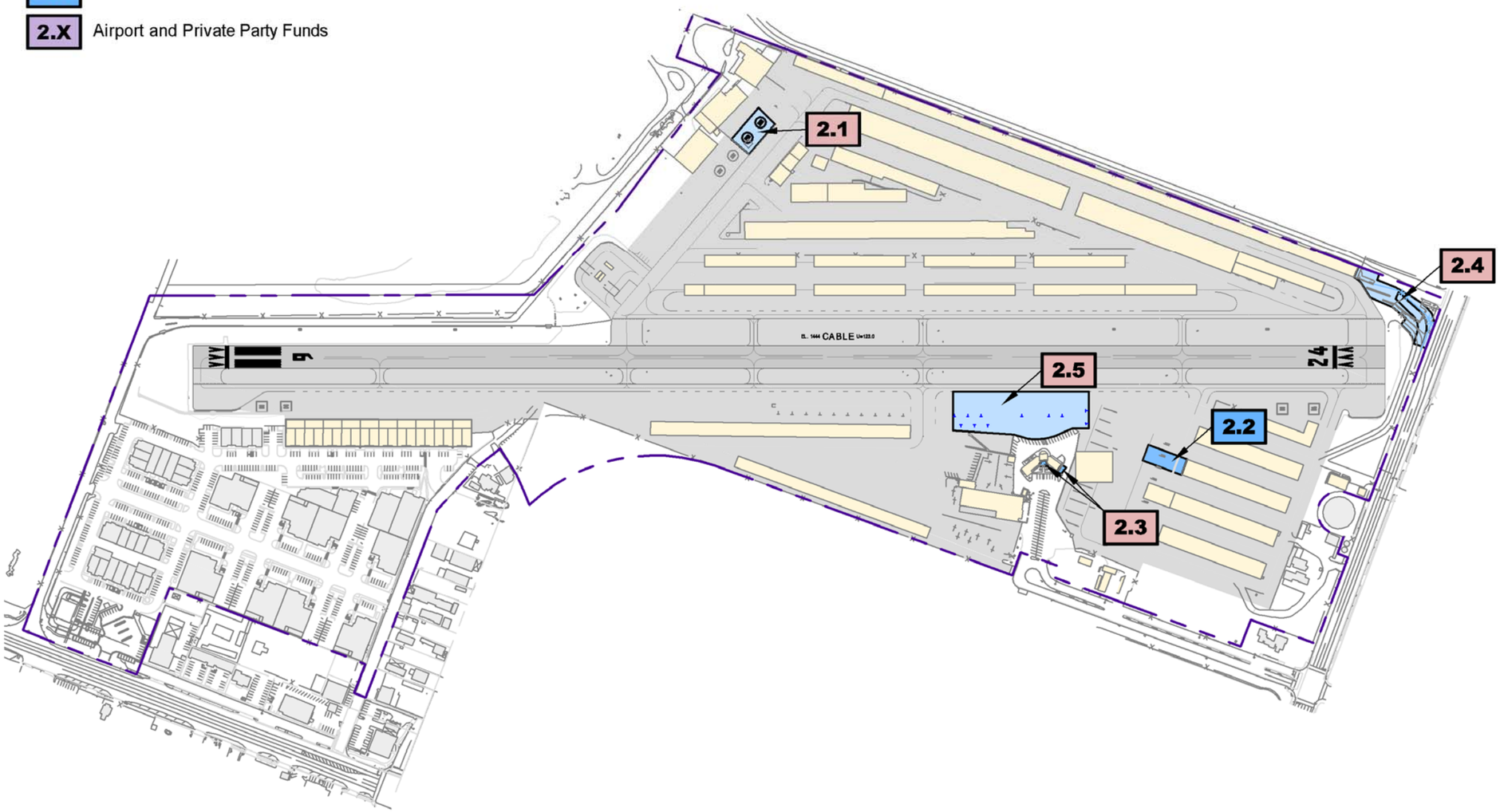

Figure 8-2
Phase 2 Improvements

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PHASE 3 (2021 - 2030)

FUNDING SOURCES KEY

- 3.X FAA and Airport Funds
- 3.X Airport Funds
- 3.X FAA, Airport, and Private Party Funds
- 3.X Third Party Funds
- 3.X Airport and Private Party Funds

LEGEND

- Future Buildings
- Future Pavement (Airfield and Road)
- Future Land Acquisition

Scale: 1" = 400'

	Project	Airport Cost	Project Cost	Timing
	Phase 3 (2021-2030)			
3.1	Construct Large Box Hangars	$ 8,063	$ 1,152,700	Long-Term
3.2	Expand FBO Hangar	$ 20,268	$ 560,000	Long-Term
3.3	Demolish Terminal Area Buildings	$ 26,800	$ 26,800	Long-Term
3.4	Construct Large Box Hangar and Relocate Airport Beacon	$ 6,890,787	$ 6,958,295	Long-Term
3.5	Expand Terminal Auto Parking	$ 68,950	$ 137,900	Long-Term
3.6	Acquire Holliday Rock Property - 1.3 Acres	$ 142,202	$ 1,422,020	Long-Term
3.7	Relocate Dewey Way	$ 479,500	$ 479,500	Long-Term
3.8	Translate and Relocate Runway and Taxiways	$ 531,645	$ 5,316,450	Long-Term
3.9	Recertify Approaches	$ 15,000	$ 15,000	Long-Term
3.10	Construct Individual Hangars	$ 1,093,875	$ 1,093,875	Long-Term
3.11	Construct Additional Large Box Hangars	$ 17,243	$ 9,914,270	Long-Term/As needed
3.12	Acquire Additional Land - 26.9 acres (Total)	$ 26,951,300	$ 26,951,300	Long-Term/As needed
3.13	Construct North Side Road	$ 436,300	$ 872,600	Long-Term/As needed
3.14	Construct Benson Hangar	$ 1,050	$ 6,066,980	Long-Term/As needed
3.15	Rehabilitate or Reconstruct Hangars 40 and 42	$ 2,792,996	$ 3,018,375	Long-Term/As needed
	Phase 3 Total	**$ 39,475,979**	**$ 63,986,065**	

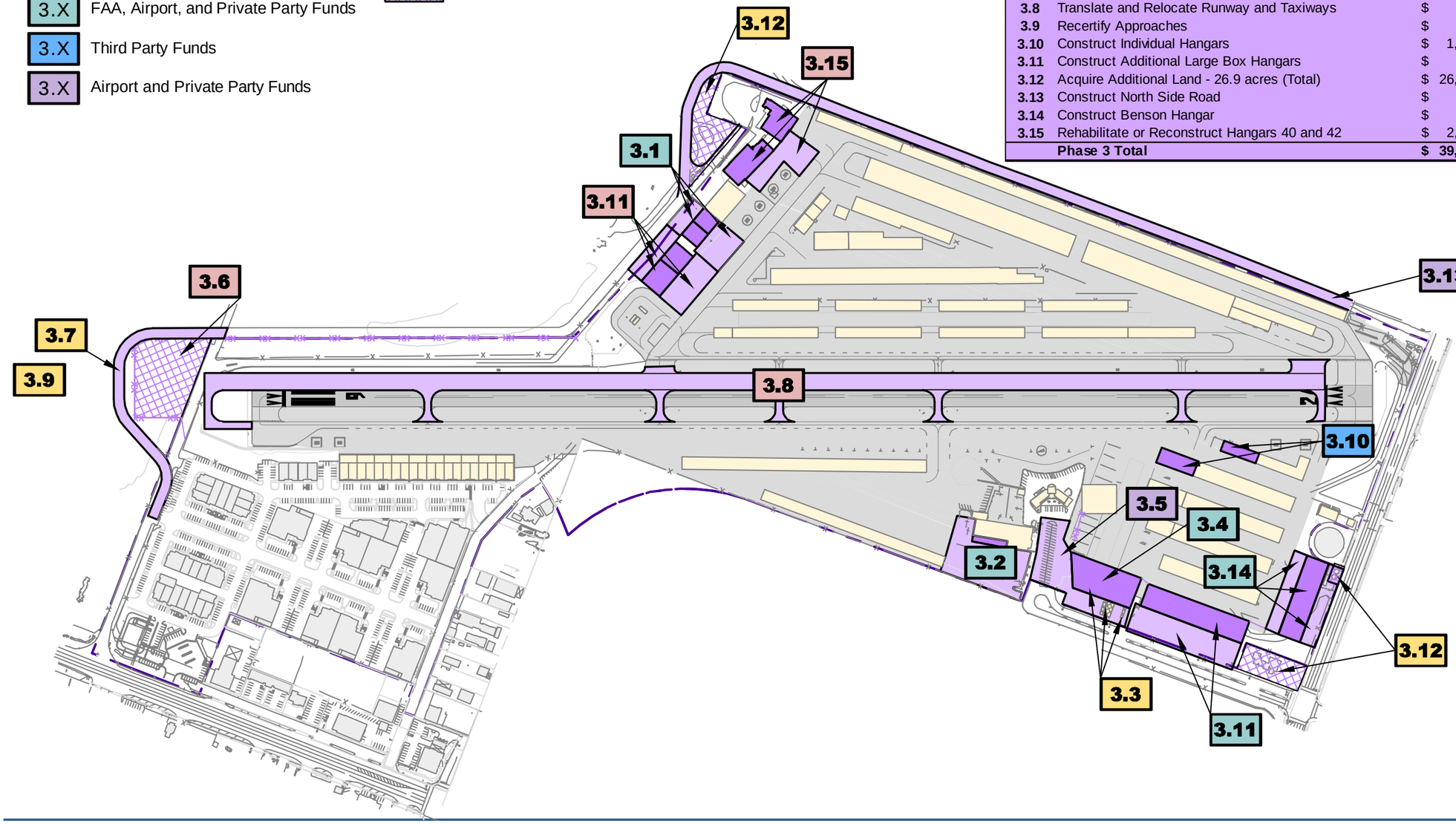

Figure 8-3
Phase 3 Improvements

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On February 14, 2012, President Obama signed into law the FAA Modernization and Reform Act of 2012. The Airport and Airway Improvement Act of 1982, as amended, authorizes the use of monies from the Airport and Airway Trust Fund to make grants under the Airport Improvement Program through fiscal year 2015. Under the Act, the authorization for funds not obligated in a fiscal year carries forward to future fiscal years unless the Congress takes specific action to limit such amounts. During the annual appropriations process, Congress may also limit the funding for grants to an amount that differs from the above authorization.

Projects eligible for AIP funding consist of: capital outlays for land acquisition; site preparation; construction, alteration, and repair of runways, taxiways, aircraft parking aprons, and roads within airport boundaries (except for access to areas providing revenue, such as parking lots and aviation industrial areas); construction and installation of lighting, some utilities, navigational aids, and aviation-related weather reporting equipment and safety equipment; security equipment required of the sponsor by the Secretary of Transportation; limited terminal development at commercial service airports; and equipment to measure runway surface tension. Grants may not be made for the construction of automobile parking facilities, buildings not related to the safety of persons in the airport, landscaping or art work, or routine maintenance and repair. Hangars are now eligible for funding with entitlement funds if all airside needs (such as pavement rehabilitation) are met. General aviation airports such as Cable may receive up to $150,000 a year in entitlement funds. Technical advisory services are also provided.

The Airport Improvement Program provides a maximum federal share of 90 percent for all eligible projects at Cable Airport. The recently expired reauthorization had temporarily increased the maximum share to 95 percent through 2011. However, the 2012 Act as signed rescinded the temporary increase in AIP assistance. Therefore, for purposes of this analysis it is assumed that the FAA's share of AIP eligible projects will be 90 percent. Because of the large number of projects competing for AIP funds, not all eligible projects can be funded.

The funds for AIP are distributed in accordance with provisions contained in the 1982 Act. FAA AIP grants for capital projects are now funded in two phases. One grant is given for the design phase and a second grant is given for the construction phase, once construction bids are received and the construction cost is known. Table 8-4 shows a list of all AIP eligible projects, their total cost, estimated FAA funding, and justification for AIP funding eligibility.

California Aid to Airports Program (CAAP)

The CAAP provides three types of grant funding: annual grants, acquisition and development grants (A&D), and match of the non-federal portion of FAA AIP grants (AIP Match).

The annual grants are used to fund pre-approved, eligible projects and/or operations and maintenance of public-use general aviation airports (commercial service and reliever airports are not eligible). Since Cable Airport is designated as a reliever airport in the NPIAS, it is not eligible for state funding.

Third Party Funding

Third party funding is often available for certain airport improvements, including FBO site development, aviation industrial site development, and aircraft hangar construction. These types of funding include FBO and other small business or individual investments. This may also include investments by other private organizations. Table 8-5 shows projects that are funded by private investments.

Table 8-4
AIP ELIGIBLE PROJECTS

	Project	Cost	Estimated FAA Funds	Justification
		Phase 1		
1	Acquire Bongiovanni Property - 1.6 Acres	$1,653,025	$1,487,723	Design Standards - BRL
2	Install SuperAWOS	$60,000	$54,000	Development - AWOS
3	Acquire Holliday Rock Property - 2.1 acres	$2,103,948	$1,893,553	Design Standards - ROFA
4	Close Taxiway B and Apply Declared Distances	$267,065	$240,359	Design Standards - Runway/Taxiway Separation and RSA
6	Relocate Airport Access Road	$1,278,650	$1,150,785	Design Standards - ROFA
7	Construct Individual Hangars	$16,347,500	$814,112	Reconstruct/Rehabilitate Public Apron Areas
9	Construct Maintenance Hangar	$2,345,600	$614,665	Reconstruct/Rehabilitate Public Apron Areas
11	Construct Large Box Hangar	$1,698,000	$379,685	Reconstruct/Rehabilitate Public Apron Areas
	Total - Phase 1	**$25,753,788**	**$6,634,882**	
		Phase 2		
12	Relocate Helipad on North and Rehabilitate Apron	$164,800	$148,320	Reconstruct/Rehabilitate Public Apron Areas
14	Expand Terminal	$303,800	$200,000	Development - Public Use Area
15	Reconfigure 14th Street Entrance and Relocate Perimeter Road	$164,225	$120,197	Design Standards - ROFA
16	Relocate Transient Tie-downs	$276,850	$249,165	Reconstruct/Rehabilitate Public Apron Areas
	Total - Phase 2	**$909,675**	**$717,682**	
		Phase 3		
17	Construct Large Box Hangars	$1,152,700	$72,567	Reconstruct/Rehabilitate Public Apron Areas
18	Expand FBO Hangar	$560,000	$182,413	Reconstruct/Rehabilitate Public Apron Areas
20	Construct Large Box Hangar and Relocate Airport Beacon	$6,958,295	$60,757	Reconstruct Airport Beacon
22	Acquire Holliday Rock Property - 1.3 Acres	$1,422,020	$1,279,818	Design Standards - RSA
24	Translate and Relocate Runway and Taxiways	$5,316,450	$4,784,805	Design Standards - RSA
27	Construct Additional Large Box Hangars	$9,914,270	$155,188	Reconstruct/Rehabilitate Public Apron Areas
30	Construct Benson Hangar	$6,066,980	$9,452	Reconstruct/Rehabilitate Public Apron Areas
31	Rehabilitate or Reconstruct Hangars 40 and 42	$3,018,375	$225,379	Reconstruct/Rehabilitate Public Apron Areas
	Total - Phase 3	**$34,409,090**	**$6,770,380**	
	Total - All Phases	**$61,072,553**	**$14,122,944**	

Source: AECOM analysis.

Table 8-5
THIRD PARTY INVESTMENT PROJECTS

	Project	Total Cost	Estimated Third Party Cost
	Phase 1		
7	Construct Individual Hangars	$16,347,500	$15,442,931
9	Construct Maintenance Hangar	$2,345,600	$ 1,662,639
11	Construct Large Box Hangar	$1,698,000	$ 1,276,127
	Total - Phase 1	**$20,391,100**	**$18,381,697**
	Phase 2		
13	Construct Individual Hangars	$649,500	$ 649,500
	Total - Phase 2	**$649,500**	**$649,500**
	Phase 3		
17	Construct Large Box Hangars	$1,152,700	$ 1,072,070
18	Expand FBO Hangar	$560,000	$ 357,319
20	Construct Large Box Hangar and Relocate Airport Beacon	$6,958,295	$ 6,890,787
21	Expand Terminal Auto Parking	$137,900	$ 68,950
26	Construct Individual Hangars	$1,093,875	$ 1,093,875
27	Construct Additional Large Box Hangars	$9,914,270	$ 9,741,839
29	Construct North Side Road	$872,600	$ 436,300
30	Construct Benson Hangar	$6,066,980	$ 6,056,478
	Total - Phase 3	**$26,756,620**	**$25,717,617**
	Total - All Phases	**$47,797,220**	**$44,748,814**

Source: AECOM analysis.

Airport Revenues

Finally, the airport may fund some capital improvements with airport revenues. The airport generates revenues through leases, fuel sales, hangar fees, and business park leases. Table 8-6 shows projects that are solely funded by airport revenues.

Table 8-6
AIRPORT REVENUE INVESTMENT PROJECTS

	Project	Total Cost
	Phase 1	
5	Remove Shade Hangars	$228,500
8	Remove T-Hangars	$81,700
10	Remove Maintenance Hangar	$45,000
	Total - Phase 1	**$355,200**
	Phase 3	
19	Demolish Terminal Area Buildings	$26,800
23	Relocate Dewey Way	$479,500
25	Recertify Approaches	$15,000
28	Acquire Additional Land - 1.3 acres (Total)	$1,302,600
29	Construct North Side Road	$872,600
	Total - Phase 3	**$2,696,500**
	Total - All Phases	**$3,051,700**

Source: AECOM analysis.

PROJECT COST SHARES

Project cost shares were allocated among federal and airport sources under the following assumptions and criteria: (1) all FAA AIP eligible projects will be funded at their maximum eligible level (90 percent); (2) the balance of CIP eligible projects is assigned to airport responsibility; non-eligible projects will be assigned airport; and (3) private/third-party responsibility. Detailed allocation of project costs by funding source is shown in Table 8-7 and summarized in Table 8-8.

SUMMARY OF FUNDING PROGRAM

The schedule of Master Plan improvement costs (in constant 2011 dollars) by phase and source under these assumptions and criteria are summarized in Table 8-7. Master plan capital improvement projects are estimated to cost $66 million. It is anticipated that approximately $14.1 million (21.4 percent) are to be funded by FAA AIP grants; $7.1 million (10.8 percent) are to be funded by the airport; and 44.7 million (67.8 percent) are to be funded by private/third-party investments.

Of Phase 3 projects, approximately $21.2 million (32.1 percent of the total cost for the planning period) are long-term/as needed projects. This means these projects occur when the need arises, which could be within the planning period or far beyond it.

Table 8-7
SCHEDULE OF MASTER PLAN IMPROVEMENTS AND ESTIMATED COSTS BY FUNDING SOURCE
(2011 Dollars)

	Project	Cost	Estimated FAA Funds	Estimated Airport Funds	Third Party Investment
	Phase 1				
1	Acquire Bongiovanni Property - 1.6 Acres	$ 1,653,025	$ 1,487,723	$ 165,303	$ -
2	Install SuperAWOS	$ 60,000	$ 54,000	$ 6,000	$ -
3	Acquire Holliday Rock Property - 2.1 acres	$ 2,103,948	$ 1,893,553	$ 210,395	$ -
4	Close Taxiway B and Apply Declared Distances	$ 267,065	$ 240,359	$ 26,707	$ -
5	Remove Shade Hangars	$ 228,500	$ -	$ 228,500	$ -
6	Relocate Airport Access Road	$ 1,278,650	$ 1,150,785	$ 127,865	$ -
7	Construct Individual Hangars	$ 16,347,500	$ 814,112	$ 90,457	$ 15,442,931
8	Remove T-Hangars	$ 81,700	$ -	$ 81,700	$ -
9	Construct Maintenance Hangar	$ 2,345,600	$ 614,665	$ 68,296	$ 1,662,639
10	Remove Maintenance Hangar	$ 45,000	$ -	$ 45,000	$ -
11	Construct Large Box Hangar	$ 1,698,000	$ 379,685	$ 42,187	$ 1,276,127
	Total - Phase 1	**$ 26,108,988**	**$ 6,634,882**	**$ 1,092,409**	**$ 18,381,697**
	Phase 2				
12	Relocate Helipad on North and Rehabilitate Apron	$ 164,800	$ 148,320	$ 16,480	$ -
13	Construct Individual Hangars	$ 649,500	$ -	$ -	$ 649,500
14	Expand Terminal	$ 303,800	$ 200,000	$ 103,800	$ -
15	Reconfigure 14th Street Entrance and Relocate Perimeter Road	$ 164,225	$ 120,197	$ 44,028	$ -
16	Relocate Transient Tie-downs	$ 276,850	$ 249,165	$ 27,685	$ -
	Total - Phase 2	**$ 1,559,175**	**$ 717,682**	**$ 191,993**	**$ 649,500**
	Phase 3				
17	Construct Large Box Hangars	$ 1,152,700	$ 72,567	$ 8,063	$ 1,072,070
18	Expand FBO Hangar	$ 560,000	$ 182,413	$ 20,268	$ 357,319
19	Demolish Terminal Area Buildings	$ 26,800	$ -	$ 26,800	$ -
20	Construct Large Box Hangar and Relocate Airport Beacon	$ 6,958,295	$ 60,757	$ 6,751	$ 6,890,787
21	Expand Terminal Auto Parking	$ 137,900	$ -	$ 68,950	$ 68,950
22	Acquire Holliday Rock Property - 1.3 Acres	$ 1,422,020	$ 1,279,818	$ 142,202	$ -
23	Relocate Dewey Way	$ 479,500	$ -	$ 479,500	$ -
24	Translate and Relocate Runway and Taxiways	$ 5,316,450	$ 4,784,805	$ 531,645	$ -
25	Recertify Approaches	$ 15,000	$ -	$ 15,000	$ -
26	Construct Individual Hangars	$ 1,093,875	$ -	$ -	$ 1,093,875
27	Construct Additional Large Box Hangars	$ 9,914,270	$ 155,188	$ 17,243	$ 9,741,839
28	Acquire Additional Land - 1.3 acres (Total)	$ 1,302,600	$ -	$ 1,302,600	$ -
29	Construct North Side Road	$ 872,600	$ -	$ 436,300	$ 436,300
30	Construct Benson Hangar	$ 6,066,980	$ 9,452	$ 1,050	$ 6,056,478
31	Rehabilitate or Reconstruct Hangars 40 and 42	$ 3,018,375	$ 225,379	$ 2,792,996	$ -
	Total - Phase 3	**$ 38,337,365**	**$ 6,770,380**	**$ 5,849,368**	**$ 25,717,617**
	Total - All Phases	**$ 66,005,528**	**$ 14,122,944**	**$ 7,133,770**	**$ 44,748,814**

Source: AECOM analysis.

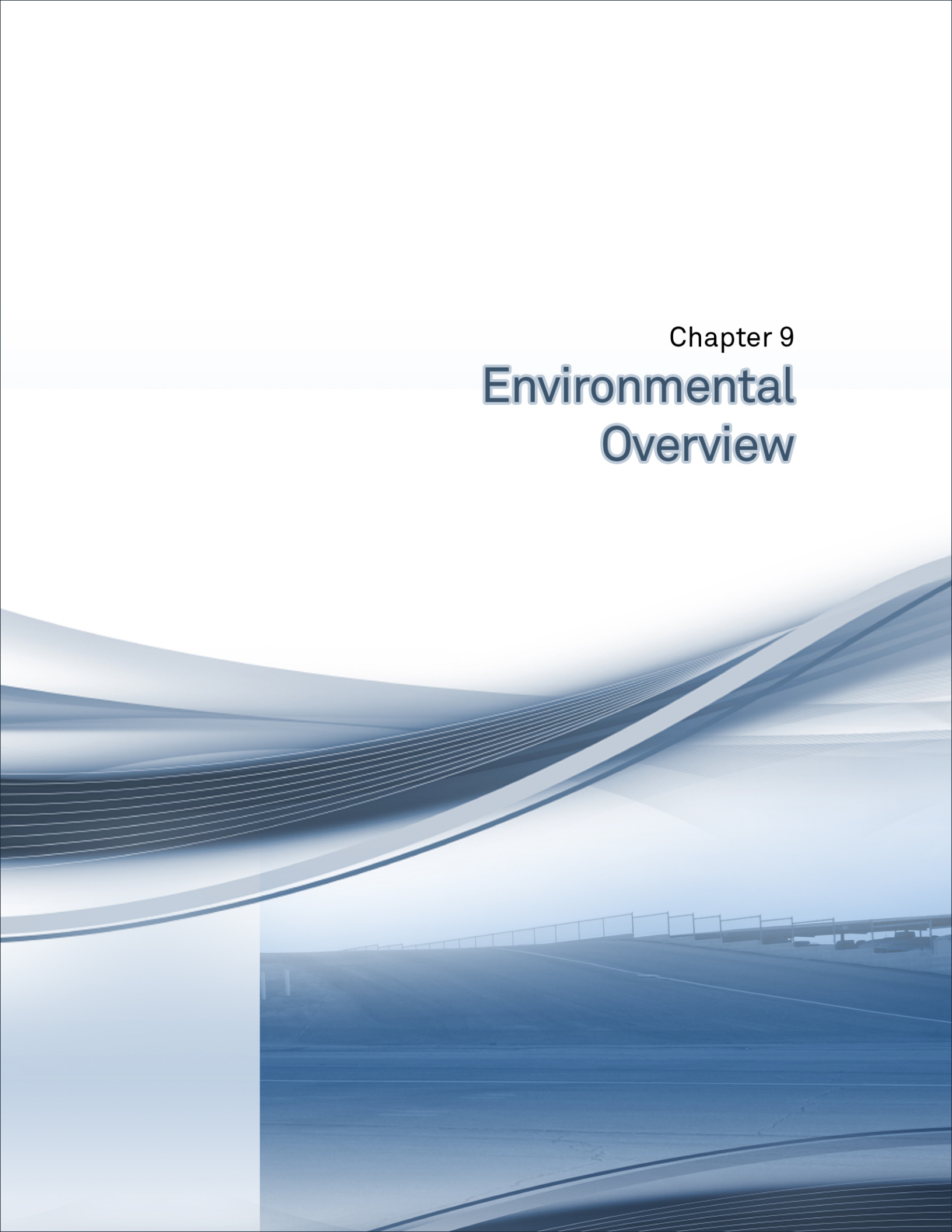
Table 8-8
SUMMARY OF CAPITAL IMPROVEMENT PLAN FUNDING BY PHASE AND SOURCE
(thousands of 2011 Dollars)

	Public	Private			
Phase	**FAA**	**Airport**	**Third Party**	**Total**	**% Total**
1 (2010 - 2015)	$ 6,634,882	$ 1,092,409	$ 18,381,697	$ 26,108,988	39.6%
2 (2016 - 2020)	$ 717,682	$ 191,993	$ 649,500	$ 1,559,175	2.4%
3 (2021 - 2030)	$ 6,770,380	$ 5,849,368	$ 25,717,617	$ 38,337,365	58.1%
Total	$ 14,122,944	$ 7,133,770	$ 44,748,814	$ 66,005,528	100.0%
% Total	21.4%	10.8%	67.8%	100.0%	

Source: AECOM analysis.

Chapter 9

Environmental Overview





Chapter 9
Environmental Overview

INTRODUCTION

This Environmental Overview covers the 20-year planning period of the Cable Airport Master Plan (proposed project) and identifies airport improvements for three development phases. The first development phase includes the highest priority improvement projects that are proposed for the short-term period 2011-2015. The second development phase covers the period 2016-2020 and the third development phase covers the long term period 2021-2030. The purpose of this Environmental Overview is to provide a summary of various environmental factors associated with future airport recommended improvements. The Environmental Evaluation will include all environmental impact categories as identified in FAA Order 1050.1E, FAA Order 5050.4B, and FAA Environmental Desk Reference for Airport Actions (October 2007). Also, the California Environmental Quality Act (CEQA) will be assessed to the degree necessary to determine if the airport improvements outlined in the master plan could have adverse impacts on the environment. This Environmental Overview may be used as a basis of further environmental documentation in the future, such as the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) or an Initial Study (IS) under CEQA. This overview is not intended to serve as a formal EA or an IS.

EXISTING CONDITIONS

Cable Airport is situated on 109 acres and is a family-owned, public-use facility located in the far west end of San Bernardino County in the City of Upland.[1] The State Route (SR) 66 is located less than one mile to the south, Interstate 210 (I-210) is less than one mile to the northwest, I-10 is approximately 2 miles to the south, U.S. Route 83 is located approximately 2 miles to the east, I-60 is approximately 5 miles to the south, SR 71 is located approximately 6 miles to the southeast, and I-15 is approximately 8 miles to the east (see Figure 3-2). Access to the airport is via 13th Street, located to the east of the airport, where it intersects with Benson Avenue.

The City of Upland designates the airport with its own land use designation: specifically, the Cable Airport Land Use Designation[2]. The land uses surrounding the airport include open space to the north and east; residential single-family and multi-family to the north, east, and south; light industrial to the west and east; and commercial industrial-mixed use to the south. The Greenbelt Park is located to the northeast, less than 0.2 mile from the airport.

SUMMARY OF IMPROVEMENTS

The phased development consists of the following proposed improvements:

[1] "Cable Airport Today." 2011. 17 Jan. 2011. <http://www.cableairport.com/history/htoday.htm>

[2] City of Upland. General Plan Land Use Map. 2005. 27 Jan. 2011. <http://www.uplandnextsteps.org/content/existing-land-use>

Phase 1 Development (2011 to 2015)

- Acquire Bongiovanni Property – 1.6 acres (2011)
- Install SuperAWOS and Relocate Airport Beacon (2011)
- Acquire Holliday Rock Property – 2.1 acres (2011)
- Close Taxiway B and Apply Declared Distances (2012)
- Remove Shade Hangars (2012)
- Relocate Airport Access Road (2012)
- Construct Individual Hangars (2013)
- Remove T-Hangars (2013)
- Construct Aircraft Maintenance Hangar (2014)
- Remove Maintenance Hangar (2015)
- Construct Large Box Hangar (2015)

Phase 2 Development (2016 to 2020)

- Relocate Helipad on North and Refurbish Existing (2016)
- Construct Individual Hangars (2017)
- Expand Terminal (2018)
- Reconfigure 14th Street Entrance and Relocate Perimeter Road (2020)
- Relocate Transient Tie-Downs (2020)

Phase 3 Development (2021 to 2030)

- Construct Large Box Hangars (Long-Term)
- Expand FBO Hangar (Foothill) (Long-Term)
- Demolish Terminal Area Buildings (Long-Term)
- Construct Large Box Hangar and Relocate Airport Beacon (Long-Term)
- Expand Terminal Auto Parking (Long-Term)
- Acquire Holliday Rock Property – 1.3 acres (Long-Term)
- Relocate Dewey Way (Long-Term)
- Translate and Relocate Runway and Taxiways (Long-Term)
- Recertify Approaches (Long-Term)
- Construct Individual Hangars (Long-Term)
- Construct Additional Large Box Hangars (Long-Term/As needed)
- Acquire Additional Land – Total 1.3 acres (Long Term/As needed)
- Construct North Side Road (Long-Term/As needed)
- Construct Benson Hangar (Long-Term/As needed)
- Rehabilitate or Reconstruct Hangars 40 and 42 (Long-Term/As needed)

TOPICS

The topics for this Environmental Overview are based on federal guidelines contained in FAA Order 1050.1E, Policies and Procedures for Considering Environmental Impacts, FAA Order 5050.4B, and the FAA Environmental Desk Reference for Airport Actions (October 2007). A total of 23 specific impact categories are listed below. Some of the following discussions are based on City of Upland's General Plan (1992).

- Air Quality
- Biotic Communities
- Coastal Barriers
- Coastal Zone Management Program
- Compatible Land Use
- Construction
- Section 4(f)
- Energy Supplies, Natural Resources, and Sustainable Design
- Environmental Justice
- Farmlands
- Federally-listed Endangered and Threatened Species
- Floodplains

- Hazardous Materials
- Historic and Archeological
- Induced Socioeconomic
- Light Emissions and Visual Effects
- Noise
- Social Impacts
- Solid Waste
- Water Quality
- Wetlands
- Wild and Scenic Rivers
- Cumulative Impacts

Air Quality

FAA Order 5050.4B and Order 1050.1E indicate that a project or action would result in a significant impact if it exceeds one or more of the National Ambient Air Quality Standards. The proposed improvements, which include demolition of terminal area buildings and construction of new airport facilities, could result in increases in air pollutant emissions during construction. The proposed improvements could potentially violate air quality standards or contribute to an existing or projected air quality violation. Construction activities of primary concern are those where large equipment is required, such as large quantities of earthwork. Therefore, construction of the proposed improvements with large quantities of earthwork has the potential to result in impacts to air quality. Additional air quality analysis is recommended to determine if the proposed project would violate air quality standards during construction.

However, operation of the proposed project is not anticipated to exceed of one or more of the National Ambient Air Quality Standards or regional air quality standards. The long term forecast projects a total of 103,000 general aviation annual aircraft operations which is less than the FAA Order 5050.40B general guideline of 180,000 general aviation and air taxi annual operations.[3] Therefore, operation of the proposed project would result in less than significant impacts to air quality.

Biotic Communities

As part of this Environmental Overview, a California Natural Diversity Database (CNDDB 2011) search was completed for the Ontario quadrangle[4]. According to the CNDDB search results, Riversidian Alluvial Fan Sage Scrub habitat may be found on or within close proximity to the project site. Also, the following Rare, Threatened, or Endangered Plants in California and Elsewhere may be located on or within close proximity to the project site: Round-leaved filaree (*California macrophylla*); Plummer's mariposa-lily (*Calochortus plummerae*); slender-horned spineflower (*Dodecahema leptoceras*); mesa horkelia (*Horkelia cuneata ssp. puberula*); Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*); prostrate vernal pool navarretia (*Navarretia prostrata*); and San Bernardino aster (*Symphyotrichum defoliatum*). In addition, the following rare, threatened, or endangered plants in California, but more common elsewhere may be located on or within proximity to the project site: California saw-grass (*Cladium californicum*); and Salt Spring checkerbloom (*Sidalcea neomexicana*). Additionally, the following watch list plant may be located on or within close proximity to the project site: California muhly (*Muhlenbergia californica*).

According to the CNDDB search results, the following wildlife may be found on or within close proximity to the project site[5]: Pallid bat (*Antrozous pallidus*)*; burrowing owl (*Athene cunicularia*)*; northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)*; western yellow-billed cuckoo (*Coccyzus americanus occidentalis*); California diplectronan caddisfly (*Diplectrona californica*); western mastiff bat (*Eumops perotis californicus*)*; western yellow bat (*Lasiurus xanthinus*)*; San Diego desert woodrat (*Neotoma lepida intermedia*)*; big free-tailed bat (*Nyctinomops macrotis*)*; coastal California gnatcatcher (*Polioptila californica californica*); and two-striped garter snake (*Thamnophis hammondii)**. It should be noted that

[3] FAA Order 5050.4B indicates that as a general guideline, if a proposed airport action would occur at a general aviation airport having a total of 180,000 general aviation and air taxi annual operations, an air quality analysis is required.

[4] California Natural Diversity Database (CNDDB). 2011. Biogeographic Data Branch, California Department of Fish and Game. 2006. RareFind3, Version 3.1.1. Commercial Version - Dated January 4, 2011. Report printed on January 4, 2011. Information expires on July 4, 2011. Sacramento, CA.

[5] The species denoted with an asterisk indicates that the species is listed as a California Department of Fish and Games Species of Special Concern (SSC).

the western yellow-billed cuckoo is listed as a federal candidate species and as a State endangered species. Also, the coastal California gnatcatcher is listed as a federal threatened species.

Implementation of the proposed project has the potential to impact plant communities and/or cause displacement of wildlife in the undisturbed land that would be acquired north and west of the airport property. A field survey is recommended in these areas to confirm the presence/absence of the plant and wildlife species identified above. These areas have previously been or are currently being disturbed.

Coastal Barriers

The airport is located approximately 35 miles inland. Therefore, no impacts related to coastal barriers will occur.

Coastal Zone Management Program

There are no impacts on coastal zone management because the airport is located approximately 35 miles inland, well outside of the Coastal Zone.

Compatible Land Use

According to the City of Upland General Plan Lane Use Map (2005), the project site has the following land use designations: Cable Airport Land Use; Open Space (OS); and Commercial/Industrial – Mixed Use (C/I(MU)). A project land use map is provided in Figure 9-1. It should be noted that the OS and C/I(MU) land use designations are associated with the properties that will be acquired. Also, according to the City of Upland Zoning Map (2004), the project site has the following zoning designations: Industrial/Airport Zone (MAV); Commercial/Community Zone (CC); Aviation Runway Zone (AVR); Open Space Zone (OS); Industrial/Community Zone (IC); Commercial/Airport Zone (CA); and SP.

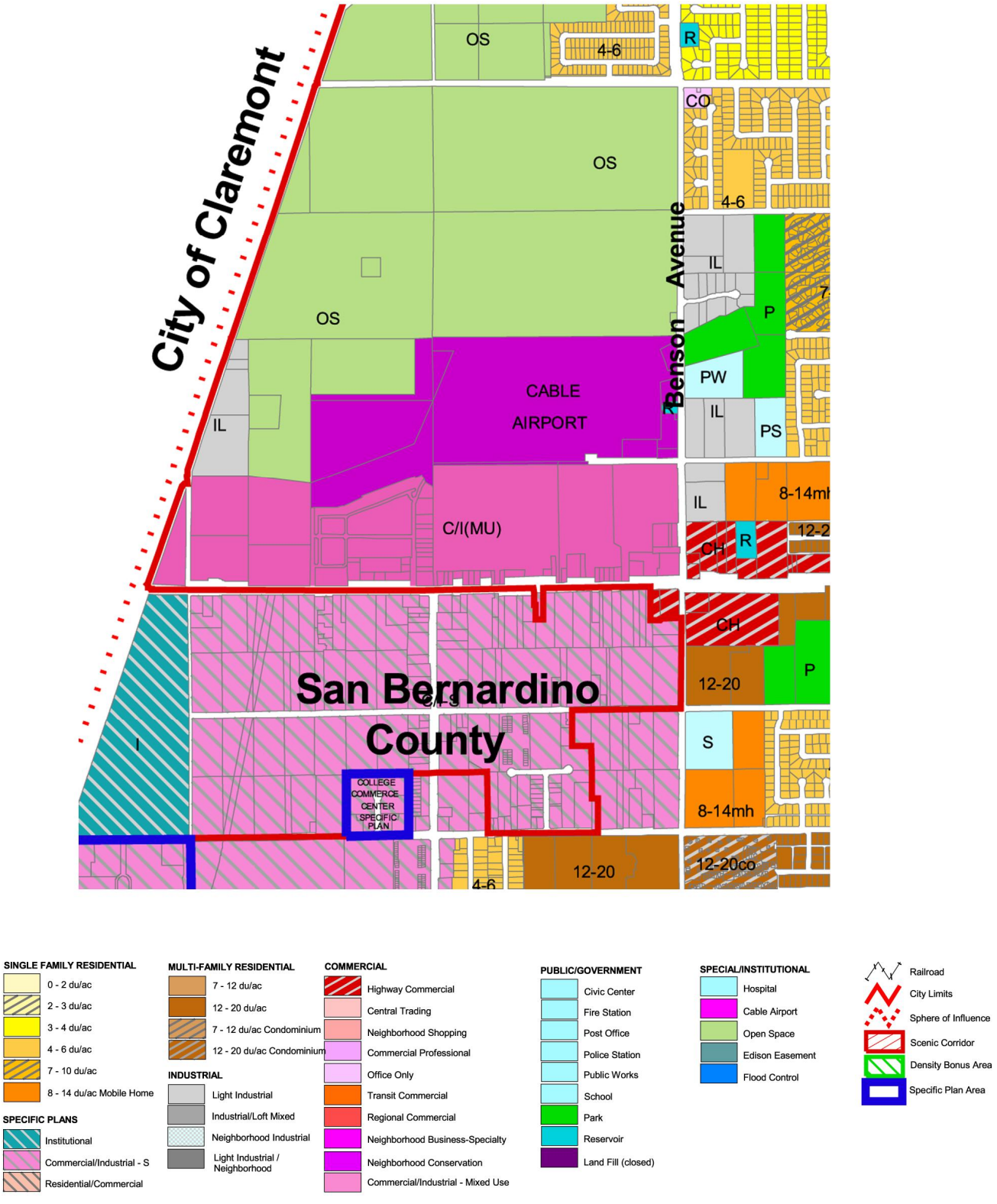
The proposed improvements located within the existing airport property would be compatible with the existing land use. However, the proposed improvements on the acquired property located north, west, and south of the airport would potentially be incompatible as portions of these areas are not designated or zoned for airport use. Therefore, the proposed project has the potential to result in impacts related to land use. Additional analysis is recommended related to permitted uses and land use compatibility.

To provide guidance to local agencies with land use zoning authority, the California Department of Transportation (Caltrans) Division of Aeronautics has published the Caltrans Airport Land Use Handbook (Handbook). The Handbook provides agencies with recommendations to promote compatible land use in the vicinity of an airport. Existing safety zones per Caltrans are shown in Figure 9-2. The zones depicted are:

- **Zone 1**: Runway protection zone
- **Zone 2**: Inner approach/departure zone
- **Zone 3**: Inner turning zone
- **Zone 4**: Outer approach/departure zone
- **Zone 5**: Sideline zone
- **Zone 6**: Traffic pattern zone

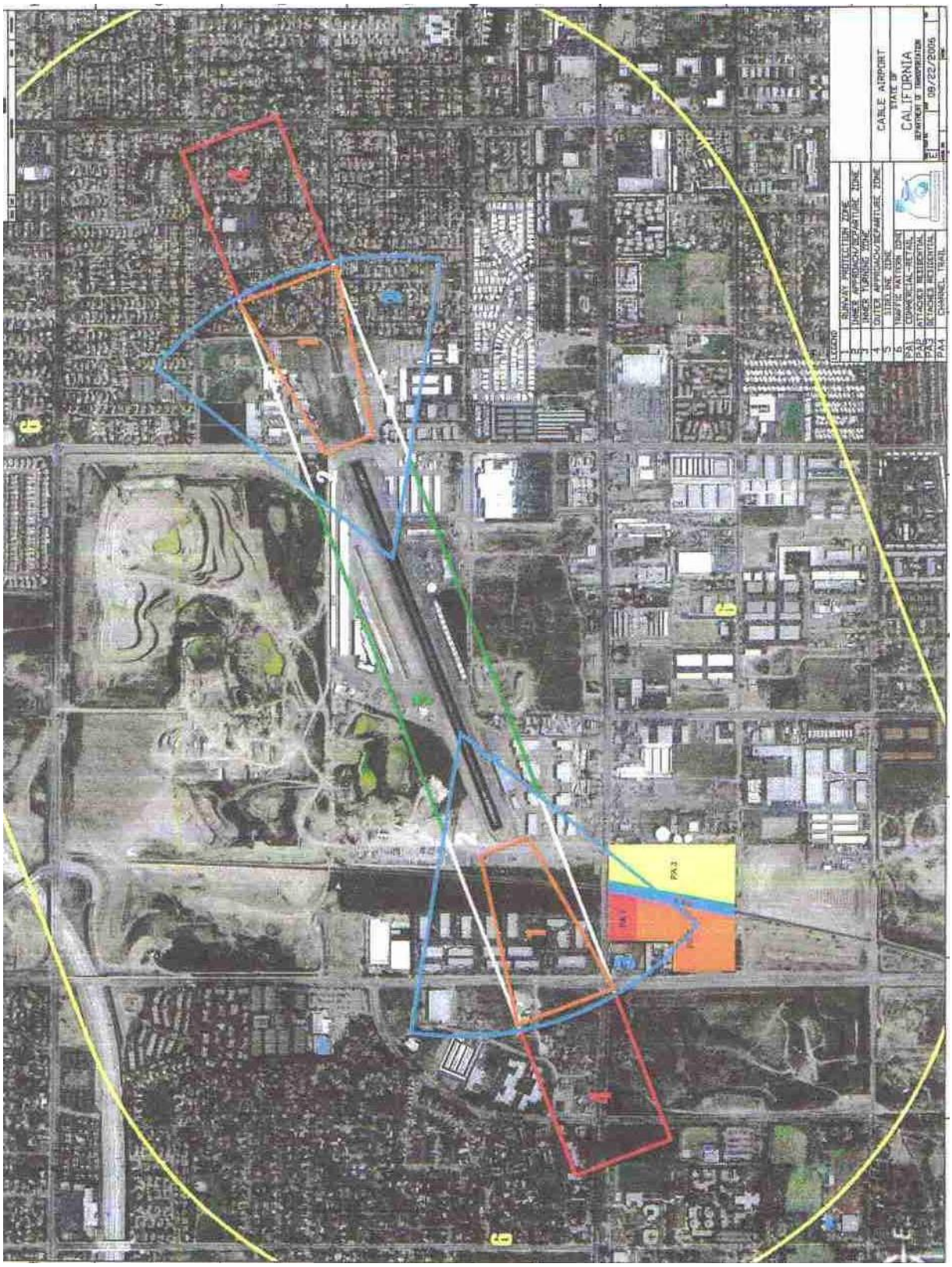
Each of these zones has distinct residential and non-residential density recommendations. For example, Zone 1 does not allow any residential or non-residential dwellings or people per gross acre. Zones 1 and 2 pose a very high risk and substantial risk, respectively to people and property on the ground. Approximately 30 to 50 percent of near-airport aircraft accidents occur in these areas. The runway relocation will produce minimal changes to compatibility with respect to Handbook safety zones.

Noise compatibility is discussed in the noise section.



Source: City of Upland General Plan (2005)

Figure 9-1
City of Upland Land Uses



Source: Caltrans (2006)

Figure 9-2
Cable Airport Safety Zones

Construction

The proposed project may produce construction impacts related to local air quality, erosion or pollutant runoff, or disruption of local traffic patterns. Specific construction impacts are discussed in the various environmental parameters included in this Environmental Overview.

Section 4(f)

Pursuant to Section 4(f) of the United States Department of Transportation Act (49 U.S.C. 303(c)), the Secretary of Transportation shall not approve any project which:

> "… requiring the use of publicly owed land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if-
>
> (1) there is no prudent and feasible alternative to using that land; and
>
> (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use."

The regulations interpreting Section 4(f) state that "… [a]ny use of lands from a Section 4(f) property shall be evaluated early in the development of the action when alternatives to the proposed action are under study." (23 C.F.R. 771.135(b)). Use of a Section 4(f) property occurs "(1) When land is permanently incorporated into a transportation project, (2) When there is a temporary occupancy of land that is adverse in terms of Section 4(f) preservationist purposes… or (3) When there is a constructive use of the land." (23 C.F.R. 771.135(p)). Section 4(f) applies to historic properties and archeological resources only when the resource is included on, or eligible for, the National Register of Historic Places (NRHP).

The closest park to the project site is the Greenbelt Park, located less than 0.20 miles to the northeast of the project site. Other local parks and recreation facilities in the immediate vicinity of the airport include:

- Eleventh Street Park (0.6 miles to the southeast)
- Baldy View Park (1 mile to the southeast)
- Sycamore Park (0.8 miles to the southeast)
- MacArthur Park (0.8 miles to the south)
- Rancho Santa Ana Botanic Garden (0.9 miles to the west)
- Chaparral Park (0.9 miles to the northwest)
- El Barrio Park (0.9 miles to the southwest)
- Vail Park (1.1 miles to the northwest)
- Magnolia Park (1.3 miles to the northeast)
- College Park (1.4 miles to the southwest)
- Memorial Park (1.5 miles to the southwest)
- Moreno Vista Park (1.5 miles to the southwest)
- Cahuilla Park (1.5 miles to the northwest)
- Mallows Park (1.6 miles to the southwest)
- Pioneer Park (1.7 miles to the northeast)
- Citrus Park (1.7 miles to the southeast)
- Jaeger Park (1.7 miles to the northwest)
- La Puerta Sports Park (1.9 miles to the northwest)
- McCarthy Park (1.9 miles to the northeast)
- Sierra Vista Park (1.9 miles to the northeast)
- Wilderness Basin Park (2.0 miles to the south)
- Larkin Park (2.0 miles to the southwest)
- Fern Reservoir Park (2.0 miles to the southeast)
- Gibbs Park (2.1 miles to the south)

- Sunrise Park (2.1 miles to the south)
- Anthony Munoz Hall of Fame Park (2.2 miles to the southeast)
- Higginbotham Park (2.2 miles to the northwest)
- Lewis Park (2.2 miles to the northwest)
- Golden Girls Softball Field (2.3 miles to the south)
- 13th Street Park (2.3 miles to the east)
- San Antonio Park (2.4 miles to the north)
- Alma Hofman Park (2.5 miles to the south)
- Olivedale Park (2.5 miles to the southeast)
- Griffith Park (2.6 miles to the northwest)
- Upland Memorial Park (2.7 miles to the southeast)
- Wardens Field Park (2.7 miles to the southeast)
- Harrison Park (2.8 mile to the southwest)
- Montvue Park (2.8 miles to the southwest)

As mentioned previously, the proposed project consists of improvements to the airport which will largely occur on the existing airport property. The proposed property to be acquired consists of industrial and open space uses to allow for additional safety areas for the existing and proposed runway locations. The proposed project would not use the publicly owned lands of a public park or recreation area located near the project site. In addition, the proposed project would not use publicly owned lands of a wildlife and waterfowl refuge as there are no wildlife and waterfowl refuges located on or near the project site.

However, there is a potential for lands of a historic or archeological site listed on or eligible for the National Register of Historic Places to exist within or near the project site, which is described in the Historic and Archeological subsection below. It is recommended that a historic and cultural resources database search be conducted to establish what, if any, archaeological, paleontological, historic or cultural resources of value exist on the project site. If there are historic or archeological Section 4(f) resources discovered on or near the project site, a Section 4(f) programmatic evaluation would be required.

Federally-listed Endangered and Threatened Species

As noted previously, a California Natural Diversity Database (CNDDB 2011) search was completed for the Ontario quadrangle. According to the CNDDB search results, the following federally-listed endangered, threatened, or candidate species could be found on or within close proximity to the project site: slender-horned spineflower; coastal California gnatcatcher; and western yellow-billed cuckoo.

Implementation of the proposed project has the potential to impact federally-listed plant species and/or cause displacement of federally-listed wildlife species in the undisturbed land that would be acquired north and west of the project property. A field survey is recommended in these areas to confirm the presence/absence of the federally-listed plant and wildlife species identified above.

Energy Supplies, Natural Resources, and Sustainable Design

The improvements recommended in the master plan have the potential to result in demand for additional electrical and gas services and expansion of the urban service network. This increased demand may contribute to a cumulative regional impact on the energy supply and natural resources. Therefore, it is recommended that prior to approval of master plan improvements, power companies or other suppliers of energy be contacted to determine if demand can be met by existing or planned source facilities.

According to the United States Geological Survey (USGS) Mineral Resources Data System (MRDS)[6], there are three mining pits located on the project site: Upland Pit, Upland South Pit, and Foothill Pit. An

[6] U.S. Geological Survey, 2005, Mineral Resources Data System: U.S. Geological Survey, Reston, Virginia. 27 Jan. 2011. <http://tin.er.usgs.gov/mrds/>

aerial map illustrating the location of these mining pits is provided in Figure 9-3. Both the Upland Pit and the Upland South Pit are inactive mines; only the Foothill Pit is currently an active mine. The primary commodities at the Upland Pit and Upland South Pit were sand, gravel, and construction. The Upland South Pit's tertiary commodities included gold and silver. The primary commodities at the Foothill Pit also include sand and gravel. The proposed project includes airport improvements such as the construction of an access road that would be located on or within close proximity to the active mine (Foothill Pit). Therefore, implementation of the proposed project has the potential to result in the loss of availability of known mineral resources that would be of value to the region and the residents of the State. Further analysis is recommended to determine availability and quantity of mineral resources in the area planned to be acquired and to determine potential impacts.

Environmental Justice

The proposed project consists of improvements to the airport which will largely occur on the existing airport property. The proposed property to be acquired consists of industrial and open space uses to allow for additional safety areas for the existing and proposed runway locations. The proposed project would not result in impacts to population and housing. No group of people, including racial, ethnic, or socioeconomic group, will bear a disproportionate share of negative environmental consequences resulting from airport improvements recommended in the master plan. Therefore, the proposed project would not result in significant impacts related to environmental justice.

Farmlands

According to the Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) (2008), the airport site or vicinity does not contain any farmland. The FMMP indicates that the airport site contains Urban and Built-Up Land and Other Land. The Urban and Built-Up Land designation indicates that the land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. The Other Land designation indicates that the land is not included in any other mapping category. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. As the airport site and vicinity do not contain any farmland, no significant impacts related to farmlands would occur.

Floodplains

According to the FEMA Flood Hazard Map (2008), the City of Upland has a Zone X classification. A Zone X classification indicates that this area is a non-flood hazard area and is outside of the 500-year floodplain. The project site or vicinity is thus not within a flood hazard area or floodplain. However, it should be noted that the San Antonio Creek Channel (a concrete-lined, flood-control channel) is located less than half a mile to the west of the airport. The project, however, would not alter or modify the channel. Impacts to floodplains would therefore be considered less than significant.

Hazardous Materials

During construction and operation, the proposed project would routinely use hazardous materials (i.e., engine oil, gear oil) and would require transport and disposal. However, hazardous materials that are used to construct and operate the proposed project would be transported, used, stored and disposed of according to City, state and federal regulations. Therefore, impacts related to the use and transport of hazardous materials would be considered less than significant. It should be noted that there are no schools located within one-quarter mile and therefore hazardous materials impacts to schools would be considered less than significant.

In addition, it is recommended that a hazardous materials site record search be performed to determine the proximity and status of any hazardous materials sites relative to the project site.



Source: Google Maps (2010) and Mineral Resources Data System (MRDS) (2005)

Figure 9-3
Mineral Resources
Near Cable Airport

Historic and Archeological

Given the amount of disturbance of the airport grounds, it is unlikely that cultural resources exist on site. However, as the airport was built in 1945, it is possible that some existing structures may qualify as a historic resource or of historical significance. It is therefore recommended that a historic search be conducted to establish what, if any, historic properties exist on the site.

The project site has already been subject to extensive disruption and any surficial archeological and paleontological resources, which may have existed at one time, have likely been previously disturbed. However, as stated above, the project includes acquisition of land immediately north, northwest, and south of the existing airport property, and also includes relocation of the Perimeter Road and Dewey Way. There is a possibility that archeological and/or paleontological resources exist at deep levels in the acquired land and in the areas where the Perimeter Road and Dewey Way will be relocated; such archeological and/or paleontological resources could be uncovered during project construction during any grading and excavation of these areas. Therefore, it is recommended that a cultural resource database search be conducted to establish what, if any, archeological or paleontological resources of value exist on the project site.

Induced Socioeconomic

The proposed project consists of improvements to the airport which will largely occur on the existing airport property. The proposed property to be acquired consists of industrial and open space uses to allow for additional safety areas for the existing and proposed runway locations. The proposed project would not involve the relocation of residences or businesses, alter transportation patterns, divide or disrupt established communities, disrupt planned development, or create an appreciable change in employment. In addition, the property to be acquired would be purchased through a buyer-seller agreement. Furthermore, the purchase of these industrial properties would not impact the current industrial operations. Therefore, the proposed project would not result in induced socioeconomic impacts.

Light Emissions and Visual Effects

Currently, the project site is an active airport located in an urban area of the City of Upland. There are numerous existing light sources emitted from the project site and from the surrounding land uses. Implementation of the proposed project would contribute minimal additional lighting within the project site. The proposed project would incorporate some nighttime lighting which would be used for building lighting, security purposes, and lighting the entrance of the building consistent with current conditions. New lighting would be designed and maintained so as not to illuminate beyond the airport property. Therefore, implementation of the proposed project would not result in significant light and glare impacts.

As mentioned above, the proposed project consists of improvements to the airport which will mostly occur on the existing airport property. The proposed property to be acquired consists of industrial and open space uses to allow for additional safety areas for the existing and proposed runway locations. The proposed improvements would not degrade the visual quality on or around the project site. While there would be some replacement of old structures on the site, the new structures would be designed to match the height and character of the existing structures.

Noise

For purposes of this analysis, aircraft noise has been modeled using the FAA's Integrated Noise Model (INM). Version 7.0b of the INM was used for the aircraft noise analysis in this document. INM 7.0b is the most recent release of the model for use at the time this aircraft noise analysis was conducted. INM has been the FAA's standard tool for determining the predicted noise impact in the vicinity of airports since 1978. Statutory requirements for INM use are defined in FAA Order 1050.1E, Policies and Procedures for Considering Environmental Impacts; Order 5050.4B, National Environmental Policy Act (NEPA)

Implementing Instructions for Airport Projects, and Federal Aviation Regulations (FAR) Part 150, Airport Noise Compatibility Planning.

Airport improvements would move Runway 6-24 approximately 140 feet northwest, move existing Helipads 1 and 2 approximately 2,200 feet north, and add two additional helipads (3 and 4) adjacent to the relocated helipads. The project (year 2030) would reflect an additional 43,000 annual landings/takeoffs compared to existing (2008) conditions (118 additional operations per day) that were modeled as part of the General Plan Update.

In order for the INM to generate CNEL aircraft noise exposure contours to evaluate aircraft noise impacts, the following inputs to the model are required:

- A basic description of the airfield, including elevation above mean sea level (MSL) as shown in Table 9-1.
- Aircraft activity information, including the number of aircraft operations by time of day and aircraft type as seen in Table 9-2.
- Flight operational data, including use of the runways, location and use of flight tracks, departure profiles, and existing noise abatement procedures. It was determined that approximately 85 percent of operations take place on Runway 24. Flight tracks are shown on Figure 9-4 and noise abatement procedures are discussed below.
- The average number of flights each day by aircraft type, such as Cessna Citation corporate jet (CNA500), or Cessna 172 single-engine propeller aircraft (CNA172),
- Time of day the flights occurred (day: 7:00 a.m. to 6:59 p.m.; evening: 7:00 p.m. to 9:59 p.m.; and night: 10:00 p.m. to 6:59 a.m.), and
- Distance the aircraft is traveling ("stage length" to determine the appropriate climb altitude-speed-thrust profile).

Table 9-1
CABLE RUNWAY DATA

Runway End		Existing	Future
6	Latitude	34º06'34.98"N	34º06'34.45"N
	Longitude	117º41'36.04"W	117º41'37.56"W
	Elevation	1,393.1'	1,389.4'
24	Latitude	34º06'48.59"N	34º06.48.43"N
	Longitude	117º40'53.11"W	117º40'54.79"W
	Elevation	1,443.7'	1,437.4'

Noise abatement procedures at Cable Airport ask pilots to be aware of the community and request Runway 6 departures turn at 2,000 feet MSL. Touch and go's follow a left traffic pattern.

The INM generates a grid surrounding the airport, and calculates the noise level at each point within the grid based on input data described above. The INM then connects the grid points of those having the same noise level value through a curve drawing algorithm to create a noise contour.

Runway 24 is the predominantly used runway. This runway is used approximately 85 percent of the time. Runway 6 is used approximately 9 percent of the time and the helipads make up approximately 6 percent of the traffic. Figure 9-5 shows the future noise contours (2030) for Cable Airport. It should be noted that the City of Upland is in the process of updating its General Plan. As part of the General Plan update, the City prepared noise contours for the existing condition of the airport (a non-relocated runway). Therefore,

for the purposes of this master plan study, existing noise contours were not modeled. The existing noise contours are illustrated in Figure 9-6.

Table 9-2
AIRCRAFT OPERATIONS BY TIME OF DAY

	Arrivals	Departures	Touch & Go
Day			
Single Engine	16.42%	16.40%	45.64%
Multi-Engine	1.18%	1.19%	1.19%
Jet	0.64%	0.64%	0.00%
Helicopter	0.84%	0.85%	0.00%
Evening			
Single Engine	1.91%	2.05%	5.37%
Multi-Engine	0.14%	0.15%	0.13%
Jet	0.08%	0.08%	0.00%
Helicopter	0.11%	0.11%	0.00%
Night			
Single Engine	0.14%	0.16%	0.44%
Multi-Engine	0.00%	0.00%	0.00%
Jet	0.00%	0.00%	0.00%
Helicopter	2.12%	2.12%	0.00%

When comparing the existing noise contours (2008) prepared for the City of Upland's General Plan update and the future contours (2030) developed for this study, the following items are to be noted:

- Existing contours are based on some 60,000 annual operations, while the future contours assume 103,000 annual operations
- Existing helicopter operations were modeled from the helipads near Runway 24 or on Runway 24. The future contours reflect relocation of the helipads to the north of the airport and all helicopter operations are assumed to use these pads with flight tracks going north and south of the helipads.
- There is a large contingent of nighttime helicopter operations. Helicopter operations account for approximately 85 percent of all nighttime operations. These operations are primarily emergency and/or law enforcement operations. Night operations are weighted to account for annoyance of nighttime noise (essentially one operation is counted as ten operations). These operations may be exempt from noise regulations (see Appendix D for details and an alternative set of noise contours with nighttime helicopter operations excluded from the model run).
- Residential areas are not included within the 60 CNEL contour.

Social Impacts

As mentioned above, the proposed project consists of improvements to the airport which will largely occur on the existing airport property. The proposed property to be acquired consists of industrial and open space uses to allow for additional safety areas for the existing and proposed runway locations. The proposed project would not involve the relocation of residences or businesses, alter transportation patterns, divide or disrupt established communities, disrupt planned development, or create an appreciable change in employment. Also, as discussed previously, the property to be acquired would be purchased through a buyer-seller agreement. Furthermore, the purchase of these industrial properties would not impact the current industrial operations. Therefore, implementation of the proposed project would not result in significant social impacts.

Solid Waste Impacts

Airport improvements that relate to airfield development such as runways, taxiways, and related items will not directly impact solid waste collection, control, or disposal other than that associated with construction. Construction of the proposed project would generate solid waste to be exported to a local sanitary landfill. The disposal of solid waste material could significantly impact the permitted capacity of a local sanitary landfill. In addition, a potentially significant impact could occur with respect to federal, state and local statutes and regulations related to solid waste. Further analysis is recommended related to solid waste.

Water Quality

The project site is located within an urban area of the City. However, the project site is surrounded by open space to the north and west, and a flood-control channel to the west. Both construction and operational activities at the project site have the potential to violate water quality standards or otherwise substantially degrade water quality. Further analysis is recommended to determine if local existing public services and utilities would be able to handle the increase caused by construction. If the current infrastructure is found to be inadequate, infrastructure improvements for the appropriate public service utility should be identified in the subsequent CEQA documentation.

Wetlands

Based on a preliminary review of aerial maps and the State Water Quality Control Board -- California Wetlands Tracker website (California Wetlands 2011), there are depressional wetlands located on the northern property adjacent to the airport. According to the California Wetlands Tracker website, depressional wetlands are associated with natural topographic basins or artificial impoundments that are too small or shallow to be lakes or reservoirs, lack the water chemistry of playas, and lack the indicative flora of vernal pools. It takes longer than a day for water to enter and pass through a depressional wetland. Most depressional wetlands in California are seasonal. They often depend on multiple water sources, including local runoff, groundwater, and direct precipitation. A field survey and additional analysis will be required to confirm the exact location of these wetlands and type of vegetation found within this area. It should be noted that, per the California Wetlands tracker website, depressional wetlands are located in the area where the proposed access road will be constructed. Therefore, the proposed Access Road could have the potential to impact the wetlands.

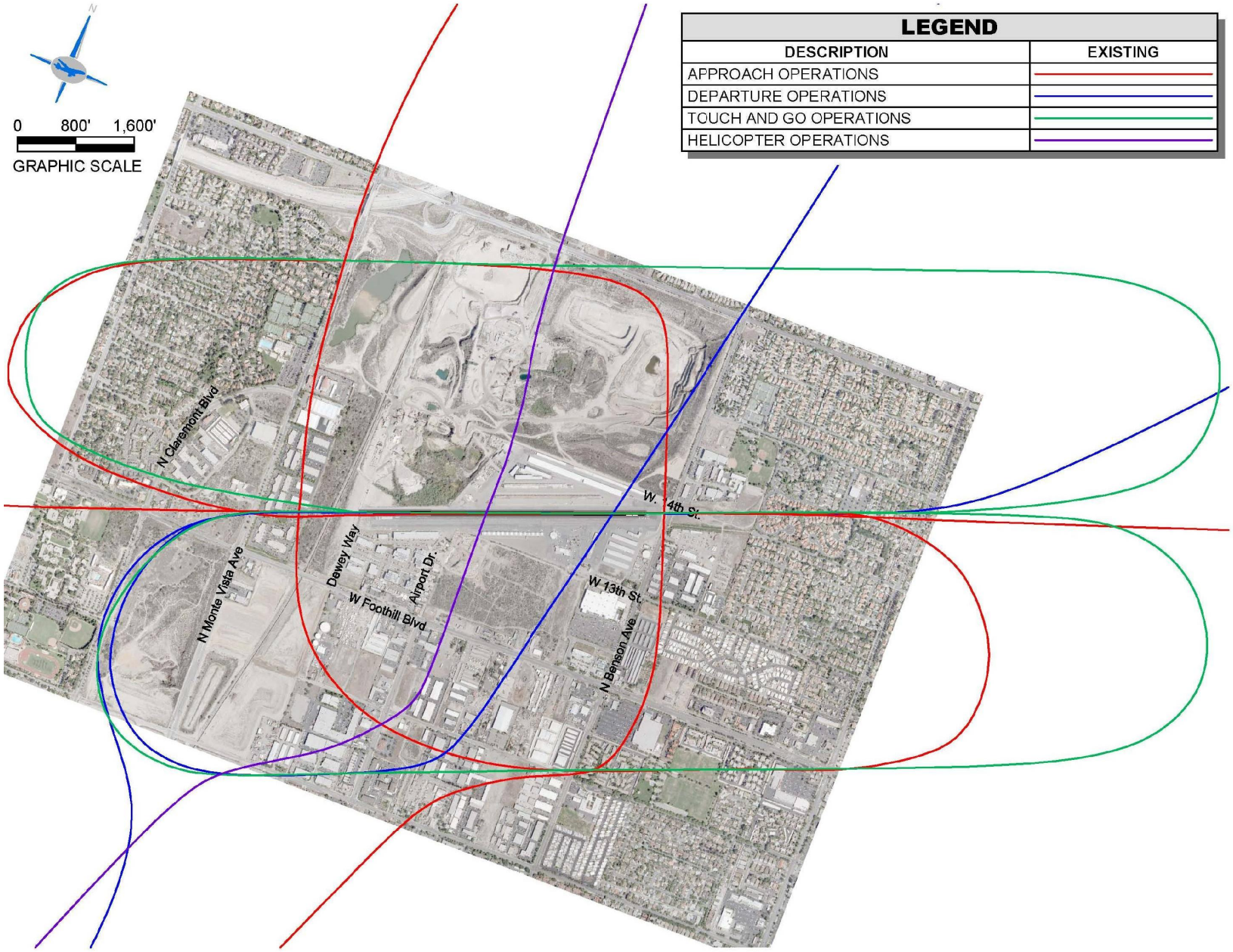
Wild and Scenic Rivers

There are no impacts related to wild and scenic rivers because there are no rivers identified as "Wild and Scenic Rivers" on or near the site.

Cumulative Impacts

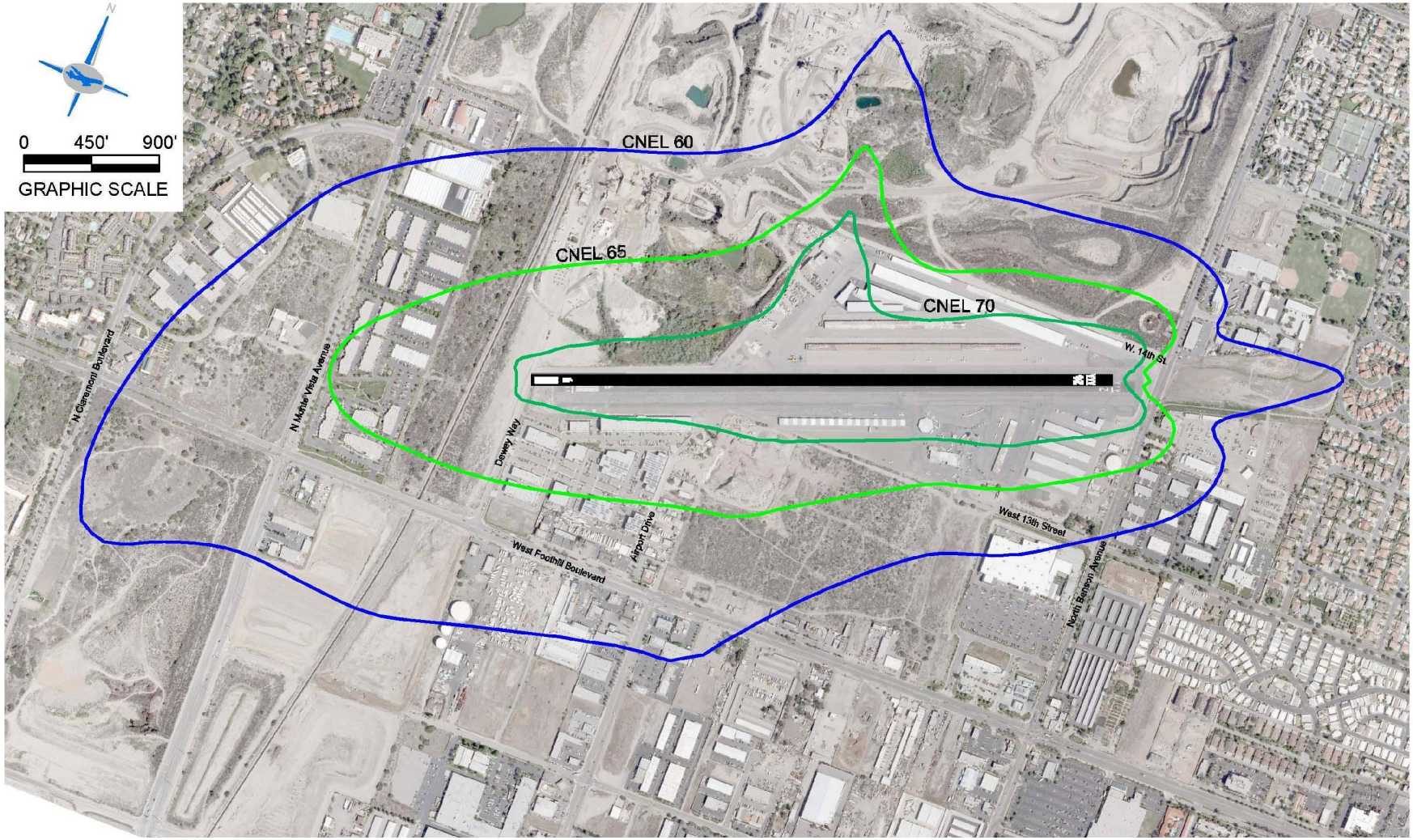
By definition under CEQA and NEPA, cumulative effects are those effects which occur when a series of small and seemingly insignificant effects occur, but when considered together, the effects are substantial. These increments can occur over a long period of time to the point where the effect is substantial (i.e., loss of critical habitat for a species). These increments can also occur over a very short period of time where the implications of one project are overlooked by another project and the effects are identified too late in the process to mitigate or avoid.

Implementation of the proposed project could potentially result in cumulative impacts. For example, there may be cumulatively impacts related to air quality and noise. Further analysis, including identification of approved projects within the vicinity of the project site, is recommended to assess potential cumulative impacts.



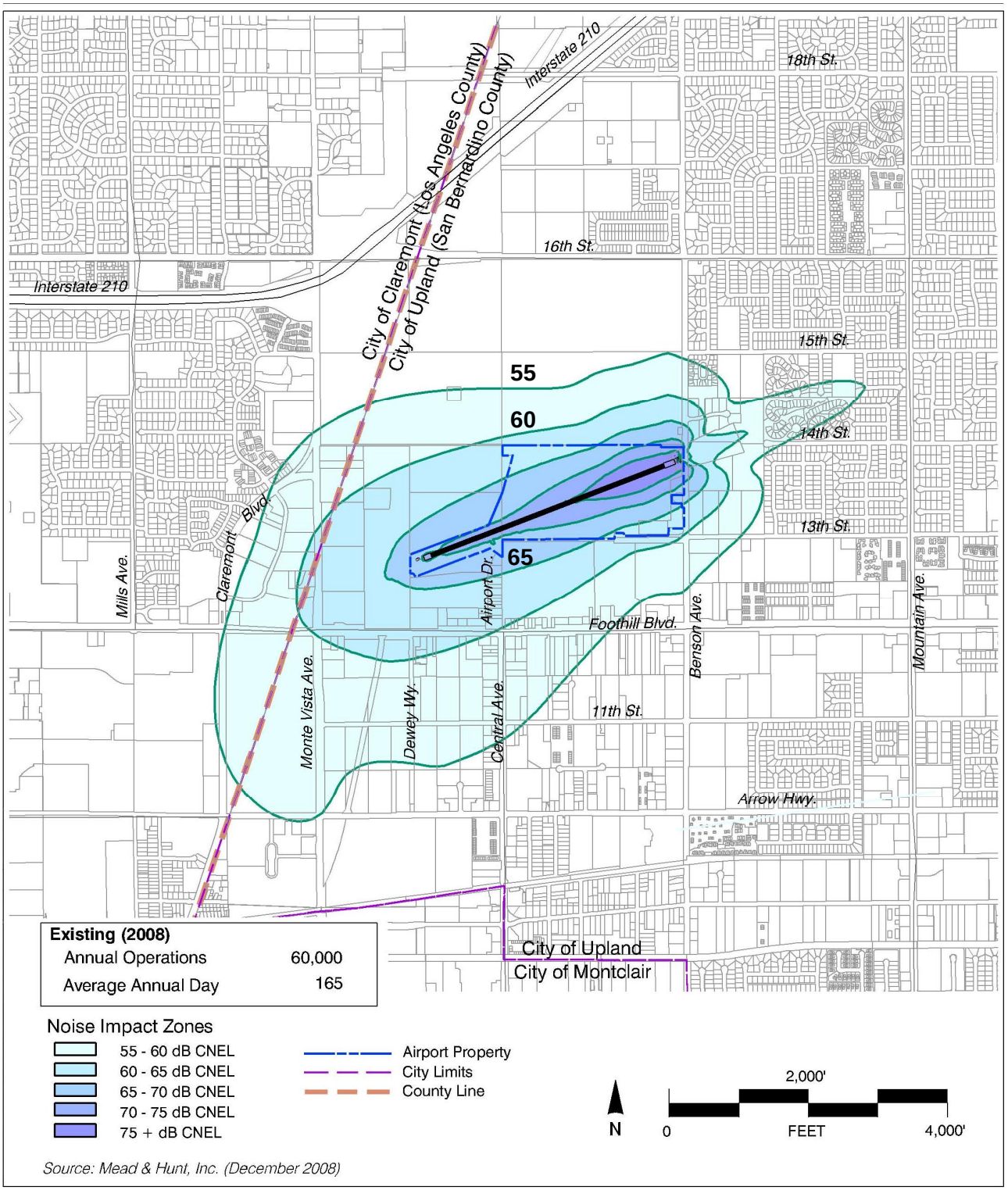
Source: AECOM.

Figure 9-4
Cable Airport Future
Flight Tracks



Source: AECOM.

Figure 9-5
Cable Airport 2030
Noise Contours



Source: Cable Airport Land Use Compatibility Plan (December 2008) by Mead & Hunt

Figure 9-6
Cable Airport Existing Noise Contours

SUMMARY/RECOMMENDATIONS

Based on the findings contained in this Environmental Overview, additional studies are recommended related to environmental affects (Air Quality; Biotic Communities; Compatible Land Use; Section 4(f); Federally-listed Endangered and Threatened Species; Energy Supplies, Natural Resources, and Sustainable Design; Hazardous Materials; Historic and Archeological; Solid Waste Impacts; Water Quality; Wetlands; and Cumulative Impacts), which may result in impacts associated with the master plan improvements. A summary of recommendations is presented below and is organized with respect to type of project: land acquisition or other master plan improvement. There are multiple land acquisition projects proposed throughout the planning period, each of which may require some additional environmental study. It is recognized that the land acquisitions proposed involve private parties and unique challenges must be overcome. Therefore, the likelihood of these projects happening is uncertain. For these reasons, further environmental studies are presented in this manner.

Recommendations for Land Acquisition

Two field surveys are recommended. One for land acquisitions including undisturbed land to the north and west of the airport to determine the presence/absence of State and federally-listed species. The second field survey should locate wetlands within the project site and determine if there are potential jurisdictional areas.

It is also recommended that a historic and cultural resources database search be conducted to establish what, if any, archaeological, paleontological, historic or cultural resources of value exist on the project site. This kind of search should also be conducted to determine if there are any hazardous materials sites (and their status) relative to the project site. Furthermore, two analyses are recommended to determine the potential loss of mineral resources on the project site and to address the acquired property located north, west, and south of the airport which is incompatible and not designated or zoned for airport use. It should be noted that the City of Upland General Plan is currently being updated along with the Airport Land Use Plan (ALUP).

Recommendations for Overall Project

Additional analyses are recommended concerning:

- Potential violation air quality standards during construction
- Solid waste
- Potential water quality impacts due to construction and operation activities
- Identification of approved projects within the vicinity of the project site, is recommended to assess potential cumulative impacts

It is also recommended that public service and utility providers be contacted to determine whether the future demand can be met by existing and/or planned service facilities. Further actions are anticipated which will require an Initial Study (IS) be prepared pursuant to the California Environmental Quality Act ("CEQA", Cal. Public Resources Code 21000 et seq.). The IS can be prepared concurrently or jointly with the NEPA documents. The NEPA and/or CEQA documentation will be prepared according to FAA and City of Upland standards and regulations.

Appendix A

Technical Advisory Committee Members





Appendix A
Technical Advisory Committee Members

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Appendix B

Glossary & Abbreviations





Appendix B
Glossary and Abbreviations

A

A-WEIGHTED SOUND LEVEL - The sound pressure level which has been filtered or weighted to reduce the influence of low and high frequency (dBA).

AC - Advisory Circular published by the Federal Aviation Administration.

ADPM - Average Day of the Peak Month

AFB - Air Force Base

AGL - Above Ground Level

AIP - Airport Improvement Program of the FAA.

AIR CARRIER - A commercial scheduled service airline carrying interregional traffic.

AIRCRAFT MIX - The relative percentage of operations conducted at an airport by each of four classes of aircraft differentiated by gross takeoff weight and number of engines.

AIRCRAFT TYPES - An arbitrary classification system which identifies and groups aircraft having similar operational characteristics for the purpose of computing runway capacity.

AIR NAVIGATIONAL FACILITY (NAVAID) - Any facility used for guiding or controlling flight in the air or during the landing or takeoff of aircraft.

AIR ROUTE SURVEILLANCE RADAR (ARSR) - Long-range radar which increases the capability of air traffic control for handling heavy enroute traffic. An ARSR site is usually located at some distance from the ARTCC it serves. Its range is approximately 200 nautical miles. Also called ATC Center Radar.

AIR TAXI - Aircraft operated by a company or individual that performs air transportation on a non-scheduled basis over unspecified routes usually with light aircraft.

AIRPORT AVAILABLE FOR PUBLIC USE - An airport available for use by the public with or without a prior request.

AIRPORT MASTER PLAN - Long-range plan of airport development requirements.

ALP - Airport Layout Plan

ALSF-1 - Approach Light System with Sequence Flasher Lights

ALS - Approach Light System

AMBIENT NOISE - All encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far.

ANCLUC - Airport Noise and Compatible Land Use Control plan; an FAA sponsored land use compatibility planning program preceding Part 150 Airport Noise Compatibility Program.

AOA - Aircraft Operating Area

APMS - Airport Pavement Management System

APPROACH CONTROL SERVICE - Air traffic control service provided by a terminal area traffic control facility for arriving and departing IFR aircraft and, on occasion, VFR aircraft.

APPROACH SLOPE - Imaginary areas extending out and away from the approach ends of runways which are to be kept clear of obstructions.

APPROACH SURFACE - An element of the airport imaginary surfaces, longitudinally centered on the extended runway centerline, extending upward and outward from the end of the primary surface at a designated slope.

ARB - Air Reserve Base

ARC - Airport Reference Code

AREA NAVIGATION (RNAV) - A method of navigation that permits aircraft operations on any desired course within the coverage or stationed-reference navigation systems or within the limits of self-contained system capability.

ARFF - Aircraft Rescue and Fire Fighting

ARP – Airport Reference Point

ASOS – Automated Surface Observing System

ASV - Annual Service Volume - a reasonable estimate of the airfield's annual capacity.

ATCT - Airport Traffic Control Tower

ATC - Air Traffic Control

AVIGATION AND HAZARD EASEMENT - An easement which provides right of flight at any altitude above the approach surface, prevents any obstruction above the approach surface, provides a right to cause noise vibrations, prohibits the creation of electrical interferences, and grants right-of-way entry to remove trees or structures above the approach surface.

AWOS – Automated Weather Observing System

B

BASED AIRCRAFT - An aircraft permanently stationed at the airport, usually by some form of agreement between the aircraft owner and airport management.

BIT - Bituminous Asphalt Pavement

BRL – Building Restriction Line

BUSINESS JET - Any of a type of turbine powered aircraft carrying six or more passengers and weighing less than approximately 90,000 pounds gross takeoff weight.

C

CACALUP – Cable Airport Comprehensive Airport Land Use Plan

CAP – Civil Air Patrol

CARGO - Originating and/or terminating.

CASP - California Aviation System Plan

CAT I - Category I Instrument Landing System. (Minimums: decision height of 200 feet; Runway visual range 1,800 feet).

CAT II - Category II Instrument Landing System. (Minimums: decision height of 100 feet; Runway visual range 1,200 feet).

CAT III - Category III Instrument Landing System. (Minimums: no decision height; Runway visual range of from 0 to 700 feet depending on type of CAT III facility).

CCB - Three letter identifier for Cable Airport.

CENTER'S AREA - The specified airspace within which an air route traffic control center provides air traffic control and advisory service.

CEQA - California Environmental Quality Act

CIRCLING APPROACH - A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in instrument approach is not possible. This maneuver requires ATC clearance and that the pilot establish visual reference to the airport.

CL - Centerline

CMA - Competitive Market Area

CNEL - Community Noise Equivalent Level - a noise metric used in California to describe the overall noise environment of a given area from a variety of sources.

COMM. - Communications

COMMERCIAL SERVICE AIRPORT - A public airport which received scheduled passenger service and enplanes annually 2,500 or more passengers.

COMMUTER AIRLINE - Aircraft operated by an airline that performs scheduled air transportation service over specified routes using aircraft with 60 seats or less.

CONC. - Portland Cement Concrete Pavement

CONICAL SURFACE - An imaginary surface extending upward and outward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

CONNECTION - A passenger who boards an aircraft directly after deplaning from another flight. On-line single carrier connections involve flights of the same carrier, while interline or off-line connections involve flights of two different carriers. This term can also be applied to freight shipments.

CONTROLLED AREA - Airspace within which some or all aircraft may be subject to air traffic control.

CONTROL TOWER - A central operations facility in the terminal air traffic control system consisting of a tower cab structure (including an associated IFR room if radar equipped) using air/ground communications and/or radar, visual signaling and other devices to provide safe and expeditious movement of terminal air traffic.

CONTROL ZONES - These are areas of controlled airspace which extend upward from the surface and terminate at the base of the continental control area. Control zones that do not underlie the continental control area have no upper limit. A control zone may include one or more airports and is normally a circular area with a radius of 5 statute miles of any extensions necessary to include instrument departure and arrival paths.

CONTROLLED AIRSPACE - An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification, Class A, Class B, etc.

CROSSWIND RUNWAY - A runway aligned at an angle to the prevailing wind which allows use of an airport when crosswind conditions on the primary runway would otherwise restrict use.

CTAF – Common Traffic Advisory Frequency

CURFEW - A restriction placed upon all or certain classes of aircraft by time of day, for purposes of reducing or controlling airport noise.

CUP – Conditional Use Permit

CY - Calendar Year

D

DECISION HEIGHT (DH) - With respect to the operation of aircraft, this means the height at which a decision must be made, using an ILS or PAR instrument approach, to either continue the approach or to execute a missed approach.

DEMAND - The actual number of persons, aircraft or vehicles currently using a facility if that facility is operating at or below capacity or the number of persons, aircraft or vehicles who want to use the facility when the facility is operating above capacity.

DEPLANEMENT - Any passenger getting off an arriving aircraft at an airport. Can be both a terminating and connecting passenger. Also applies to freight shipments.

DISTANCE MEASURING EQUIPMENT (DME) - An electronic installation established with either a VOR or ILS to provide distance information from the facility to pilots by reception of electronic signals. It measures, in nautical miles, the distance of an aircraft from a NAVAID.

DoD – United States Department of Defense

E

EMAS – Engineering Material Arresting System

ENPLANEMENT - Any passenger getting on a departing aircraft at an airport. Can be both a terminating and connecting passenger. Also applies to freight shipments.

ENROUTE - The route of flight from point of departure to point of destination, including intermediate stops (excludes local operations).

ENROUTE AIRSPACE - Controlled airspace above and/or adjacent to terminal airspace.

EQUIVALENT SOUND LEVEL (LEQ) - The steady A-weighted sound level over a specified period that has the same acoustic energy as the fluctuating noise during that period.

F

F&E - Facilities and Equipment Programming - FAA

FAA - Federal Aviation Administration of the United States Department of Transportation

FAR - Federal Aviation Regulations

FAR Part 36 - A regulation establishing noise certification standards for aircraft.

FAR Part 77 - A regulation establishing standards for determining obstructions to navigable airspace.

FAR Part 139 - A regulation which prescribes rules governing the certification and operation of land airports which serve any scheduled or unscheduled passenger operation of an air carrier that is conducted with an aircraft having a seating capacity of more than 30 passengers.

FAR Part 150 - A regulation establishing criteria for noise assessment and procedures and criteria for FAA approval of noise compatibility programs.

FBO - Fixed Base Operator

FEDERAL AIRWAYS - See Low Altitude Airways.

FINAL APPROACH IFR - The flight plan of landing aircraft in the direction of landing along the extended runway centerline from the base leg to the runway.

FLEET MIX - The proportion of aircraft types or models expected to operate at an airport.

Flight Pattern – A ground path designated for aircraft to follow as closely as possible when landing at, or taking off from, an airport. If an airport does not have an adopted flight pattern, the FAA has published standard procedures to be used.

FSS - FLIGHT SERVICE STATION - A facility operated by the FAA to provide flight assistance service.

FY - Fiscal Year

G

GA - General Aviation - Refers to all civil aircraft and operations which are not classified as air carrier.

GLIDE SLOPE (GS) - The vertical guidance component of an Instrument Landing System (ILS).

GND CON. - Ground Control

GPS - Global Positioning System

H

HANGAR – In this report hangars are classified as T-hangars, small box hangars, or large box hangars. T-hangars and small box hangars (widths less than 45 feet) are designed to accommodate a single aircraft. T-hangars may be portable. These are assumed to accommodate smaller, personal use aircraft. Individual hangars may be constructed in groups that results in a larger structure, however, the individual hangar spaces are counted separately. Large box hangars (widths greater than or equal to 45 feet) are larger structures designed to accommodate one large aircraft or several small aircraft in an open bay(s) and for the purposes of this report are assumed to house turboprop, helicopters, and business jet aircraft. Conventional hangars are often occupied by an FBO.

HGRS. - Hangars

HIGH ALTITUDE AIRWAYS - See Jet Routes.

HIRL - High Intensity Runway Lighting

HITL - High Intensity Taxiway Lighting

HOLDING - A predetermined maneuver which keeps an aircraft within a specified airspace while awaiting further clearance.

HORIZONTAL SURFACE - An imaginary surface constituting a horizontal plane 150 feet above the airport elevation.

I

IFR - Instrument Flight Rules that govern flight procedures under IFR conditions (limited visibility or other operational constraints).

IMAGINARY SURFACE - An area established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces is, by definition, an obstruction.

INDUCED TRIPS - See Trip.

INSTRUMENT APPROACH - A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the intial approach to a landing or to a point from which a landing may be made visually.

INSTRUMENT LANDING SYSTEM (ILS) - A precision landing aid consisting of localizer (azimuth guidance), glide slope (vertical guidance), outer marker (final approach fix) and approach light system.

INSTRUMENT OPERATION - A landing or takeoff conducted while operating on an instrument flight plan.

INSTRUMENT RUNWAY - A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been established.

INTEGRATED NOISE MODEL (INM) - A computer-based airport noise exposure modeling program.

ITINERANT OPERATIONS - All aircraft arrivals and departures other than local operations.

INTERNATIONAL OPERATIONS - Aircraft operations performed by air carriers engaged in scheduled international service.

J

JET ROUTES - A route designed to serve aircraft operating from 18,000 feet MSL up to and including flight level 450.

JPA – Joint Powers Authority

L

LAT – Latitude

Large Box Hangars – For the purposes of this report, large box hangars are defined as box hangars with a width of greater than or equal to 45 feet.

LDN - Day-Night Average Sound Level. The 24-hour average sound level, in decibels, from midnight to midnight, obtained after the addition of ten decibels to sound levels for periods between 10 p.m. and 7 a.m.

LDNG. AIDS - Landing Aids

LENGTH OF HAUL - The non-stop airline route distance from a particular airport.

LEVEL OF SERVICE - An arbitrary but standardized index of the relative service provided by a transportation facility.

LIRL - Low Intensity Runway Lighting

LITL - Low Intensity Taxiway Lighting

LOAD FACTOR - Ratio of the number of passenger miles to the available seat miles flown by an airline representing the proportion of aircraft seating capacity that is actually sold and utilized. Load factors are also referred to in air cargo and can be determined by weight or volume.

LOC - Localizer (part of an ILS)

LOCAL OPERATION - Operations performed by aircraft which: (a) operate in the local traffic pattern or within the sight of the tower; (b) are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the control tower, or (c) execute simulated instrument approaches or low passes at the airport.

LONG - Longitude

LOW ALTITUDE AIRWAYS - Air routes below 18,000 feet MSL. They are referred to as Federal Airways.

M

MALS - Medium Intensity Approach Light System

MALSF - Medium Intensity Approach Light System with sequence flashing lights.

MALSR - MALS with Runway Alignment Indicator Lights (RAIL)

MARKER BEACON - An electronic navigation facility which transmits a fan or boneshaped radiation pattern. When received by compatible airborne equipment they indicate to the pilot that he is passing over the facility. Two to three beacons are used to advise pilots of their position during an ILS approach.

MGW - Maximum Gross Weight

MILITARY OPERATION - An operation by military aircraft.

MINIMUM DESCENT ALTITUDE (MDA) - The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circling-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

MIRL - Medium Intensity Runway Lighting

MISSED APPROACH - A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at an airport.

MITL - Medium Intensity Taxiway Lighting

MLS - Microwave Landing System

MOA - Military Operations Area

MODAL SPLIT - The distribution of trips among competing travel modes, such as walk, auto, bus, etc.

MODE - A particular form or method of travel such as walk, auto, carpool, bus, rapid transit, etc.

MOVEMENT - Synonymous with the term operation, i.e., a takeoff or a landing.

MSL - Mean Sea Level

N

NA or N/A - Not applicable

NAD 83 – North American Datum of 1983

NAS - NATIONAL AIRSPACE SYSTEM - The common system or air navigation and air traffic encompassing communications facilities, air navigation facilities, airways, controlled airspace, special use airspace and flight procedures authorized by Federal Aviation Regulations for domestic and international aviation.

NAVAID - See Air Navigation Facility.

NAVD 88 – North American Vertical Datum of 1988

NCDC – National Climatic Data Center

NDB - NON-DIRECTIONAL BEACON - An electronic ground station transmitting in all directions in the L/MF frequency spectrum; provides azimuth guidance to aircraft equipped with direction finder receivers. These facilities are often established with ILS outer markers to provide transition guidance to the ILS system.

NEPA - National Environmental Policy Act

NextGen – NextGen is a transformation of the entire aviation system as the FAA transitions to a dynamic, satellite-based navigation system capable of handling future aviation demand.

NM - Nautical Mile

NOISE ABATEMENT - A procedure for the operation of aircraft at an airport which minimizes the impact of noise on the environs of the airport.

NOISE CONTOUR - A noise impact boundary line connecting points on a map where the level of sound is the same.

NOISE EXPOSURE MAP - A scaled, geographic depiction of an airport, its noise contours and surrounding area.

NOISE LEVEL REDUCTION (NLR) - The amount of noise level reduction achieved through incorporation of noise attenuation (between outdoor and indoor levels) in the design and construction of a structure.

NON-PRECISION APPROACH - A standard instrument approach procedure in which no electronic glide slope is provided.

NOTAMs – Notices to Airmen

NPI - Non-Precision Instrument Runway

NPIAS - National Plan of Integrated Airport Systems

O

OBSTACLE FREE ZONE – A volume of airspace below 150 feet above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing and taking off from the runway, and for missed approaches.

OBSTRUCTION - Any structure, growth, or other object, including a mobile object, that exceeds a limiting height established by federal regulations or by a hazard zoning regulation.

OFZ – Obstacle Free Zone

OPERATION - An aircraft arrival at or departure from an airport.

OUTER FIX - A point in the destination terminal area from which aircraft are cleared to the approach fix or final approach course.

P

PANCAP – Practical Annual Capacity

PAPI - Precision Approach Path Indicator

PCI – Pavement Condition Index

PEAK HOUR FACTOR - The ratio of the average flow rate during the peak hour to the highest short-term (say 15 minutes) rate within the peak hour.

PEAK HOUR PERCENTAGE - The percentage of total daily trips or traffic occurring in the highest or "peak" hour. Frequently confused with Peak Hour Factor.

PIR - Precision Instrument Runway

PIREPs – Pilot Reports

POSITIVE CONTROL - The separation of all air traffic within designated airspace by air traffic control.

PRECISION APPROACH - A standard instrument approach procedure in which an electronic glide slope/glide path is provided; e.g., ILS/MLS and PAR.

PRIMARY RUNWAY - The runway on which the majority of operations take place. On large, busy airports, there may be two or more parallel primary runways.

PRIMARY SURFACE - An area longitudinally centered on a runway with a width ranging from 250 to 1000 feet and extending 200 feet beyond the end of a paved runway.

PROHIBITED AREA - Airspace of defined dimensions identified by an area on the surface of the earth within flight is prohibited.

PU - Publicly owned airport.

PVC - Poor visibility and ceiling.

PVT - Privately owned airport.

Q

QUEUE - A line of pedestrians or vehicles waiting to be served.

R

RADAR SEPARATION - Radar spacing of aircraft in accordance with established minima.

RAIL - Runway Alignment Indicator Lights

RCAG - Remote Center Air/Ground Communications

REIL - Runway End Identification Lights

RELIEVER AIRPORT - An airport which, when certain criteria are met, relieves the aeronautical demand on a high density air carrier airport.

RESTRICTED AREAS - Airspace of defined dimensions identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions.

RNAV - See Area Navigation.

ROFA – Runway Object Free Area

ROTATING BEACON - A visual NAVAID displaying flashes of white and/or colored light used to indicate location of an airport.

RPZ – Runway Protection Zone

RSA – Runway Safety Area

RUNWAY OBJECT FREE AREA – An area on the ground centered on a runway centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the object free area for air navigation or aircraft ground maneuvering purposes.

RUNWAY PROTECTION ZONE –An area off the end of the runway end to enhance the protection of people and property on the ground.

RUNWAY SAFETY AREA - An area symmetrical about the runway centerline and extending beyond the ends of the runway which shall be free of obstacles as specified.

RVR - Runway Visual Range

RVV - Runway Visibility Value

RW or R/W - Runway

S

SALS - Short Approach Light System

SCAG – Southern California Association of Governments

SCE – Southern California Edison

SDF - Simplified Directional Facility landing aid providing final approach course.

SEGMENTED CIRCLE - An airport aid identifying the traffic pattern direction.

SEPARATION MINIMA - The minimum longitudinal, lateral, or vertical distances by which aircraft are spaced through the application of air traffic control procedures.

Small Box Hangars – For the purposes of this report, small box hangars are defined as hangars with a width of less than 45 feet.

SOCIOECONOMIC - Data pertaining to the population and economic characteristics of a region.

SSALF - Simplified Short Approach Light System with Sequence Flashing lights.

SSALS - Simplified Short Approach Light System.

SSALR - Simplified Short Approach Light System with Runway Alignment Indicator Lights (RAIL)

STANDARD LAND USE CODING MANUAL (SLUCM) - A standard system for identifying and coding land use activities published by the U.S. Department of Housing and Urban Development and the Federal Highway Administration.

STRAIGHT-IN APPROACH - A descent in an approved procedure in which the final approach course alignment and descent gradient permits authorization of straight-in landing minimums.

STOL - Short Takeoff and Landing

STOVL - Short Takeoff Vertical Landing

SuperAWOS – Similar to an AWOS, the SuperAWOS is FAA certified for altimeter and visibility information. While the SuperAWOS records temperature, dew point, and wind, these data are provided as advisories only. SuperAWOS also provides an automated UNICOM system.

SYSTEM PLAN - A representative of the aviation facilities required to meet the immediate and future air transportation needs and to achieve the overall goals.

T

TACAN - Tactical Air Navigation

TDZ - Touchdown Zone

TERMINAL AIRSPACE - The controlled airspace normally associated with aircraft departure and arrival patterns to/from airports within a terminal system and between adjacent terminal systems in which tower enroute air traffic control service is provided.

TERMINAL CONTROL AREA (TCA) - This consists of controlled airspace extending upward from the surface or higher to specified altitudes within which all aircraft are subject to positive air traffic control procedures.

TERPS - Terminal Instrument Procedures

Tetrahedron – A device normally located on uncontrolled airports and used as a landing direction indicator. The small end of a tetrahedron points in the direction of landing.

T-HANGAR - A T-shaped aircraft hangar that provides shelter for a single airplane.

THRESHOLD - The beginning of that portion of the runway usable for landing.

TOUCH-AND-GO OPERATION - An operation in which the aircraft lands and begins takeoff roll without stopping.

TRAFFIC PATTERN - The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport. The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg and final approach.

TRANSIENT OPERATIONS - See Itinerant Operations.

TRANSITIONAL SURFACE - An element of the imaginary surfaces extending outward at right angles to the runway centerline and from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces.

TRANSITIONAL AIRSPACE - That portion of controlled airspace wherein aircraft change from one phase of flight or flight condition to another.

TRIP - The one-way unit of travel between an origin and a destination.

TRIP ASSIGNMENT - That portion of the transportation planning process where distributed trips are allocated among the actual routes they can be expected to use.

TSA – Transportation Security Administration

TW & T/W - Taxiway

TWR - Control Tower

TVOR - Terminal Very High Frequency Omnirange Station

U

UHF - Ultra High Frequency

UNICOM - Radio communications station which provides pilots with pertinent airport information (winds, weather, etc.) at specific airports.

UTILITY RUNWAY - A runway intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight or less.

V

VASI - Visual Approach Slope Indicator providing visual glide path.

VASI-2 - Two Box Visual Approach Slope Indicator

VASI-4 - Four Box Visual Approach Slope Indicator

VECTOR - A heading issued to an aircraft to provide navigational guidance by radar.

VFR - Visual Flight Rules that govern flight procedures in good weather.

VFR AIRCRAFT - An aircraft conducting flight in accordance with Visual Flight Rules.

VHF - Very High Frequency

VISUAL APPROACH RUNWAY - A runway intended for visual approaches only.

VLJ – VERY LIGHT JET – A small jet aircraft approved for single-pilot operation with a maximum take-off weight of under 10,000 pounds.

VOR - Very High Frequency Omnirange Station. A ground-based radio (electronic) navigation aid transmitting radials in all directions in the VHF frequency spectrum; provides azimuth guidance to pilots by reception of electronic signals.

VORTAC - Co-located VOR and TACAN.

V/STOL - Vertical/Short Takeoff and Landing

VTOL - Vertical Takeoff and Landing (includes, but is not limited to) helicopters.

W

WARNING AREA - Airspace which may contain hazards to non-participating aircraft in international airspace.

WIND CONE (WINDSOCK) - Conical wind directional indicator.

WIND TEE - A visual device used to advise pilots about wind direction at an airport.

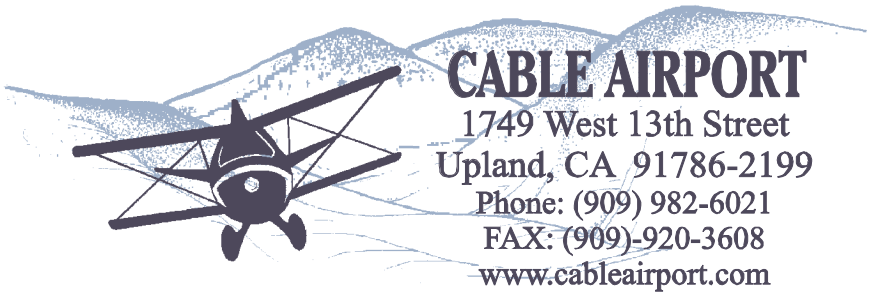
Y

YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (Ldn) - The 24-hour average sound level, in decibels, for the period from midnight to midnight, obtained after the addition of ten decibels to sound levels for the periods between 10 p.m. and 7 a.m. the following day, averaged over a span of one year.

Appendix C

Based Aircraft Owners & Transient Surveys





CABLE AIRPORT
1749 West 13th Street
Upland, CA 91786-2199
Phone: (909) 982-6021
FAX: (909)-920-3608
www.cableairport.com

BASED AIRCRAFT OWNERS SURVEY

Cable Airport is developing an airport master plan. As part of the master plan a based aircraft owner's survey is conducted to: gather your impression on existing facilities/services at the airport and collect suggestions on improvements to existing facilities/services and additional facilities/services. To this end, we would very much appreciate your participation. Please help us by taking a moment of your time to respond to the following questions. If you have any questions, please contact Andrew Scanlon at (909) 933-5225.

OPTIONAL QUESTION

1. If you would allow us to contact you if we have questions regarding your responses, please provide your:

Name
Day Phone

ALL RESPONDENTS PLEASE ANSWER THE FOLLOWING QUESTIONS

2. Where do you live?

State	City	Zip Code

3. Over the next five years I anticipate my flying activity to: {please check}

Increase	
Decrease	
Remain the Same	

4. Please check your type of use(s):

	Have aircraft based here.
	Own a fixed base operation or other business on airport.
	Other:_____

5. Indicate by priority the physical improvements you would like to see at Cable Airport.

	Highest Priority				**Lowest Priority**
Additional T-hangars (42' wide by 34' deep)	5	4	3	2	1
Small Box Hangars (less than 45' wide)	5	4	3	2	1
Large Box Hangars (45' wide or greater)[1]	5	4	3	2	1
Additional Tie-downs	5	4	3	2	1
Additional Transient Parking	5	4	3	2	1
Pavement Resurfacing	5	4	3	2	1
AWOS/SuperAWOS	5	4	3	2	1
Expanded Security Program	5	4	3	2	1
Pilot Shop	5	4	3	2	1
Pilot Lounge	5	4	3	2	1
Flight Planning Area	5	4	3	2	1
Meeting/Waiting Area	5	4	3	2	1
Navaids: _____	5	4	3	2	1
Other: _____	5	4	3	2	1
Other: _____	5	4	3	2	1
Other: _____	5	4	3	2	1

[1] Large Box Hangars can accommodate one larger general aviation airplane or multiple small general aviation aircraft.

6. Rate the adequacy of existing aviation and non-aviation services and facilities as you have observed them that apply to Cable Airport. Please circle "N/A" if you have no personal knowledge/experience of/with a particular item.

	Excellent		**Satisfactory**		**Poor**	**N/A**
Security	5	4	3	2	1	N/A
Security Gates/ID Card System	5	4	3	2	1	N/A
FBO Services	5	4	3	2	1	N/A
Flight Instruction	5	4	3	2	1	N/A
Aircraft Maintenance	5	4	3	2	1	N/A
Navigational Aids	5	4	3	2	1	N/A
Transient Tie-downs	5	4	3	2	1	N/A
Based Aircraft Tie-downs	5	4	3	2	1	N/A
Auto Parking	5	4	3	2	1	N/A
Hangar Facilities	5	4	3	2	1	N/A
Fueling	5	4	3	2	1	N/A
Café	5	4	3	2	1	N/A
Restrooms	5	4	3	2	1	N/A
Flight Planning Area	5	4	3	2	1	N/A
Pavement Condition	5	4	3	2	1	N/A
Crosswind Coverage	5	4	3	2	1	N/A
Rental Car	5	4	3	2	1	N/A
Other: _____	5	4	3	2	1	N/A
Other: _____	5	4	3	2	1	N/A

7. In addition to the topics listed in Questions 5 and 6 above, please list in importance to you the aviation or non-aviation services and facilities you would like to see at the airport.

8. Rate the cost of services and facilities as you have observed them that apply for Cable Airport. If a particular service or facility is not available or does not apply, please circle "N/A".

	Very Low		**Average**		**Very High**	**N/A**
Aircraft Maintenance Rates	5	4	3	2	1	N/A
Avionics Service/Equipment Costs	5	4	3	2	1	N/A
Instrument Service/Equipment Costs	5	4	3	2	1	N/A
Paint Service/Equipment Costs	5	4	3	2	1	N/A
Upholstery Service/Equipment Costs	5	4	3	2	1	N/A
Fuel Costs	5	4	3	2	1	N/A
Hangar Rental Rate	5	4	3	2	1	N/A
Tie-down Rates	5	4	3	2	1	N/A
Transient Tie-down Rates	5	4	3	2	1	N/A
Cafe	5	4	3	2	1	N/A
Other: _____	5	4	3	2	1	N/A

9. What factors most influenced your decision to base your aircraft at Cable? (Please check all that apply)

	Proximity to home.
	Proximity to business.
	Favorable flying conditions.
	Availability of facilities. Please specify (e.g. pavement conditions, terminal facility, restaurant, etc.): _____
	Availability of services. Please specify (e.g. maintenance, fuel, etc.): _____ _____
	Cost of services/airport fees (hangar and tie-down rates).
	Fewer restrictions to pilots, passengers, and the public.
	Lack of control tower
	Other:_____
	Other: _____

10a. If hangars were available, would you want to upgrade from a tie-down to hangar? Yes No

10b. If larger hangars were available would you want to upgrade to a larger hangar? Yes No

10c. Please indicate ***how many of*** your aircraft are stored in tie-downs/hangars and your preference if additional/larger hangars were available:

	Present Method of Storing Based Aircraft	**Preference if Additional/Larger Hangars were Available**
Quantity of aircraft on Tie-downs		
Quantity of aircraft in Hangars		

11. Please provide the following information for your airport activities:

Aircraft Type	**How Many Aircraft?**	**Annual Takeoffs ***	**Percent Touch and Go**
Single-engine under 4 place			
Single-engine 4 place and over			
Multi-engine – piston			
Turboprop			
Turbojet			
Helicopter			
Other: _____			

* Include Touch and Go Operations

12. What percentage of your flights are for the following purposes?

	Business	**Personal**	**Training**	**Other**	**Total**
Single-engine under 4 place					100%
Single-engine 4 place and over					100%
Multi-engine – piston					100%
Turboprop					100%
Turbojet					100%
Helicopter					100%

13. Please estimate the amount of money spent annually in the area (Upland and Claremont) for the operation of your aircraft.

Hangar/Tie-down	$	Insurance	$
Fuel	$	Other: _____	$
Maintenance	$	Other: _____	$

	Total:	**$**

14. Please indicate the type of equipment in your aircraft.

	VOR		3-Lite Marker Beacon
	GPS		Glide Slope Equipment
	WAAS		Distance Measuring Equipment (DME)
	LAAS		Other:_____
	Transponder		Other:_____

15. If you do not buy your fuel, have your avionics, instruments, painting, upholstery, and/or aircraft maintenance performed at Cable Airport, where do you go for these services? And why not Cable Airport?

16. Please use this space for additional comments on previous or other topics pertaining to the airport or master plan (such as, how does the airport compare with others; your thoughts on development around the airport; etc.).

Kindly return your completed questionnaire in the pre-addressed, stamped envelope.

THANK YOU FOR YOUR TIME TO PROVIDE US THIS INFORMATION.

AECOM
c/o Laura Feja
999 Town & Country Road
Orange, CA 92868

AECOM

CABLE AIRPORT MASTER PLAN
TRANSIENT AIRCRAFT SURVEY

Cable Airport is developing an airport master plan. As part of the master plan a survey of transient pilots is conducted to: gather your impression on existing facilities/services at the airport and collect suggestions on improvements to existing facilities/services and additional facilities/services. To this end, we would very much appreciate your comments regarding future airport improvements. This survey is intended for transient (visiting) aircraft. A similar survey is being conducted of aircraft owners that base their aircraft at the airport. Please help us by taking a few moments of your time to respond to the following questions. If additional room is needed, please use the back of this survey. Please return your completed survey to the office attendant or mail to: AECOM (Attn. Laura Feja); 999 Town & Country Road; Orange, CA 92868; Fax: (714) 567 2441.

1. If you would allow us to contact you if we have questions regarding your responses, please provide your:

Name		Day Phone	

2. What type of aircraft do you typically operate at Cable Airport?

Manufacturer	Model	N Number (optional)

3. Where is this aircraft based?

Airport		City, State	

4. From where do most of your trips to Cable originate?

Airport		City, State	

5. Why do you visit Cable Airport? {please check}.

	Have business at Cable, or neighboring city.
	Availability of facilities/services. (specify)_____
	Recreation
	Other:_____

6. If Cable is not the primary destination of your trip, where are you usually traveling and why?

Primary destination	
Reason(s) for visiting primary destination	

7. As a transient flyer to Cable Airport, please provide the following information.

Number of flights per year to Cable	
Approximate air distance (nautical miles) to your home base	

8. Over the next five years I anticipate my visits to Cable Airport to: {please check}

Increase		Decrease		Remain the Same	

9. Please list in importance to you the main improvements you would like to see made.

10. Please list the various facilities on the airport that you use.

11. Rate the adequacy of existing services and facilities as you have observed them that apply for Cable Airport. If a particular service or facility is not available or does not apply, please respond with "N/A" in the right hand margin for those services.

	Excellent		**Satisfactory**		**Poor**	**N/A**
Security	5	4	3	2	1	N/A
Security Gates/ID Card System	5	4	3	2	1	N/A
FBO Services	5	4	3	2	1	N/A
Flight Instruction	5	4	3	2	1	N/A
Aircraft Maintenance	5	4	3	2	1	N/A
Navigational Aids	5	4	3	2	1	N/A
Transient Tie-downs	5	4	3	2	1	N/A
Based Aircraft Tie-downs	5	4	3	2	1	N/A
Auto Parking	5	4	3	2	1	N/A
Hangar Facilities	5	4	3	2	1	N/A
Fueling	5	4	3	2	1	N/A
Café	5	4	3	2	1	N/A
Restrooms	5	4	3	2	1	N/A
Flight Planning Area	5	4	3	2	1	N/A
Pavement Condition	5	4	3	2	1	N/A
Crosswind Coverage	5	4	3	2	1	N/A
Rental Car	5	4	3	2	1	N/A
Terminal Building	5	4	3	2	1	N/A
Other: _____	5	4	3	2	1	N/A

12. Rate the cost of services and facilities as you have observed them that apply for Cable Airport. If a particular service or facility is not available or does not apply, please circle "N/A".

	Very Low		Average		Very High	N/A
Aircraft Maintenance Rates	5	4	3	2	1	N/A
Avionics Service/Equipment Costs	5	4	3	2	1	N/A
Instrument Service/Equipment Costs	5	4	3	2	1	N/A
Fuel Costs	5	4	3	2	1	N/A
Transient Tie-down Rates	5	4	3	2	1	N/A
Cafe	5	4	3	2	1	N/A
Other: _____	5	4	3	2	1	N/A

13. Will you usually buy fuel at Cable? Circle one: Yes No

If yes:

Type:		Average Amount (gallons):	

If no, why not?

14. Please use this space for additional comments on other topics pertaining to the airport or master plan.

15. Would you consider basing your aircraft/business at Cable? Circle one: Yes No

If yes, what facilities would you require (hangar, office, space, tie-down, etc.)? If known, please provide specific sizes.

Kindly return your completed questionnaire to airport staff in the administration building.

THANK YOU FOR YOUR TIME TO PROVIDE US THIS INFORMATION.

AECOM

Appendix D

Cable Airport Aircraft Noise Technical Memorandum



Cable Airport Aircraft Noise Technical Memorandum

Prepared for:
AECOM Transportation

Prepared by:
Jake Weirich

Reviewed by:
Bill Maddux

AECOM Design and Planning – Environmental Noise

March 2011
FINAL

I. Aircraft Noise Exposure Analysis

The noise analysis presented in this technical memorandum has been completed for use in support of the proposed improvements to the Cable Airport. Airport improvements would move Runway 6-24 approximately 140 feet northwest, moving existing Helipads 1 and 2 approximately 2,200 feet north, and adding two additional helipads (3 and 4) adjacent to Helipads 1 and 2 new location. The project is part of improvements to allow for growth and to adhere to the Federal Aviation Administration (FAA) regulations. The project (year 2030) would add 11,320 annual landings/takeoffs compared to existing (2007) conditions (31 additional per day).

The aircraft noise analysis was conducted using the FAA required Integrated Noise Model (INM) in compliance with applicable Federal and State of California approved methodologies as discussed in Section 1.1.3. The methodology employed for the noise analysis is further discussed in Section 1.1, below, including a description of noise metrics and inputs required for modeling.

1.1 Aircraft Noise Analysis Methodology

The methodology for analyzing noise from most transportation or community noise sources, including aircraft, follows a generally accepted process that includes the application of a computer model to estimate noise levels and compare them to those for baseline conditions and future year alternatives.

1.1.1 Modeling Aircraft Noise

For purposes of this analysis, aircraft noise has been modeled using the FAA's Integrated Noise Model (INM). INM is a planning tool designed to compare the relative effect of one set of forecasted conditions against those of another. Therefore, the FAA requires noise exposure patterns based on modeled rather than measured data for its evaluations (FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, paragraph 14b). Section 1.1.2, below, provides an overview of the INM.

Version 7.0b of the INM was used for the aircraft noise analysis in this document. INM 7.0b is the most recent release of the model for use at the time this aircraft noise analysis was conducted. The FAA has made available detailed information related to the updates to INM 7.0b via release notes located on its website (www.faa.gov).

Modeled aircraft CNEL noise exposure maps are used as planning tools to allow the comparison of different scenarios of operations over a broad geographical area.

1.1.2 Integrated Noise Model (INM)

The INM is the accepted, state-of-the-art tool for determining the total effect of aircraft noise exposure at and around airports. The INM has been the FAA's standard tool for determining the predicted noise impact in the vicinity of airports since 1978. Statutory requirements for INM use are defined in FAA Order 1050.1E, *Policies and Procedures for Considering Environmental Impacts*; Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, and Federal Aviation Regulations (FAR) Part 150, *Airport Noise Compatibility Planning.*

The INM uses runway and flight track information, operation levels distributed by time of day, aircraft fleet mix, and aircraft profiles as inputs. The INM produces noise exposure contours connecting points of equal noise exposure levels in a variety of metrics, including CNEL. In addition, the INM can be used to compute noise at specific points on the ground that are input into the model (e.g., homes, schools, religious facilities, and other noise sensitive facilities).

The INM includes flight performance data for a wide variety of aircraft types. The model's aircraft database contains a representation of commercial, general aviation, helicopter and military aircraft powered by turbojet, turbofan, or propeller-driven engines. For each aircraft type in the database, INM incorporates: (1) a set of departure profiles for each applicable trip length as a surrogate for weight, (2) a set of approach parameters, and (3) noise (Single Event Level [SEL]) versus distance curves for several thrust settings.

The model computes the noise from each flight at a large number of grid points on the ground. After each operation is modeled, INM logarithmically sums all the aircraft noise values. Aircraft noise contours (areas) are then generated by connecting grid points with equal levels of noise exposure. Noise contours are then produced, typically in 5 dBA increments including, at a minimum, 65, 70, and 75 dBA.

1.1.3 INM Input Data and Assumptions

In order for the INM to generate CNEL aircraft noise exposure contours that would be viable to evaluate aircraft noise impacts, the following inputs to the model are required:

- A basic description of the airfield, including elevation above mean sea level (MSL), average annual temperature, and runway/helipad layout.
- Aircraft activity information, including the number of aircraft operations by time of day and aircraft type.
- Flight operational data, including use of the runways, location and use of flight tracks, departure profiles, and existing noise abatement procedures.

1.1.4 Aircraft Activity Input

The INM requires the following input data regarding the character and timing of operations at an airport:

- The average number of flights per day by aircraft type, such as Cessna Citation corporate jet (CNA500), or Cessna 172 single-engine propeller aircraft (CNA172),
- Time of day the flights occurred (day: 7:00 a.m. to 6:59 p.m.; evening: 7:00 p.m. to 9:59 p.m.; and night: 10:00 p.m. to 6:59 a.m.), and
- Distance the aircraft is traveling ("stage length" to determine the appropriate climb altitude-speed-thrust profile).

Each of these input factors is discussed below.

Operations by Aircraft Type

Different aircraft types vary dramatically in the amount of noise they generate. The noise level estimates are documented in FAA Advisory Circular 36-3H, *Estimated Airplane Noise Levels in A-Weighted Decibels* (November 2001 as amended), and are based on certificated aircraft noise levels measured at 21,325 feet (6,500 meters) from the start of the takeoff roll. Aircraft noise characteristics can be classified according to Federal noise level standards specified in FAR Part 36, Noise Standards, Aircraft Type and Airworthiness Certification, as meeting Stage 1 (noisiest), Stage 2 (quieter), or Stage 3 (quietest) standards. FAR Part 91, *General Operating and Flight Rules*, specifies that after December 31, 1999, no person may operate a Stage 2 aircraft over 75,000 pounds in the contiguous United States. However, FAR Part 36 Stage 2 general aviation (GA) jet aircraft that weigh less than 75,000 pounds are exempt from this requirement. This includes a number of small jets operated by businesses and individuals.

The INM aircraft database includes information for most, but not all, aircraft types. Therefore, substitutions are often necessary as a means to identify equivalent aircraft for those aircraft that are

not included in the database. The FAA has developed a list of pre-approved aircraft substitutions for use in the INM. In this aircraft noise analysis, the FAA pre-approved list of substitutions used.

Time of Day

As described in Section 1.1.2, above, the CNEL metric applies different weighting penalties to aircraft that operate during the evening or at night. Therefore, the number and type of aircraft operating in the evening and nighttime periods are required inputs to the INM. Due to the CNEL weighting scheme, evening and nighttime operations have a greater effect on the shape and size of the noise exposure area than their number might suggest. A single operation in the evening is equivalent to about three daytime operations, and one operation at night is equivalent to 10 daytime operations.

Stage Length and Takeoff Weight

Stage length (unrelated to "stage" classifications of aircraft for noise characteristics) refers to the nonstop distance an aircraft travels after departing from an airport. The stage length determines the gross takeoff weight assigned to each aircraft type, based upon the amount of fuel that the aircraft must have on board to safely complete the trip. The aircraft weight serves as the basis for determining the appropriate departure altitude, speed and thrust profiles used for modeling purposes. Aircraft noise characteristics vary depending on altitude and thrust. For example, a fully loaded aircraft departing on a long flight would probably weigh more than the same aircraft departing on a shorter flight due to a higher fuel load. The heavier aircraft gains altitude at a slower rate than the lighter aircraft. Thrust levels and distances from the ground are two important factors related to noise levels heard by the noise receiver (e.g., residents near the Airport). The closer the aircraft is to the noise receiver, the shorter distance there is for attenuation and the louder the noise level. Due to the nature of Cable Airport as a general aviation airport and the type of aircraft that operate at the Airport, no aircraft included in this analysis are characterized as operating beyond Stage 1 according to the aircraft databases provided by the FAA in INM.

Average Annual Day (AAD) Activity Levels

For CNEL aircraft noise exposure calculations, aircraft operations associated with the average annual day are used in the INM. To achieve the necessary level of detail and to provide an accurate noise assessment for the existing condition, a full year of activity level data is normally analyzed when available. The numbers of operations by each aircraft type and time of day are divided by 365 to arrive at the average annual day numbers. (Certain inputs in the INM model consider a landing and take-off as a single operation.) This representation of airport activity does not reflect any particular day, but gives an accurate picture of the timing and character of operations throughout the year.

Runway Use

In the INM, runways are defined by runway end in terms of latitude and longitude coordinates. A runway may include a displaced take-off or landing threshold. This portion of the runway is defined to be unavailable for that type of operation for safety reasons (e.g., obstruction clearance). Displaced thresholds are identified in the INM, which uses the input to determine actual start-of-take-off or touchdown points along the runway.

Runway use for departures or arrivals is typically a function of prevailing wind and weather, lengths and widths of the runways, instrumentation, and effects of other airports or air traffic facilities in the area. Runway use may also be influenced by the direction of flight of an arriving or departing aircraft, to some extent on aircraft parking position, and/or periodic closures of runways and

taxiways. Finally, noise abatement practices also may influence the pattern of aircraft movements on a runway.

Aircraft Flight Tracks

Once aircraft leave a runway on departure or approach a runway on arrival, their location and altitude over surrounding communities becomes a determining factor in how much noise would be experienced on the ground. For this reason, flight track information is an important input to the INM. Most pilots fly their aircraft in predictable patterns as they follow instructions from FAA Air Traffic Control handling their movements into or away from an airport. Flight tracks are defined to represent the general paths of the large majority of aircraft located throughout the study area. When using the INM, these flight tracks are specified to capture the complexity of the actual flight patterns. Flight tracks are defined in the INM before aircraft operations can be entered. The number of operations is entered for each aircraft type, runway, and flight track.

Flight Climb and Descent Profiles

A flight profile describes the changes in altitude, thrust settings, and speed that an aircraft undergoes as it departs or approaches a runway. The INM specifies standard departure profiles for each aircraft type in the database, and for various gross weights of the larger aircraft. For arrivals, a three-degree descent that is typical for most flights is assumed in the INM. Standard profiles provided in the INM are used to calculate aircraft noise exposure for Cable Airport.

1.1.5 The Reliability and Utility of the INM

The validity and accuracy of the INM CNEL calculation depend on the accuracy and completeness of the basic information used in the calculations. For 2030 Future Conditions, the number, character, and location of flights are determined based upon a prior INM study conducted for the Airport in 2008 for the City of Upland as part of their General Plan Update. Use of these data yielded a reasonably accurate depiction of noise exposure within the Airport's surrounding communities for planning purposes.

A description of the operational assumptions for the existing condition and the 2030 future year scenario is provided in the following sections.

1.2 Operations by Aircraft Type and Time of Day

Cable Airport is a general aviation airport that generally serves single-engine and multi-engine propeller driven aircraft. Minimal jet aircraft operate at the Airport (approximately 0.5% of operations). Based upon previous studies, aircraft were categorized by the following type categories:

- Single-Engine Propeller
- Multi-Engine Propeller
- Jet-Engine/Experimental Aircraft
- Helicopter

1.2.1 Runway Use

Table I-1 describes the runway configuration at Cable Airport. The Airport operates primarily in an east/west flow configuration due to the typical wind patterns and runway layout. **Table I-2** shows annual runway use at Cable Airport under 2030 Future Conditions. In general, Runway 24 is most often used for arrival, departure, and touch-and-go operations. Runway 6 is used when atypical wind patterns are occurring or during periods of IFR.

Table I-1

Runway Configuration:

Runway	Length (feet)	Displaced Threshold[1] (feet)
6-24	3,865	106

Note:
1/ A point on the runway representing a threshold for landing other than the designated beginning of the runway.

Source: http://www.airnav.com
Prepared by: AECOM 2011

1.2.2 Aircraft Flight Tracks

Flight Track distributions from the 2008 Cable Airport INM study were applied to the 2030 shifted runway and additional flights operations. **Table I-3** shows 2030 flight tracks by runway, aircraft type, and percentage of usage.

1.2.3 Operational Characteristics

Table I-4, below, describes the forecasted AAD operations and fleet mix at the Airport under 2030 Future conditions, upon implementation of the project. The fleet mix at the Airport remains consistent with the City's 2008 INM study. Under 2030 Future conditions, there are anticipated to be approximately 283 AAD operations, representing a general increase in the number of aircraft utilizing Cable Airport as compared to existing conditions.

Approximately 86 percent of operations at the Airport under 2030 Future conditions would be associated with single-engine propeller aircraft, with approximately 7 percent of operations associated with multi-engine propeller aircraft, 1 percent associated with jet and experimental aircraft, and 6 percent associated with helicopters. Runway and flight track distribution for aircraft is expected to be similar to City's 2008 INM study. Helicopter tracks and operations would increase and shift as a result of the addition of two helipads and the relocation of helipad operations to the north side of 6-24 runway.

1.2.4 Helicopter Operations

Substantial changes in helicopter flights patterns and operations are due to the relocation of helipads and helicopter flight paths to the north side of the runway. Major changes in helicopter operations are from the City of Ontario Police Department additional 3 projected flight operations at night over baseline conditions. Due to noise penalties assigned to night operations, this results in an additional 1,095 helicopter flights at night per year. The City of Ontario exempts noise from emergency operations under Ordinance S05-29.06(c). Therefore, flights related to police operations would be considered exempt from applicable regulations. Exclusion of these helicopter operations results in the noise contours shown in **Figure I-1**.

Table I-2

Annual Runway Use Percentages by Fleet Mix: 2030 Future Conditions

Daytime	Arrivals		Departures		Touch-and-Go	
	6	24	6	24	6	24
Aircraft Category						
Single-Engine	1.65%	14.77%	1.64%	14.76%	4.56%	41.08%
Multi-Engine	0.11%	1.07%	0.12%	1.07%	0.12%	1.07%
Jet-Engine	0.06%	0.58%	0.07%	0.57%	0.00%	0.00%
	H1, H2, H3	H4	H1, H2, H3	H4		
Helicopter	0.63%	0.21%	0.64%	0.21%		

Evening	Arrivals		Departures		Touch-and-Go	
	6	24	6	24	6	24
Aircraft Category						
Single-Engine	0.18%	1.73%	0.30%	1.75%	0.55%	4.82%
Multi-Engine	0.02%	0.12%	0.02%	0.13%	0.00%	0.13%
Jet-Engine	0.01%	0.07%	0.01%	0.07%	0.00%	0.00%
	H1, H2, H3	H4	H1, H2, H3	H4		
Helicopter	0.08%	0.03%	0.08%	0.03%		

Nighttime	Arrivals		Departures		Touch-and-Go	
	6	24	6	24	6	24
Aircraft Category						
Single-Engine	0.01%	0.13%	0.02%	0.14%	0.04%	0.40%
Multi-Engine	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Jet-Engine	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	H1, H2, H3	H4	H1, H2, H3	H4		
Helicopter	0.06%	2.06%	0.06%	2.06%		

Notes: Day: 7:00 a.m. to 6:59 p.m., Evening: 7:00 p.m. to 9:59 p.m., Night: 10:00 p.m. to 6:59 a.m.
Totals may not add to 100 percent due to rounding.
Helicopter operations were applied to H1, H2, and H3 evenly; H4 operations are increased from nighttime police activities

Source: City of Upland 2008, AECOM Transportation 2011, the number, character, and location of flights is determined based upon a prior INM study conducted for the Airport in 2008
Prepared by: AECOM 2011

Table I-3

Flight Tracks Utilization Percentages: 2030 Future Conditions

Runway	Track	Day	Evening	Night	Total
6	06-A-OHS	1.7%	0.2%	0.0%	2.0%
	06-D-NE	1.8%	0.2%	0.0%	2.1%
	06-SI-A	0.1%	0.0%	0.0%	0.1%
	06-TGO-L	4.7%	0.6%	0.0%	5.3%
24	24-A-OHN	15.6%	1.8%	0.1%	17.6%
	24-SI-A	0.8%	0.1%	0.0%	0.9%
	24-D-OHN	9.8%	1.2%	0.1%	11.1%
	24-D-S	6.6%	0.8%	0.1%	7.4%
	24-TGO-L	42.1%	4.9%	0.4%	47.5%
H1	H1-A-N	0.1%	0.0%	0.0%	0.1%
	H1-A-S	0.1%	0.0%	0.0%	0.1%
	H1-D-N	0.1%	0.0%	0.0%	0.1%
	H1-D-S	0.1%	0.0%	0.0%	0.1%
H2	H2-A-N	0.1%	0.0%	0.0%	0.1%
	H2-A-S	0.1%	0.0%	0.0%	0.1%
	H2-D-N	0.1%	0.0%	0.0%	0.1%
	H2-D-S	0.1%	0.0%	0.0%	0.1%
H3	H3-A-N	0.1%	0.0%	0.0%	0.1%
	H3-A-S	0.1%	0.0%	0.0%	0.1%
	H3-D-N	0.1%	0.0%	0.0%	0.1%
	H3-D-S	0.1%	0.0%	0.0%	0.1%
H4	H4-A-N	0.1%	0.0%	1.0%	1.1%
	H4-A-S	0.1%	0.0%	1.0%	1.2%
	H4-D-N	0.1%	0.0%	1.0%	1.2%
	H4-D-S	0.1%	0.0%	1.0%	1.2%
Total		85.0%	10.0%	5.0%	100.0%

Notes: Day: 7:00 a.m. to 6:59 p.m., Evening: 7:00 p.m. to 9:59 p.m., Night: 10:00 p.m. to 6:59 a.m.

Source: City of Upland 2008, AECOM Transportation 2011, the number, character, and location of flights is determined based upon a prior INM study conducted for the Airport in 2008

Prepared by: AECOM 2011

Table I-4

Annual Average Day Aircraft Operations and Fleet Mix: 2030 Proposed Action Alternative Forecasted Conditions

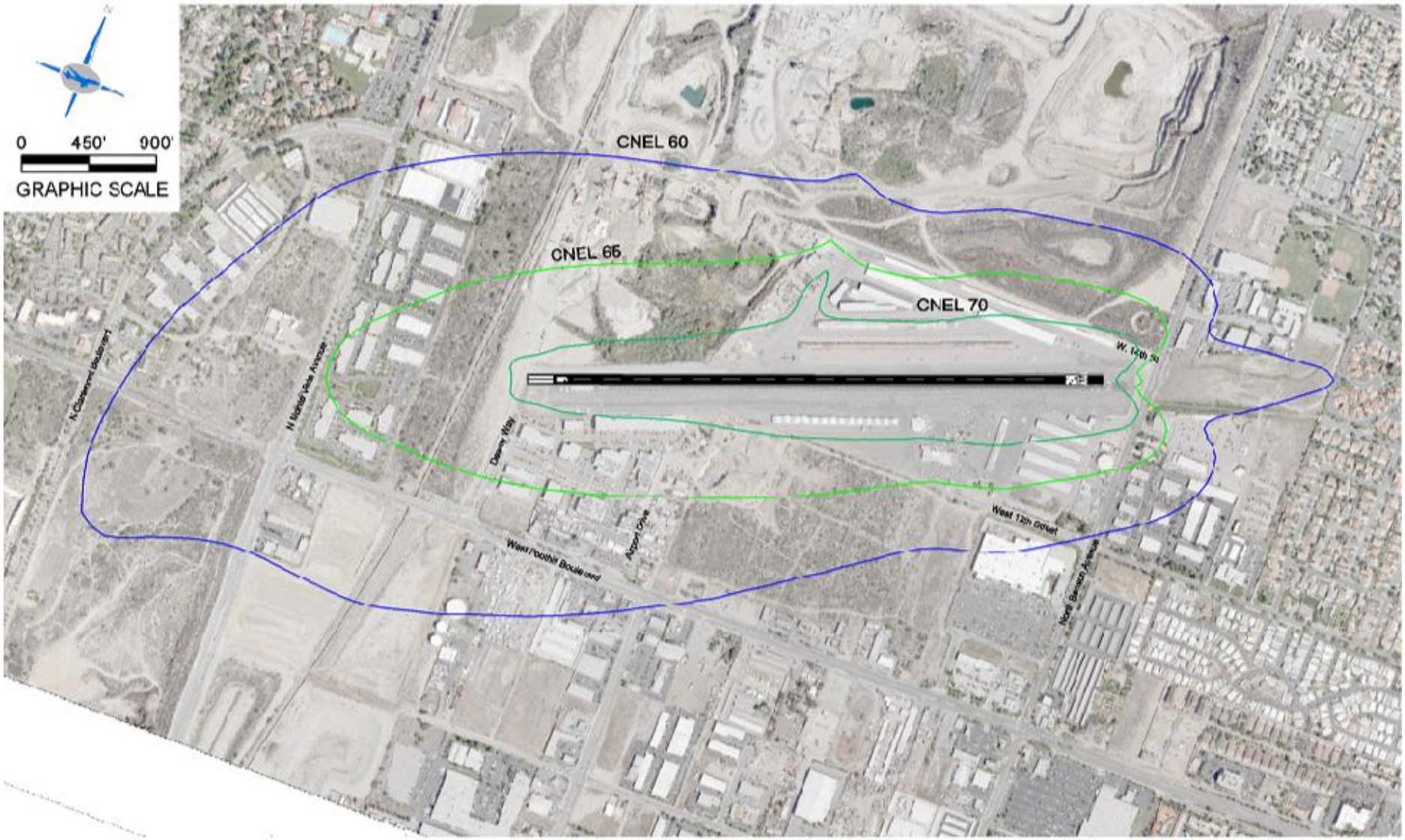
			Arrivals				Departures				Touch-and-Go's			
Aircraft Type	INM 7.0 Designation	Group Category	Daytime	Evening	Nighttime	Total	Daytime	Evening	Nighttime	Total	Daytime	Evening	Nighttime	Total
Single-Engine Propeller														
Cessna 172	CNA172	Single-Engine	21.56	2.51	0.21	24.28	21.52	2.55	0.22	24.28	64.58	7.61	0.63	72.82
Centurian	CNA206	Single-Engine	3.37	0.38	0.00	3.75	3.37	0.41	0.00	3.78	0.00	0.00	0.00	0.00
Single-Engine Fixed Prop	GASEPF	Single-Engine	10.78	1.26	0.10	12.14	10.76	1.27	0.11	12.14	32.29	3.80	0.32	36.41
Single-Engine Variable Pitch Prop	GASEPV	Single-Engine	10.78	1.26	0.10	12.14	10.76	1.27	0.11	12.14	32.29	3.80	0.32	36.41
Single-Engine Propeller Total			46.48	5.41	0.42	52.30	46.41	5.51	0.43	52.35	129.15	15.21	1.27	145.63
Multi-Engine Propeller														
Beech Baron	BEC58P	Multi-Engine	3.36	0.40	0.00	3.77	3.37	0.43	0.00	3.80	3.37	0.35	0.00	3.73
Jet-Engine														
Cessna 500	CNA500	Jet-Engine	1.81	0.21	0.00	2.02	1.80	0.21	0.00	2.01	0.00	0.00	0.00	0.00
Helicopter														
Euro 135 and AS350	AS350	Helicopter	2.38	0.28	6.01	8.68	2.43	0.28	6.01	8.73	0.00	0.00	0.00	0.00
Total AAD Operations														

Notes: Day: 7:00 a.m. to 6:59 p.m., Evening: 7:00 p.m. to 9:59 p.m., Night: 10:00 p.m. to 6:59 a.m.
Totals may not add to 100 percent due to rounding.

Source: AECOM Transportation
Prepared by: AECOM 2011

Figure I-1

2030 Noise Contours without Law Enforcement



APPENDIX J-3:

Cable Airport Land Use Compatibility Plan, Mead and Hunt, September 14, 2015

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Cable Airport Land Use Compatibility Plan







City of Upland, California

Adopted by Upland City Council
September 14, 2015





Cable Airport Land Use Compatibility Plan

Prepared for
City of Upland, California

Adopted by Upland City Council
September 14, 2015

Prepared by

Mead & Hunt

Santa Rosa, California

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Chapter 1

Introduction

1

Introduction

Overview of the Plan

The basic function of this *Cable Airport Land Use Compatibility Plan (Compatibility Plan)* is to promote compatibility between Cable Airport and the land uses that surround it. As required by state law, the plan provides overarching guidance to affected local land use jurisdictions with regard to airport land use compatibility matters involving Cable Airport. The *Compatibility Plan* is separate and distinct from the jurisdictions' other land use policy documents—their general plans and zoning ordinances—yet all of the documents are expected to be made consistent with each other through incorporation of the compatibility policies into the general plans and zoning ordinances. The latter will then become the mechanisms by which the compatibility policies are implemented.

The *Compatibility Plan* is prospective in that it seeks to avoid future compatibility conflicts rather than to remedy existing incompatibilities. Also, the plan is land use oriented in that the compatibility measures defined in it are aimed at future land use development, not at airport activity. The *Compatibility Plan* does not place any restrictions on the present role, configuration, or use of the airport. Rather, the *Compatibility Plan* takes into account the proposed runway alignment change and projected activity growth indicated in the April 2011 *Cable Airport Master Plan*.

The central components of the *Compatibility Plan* are procedural policies listed in Chapter 2 and the set of compatibility criteria outlined in Chapter 3. The criteria set limits on future land use development near the airport in response to noise, safety, airspace protection, and overflight impacts of current and future airport activity. The geographic extent of these four types of impacts together constitute the Cable Airport influence area. The procedural policies establish the process by which proposed land use development is to be evaluated for consistency with the compatibility criteria.

The Cable Airport influence area encompasses lands within parts of both San Bernardino and Los Angeles Counties. However, this *Compatibility Plan* applies only to jurisdictions within San Bernardino County; specifically, the cities of Upland and Montclair, together with any special district, community college district, or school district that exists or may be established or expanded into the airport influence area. The *Compatibility Plan* does not apply to federal, state, or tribal lands.

The *Cable Airport Land Use Compatibility Plan* has been prepared in conjunction with the 2008-15 update of the Upland General Plan and, after public review, has been adopted by the City of Upland. The City of Montclair is similarly expected to adopt the components of the plan applicable within its jurisdiction. (Note that the compatibility policies set forth herein, specifically in Chapter 3, are relevant to Los Angeles County jurisdictions and the Los Angeles County Airport Land Use Commission is encouraged to adopt these policies for its portion of the Cable Airport influence area.)

COMPATIBILITY PLANNING REQUIREMENTS OF STATE LAW

Requirements for land use compatibility planning around airports in California are defined in the California State Aeronautics Act (Public Utilities Code Sections 21670 *et seq.*). Although the law has been amended numerous times since its original enactment in 1967, the statute's fundamental purpose of promoting land use compatibility around airports has remained unchanged. As expressed in the present statutes, this purpose is:

> "...to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

The primary tool by which compatibility planning is accomplished is an airport land use compatibility plan. With limited exceptions, a compatibility plan is required for every public-use and military airport in the state.

The "Alternative Process"

In most counties, the responsibility for preparation and adoption of compatibility plans falls to the airport land use commission (ALUC) in that county. State law, though, also provides for what is generally referred to as an "alternative process" wherein counties do not have to form an ALUC, but compatibility planning is nevertheless required. San Bernardino County and its cities elected to follow the alternative process when this option became available as a result of 1994 legislation.

Specific requirements for implementation of the alternative process are set forth in Public Utilities Code Section 21670.1(c)(2) as follows:

> "…[the] county and the appropriate affected cities having jurisdiction over an airport, subject to the review and approval by the Division of Aeronautics of the department, shall do all of the following:
>
> (A) Adopt processes for the preparation, adoption, and amendment of the airport land use compatibility plan for each airport that is served by a scheduled airline or operated for the benefit of the general public.
>
> (B) Adopt processes for the notification of the general public, landowners, interested groups, and other public agencies regarding the preparation, adoption, and amendment of the airport land use compatibility plans.
>
> (C) Adopt processes for the mediation of disputes arising from the preparation, adoption, and amendment of the airport land use compatibility plans.
>
> (D) Adopt processes for the amendment of general and specific plans to be consistent with the airport land use compatibility plans.
>
> (E) Designate the agency that shall be responsible for the preparation, adoption, and amendment of each airport land use compatibility plan."

Paragraph (3) of Section 21670(c) goes on to say that:

> "The Division of Aeronautics of the department shall review the processes adopted pursuant to paragraph (2), and shall approve the processes if the division determines that the processes are consistent with the procedure required by this article and will do all of the following:

(A) Result in the preparation, adoption, and implementation of plans within a reasonable amount of time.

(B) Rely on the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations.

(C) Provide adequate opportunities for notice to, review of, and comment by the general public, landowners, interested groups, and other public agencies."

The alternative process for Cable Airport, as established in 1996 and approved by the Division of Aeronautics, places the City of Upland in the lead role for compatibility planning around the airport (see Appendix F). The policies in Chapter 2 of this *Cable Airport Land Use Compatibility Plan* clarify and amend the process previously established. Additionally, Chapter 3 updates the compatibility criteria to be applied to the review of new land use development around the airport.

For a complete copy of Public Utilities Code Sections 21670 *et seq.* as well as other state laws pertaining to airport land use compatibility planning, see Appendix A of this *Compatibility Plan*.

Compatibility Planning Guidelines

State law defines many of the procedures that govern how ALUCs operate. Although there is no countywide ALUC in San Bernardino County, some of the processes that ALUCs must follow in preparation and adoption of compatibility plans and in review of individual development proposals are still applicable under the alternative process. The development review procedure policies in Chapter 2 parallel the ALUC review process in that the policies distinguish between review of proposed adoption of or amendments to general plans, specific plans, and zoning ordinances—actions for which an ALUC review would be mandatory—and the review of other individual development proposals. Review of airport development actions is also treated in a distinct manner.

With respect to airport land use compatibility criteria, state law says very little. Instead, a section of the law enacted in 1994 refers to another document, the *California Airport Land Use Planning Handbook* published by the California Division of Aeronautics. Specifically, the statutes say that, when preparing compatibility plans for individual airports, ALUCs shall "be guided by" the information contained in the *Handbook*. The *Handbook* is not regulatory in nature, however, and it does not constitute formal state policy except to the extent that it explicitly refers to state laws. Rather, its guidance is intended to serve as the starting point for compatibility planning around individual airports.

As noted above, the statutes require that local jurisdictions utilizing the alternative process rely upon the compatibility guidance provided by the *Handbook*. The policies and maps in this *Compatibility Plan* take into account the guidance provided by the current edition of the *Handbook*, dated October 2011.

An additional function of the *Handbook* is established elsewhere in California state law. The Public Resources Code creates a tie between the *Handbook* and California Environmental Quality Act (CEQA) documents. Specifically, Section 21096 requires that lead agencies must use the *Handbook* as "a technical resource" when assessing airport-related noise and safety impacts of projects located in the vicinity of airports.

The October 2011 edition of the *Handbook* is available for downloading from the Division of Aeronautics web site (www.dot.ca.gov/hq/planning/aeronaut).

COMPATIBILITY PLAN RELATIONSHIP TO AIRPORT AND LOCAL PLANS

Relationship to Cable Airport Plans

Airport layout plans, airport master plans, and airport land use compatibility plans are all distinct in function and content, but closely interrelated. An airport layout plan is a drawing showing existing facilities and planned improvements. A typical airport master plan includes an airport layout plan, but also provides textual background data, a discussion of forecasts, and an examination of alternatives along with detailed description of the proposed development. Airport layout plans and airport master plans are prepared for and adopted by the entity that owns and/or operates the airport. Most large, publicly owned airports have an airport master plan, but many smaller or private airports do not.

In contrast to airport layout plans and airport master plans, the focus of which is normally on on-airport concerns, airport land use compatibility plans mostly address off-airport issues. The major purpose of a compatibility plan is to ensure that incompatible development does not occur on lands surrounding the airport. Compatibility plans are required to reflect the planned airport development and anticipated activity at least 20 years into the future. The responsibility for preparation and adoption of compatibility plans lies with each county's airport land use commission or, when an alternative process is in place as in San Bernardino County, with each jurisdiction assigned the compatibility planning functions.

State law (Public Utilities Code Section 21675(a)) dictates that airport land use compatibility plans be based upon an airport master plan or airport layout plan. If the airport has an adopted master plan, it is used. Where an airport master plan is not available or is outdated, an airport layout plan drawing can serve as the basis for compatibility planning, subject to acceptance by the California Division of Aeronautics. In either case, the key features of the airport plans relevant to a compatibility plan are the current and future configuration of the runways, the types and configuration of visual and instrument approach procedures, the types of aircraft that operate at the airport, and the projected volume of aircraft operations.

Cable Airport recently completed a *Master Plan* that has served as the basis for this *Compatibility Plan*. Dated April 2011, the *Master Plan* remains in a draft final status pending approval by the City of Upland in conjunction with modifications to the airport's Conditional Use Permit. The Conditional Use Permit establishes limitations on runway length, noise impacts, and other aspects of the airport's development and use (see Appendix F). Among the *Master Plan* recommendations, one that is particularly significant to off-airport land use compatibility is the proposal to slightly shift the runway alignment northward and westward to enable compliance with current Federal Aviation Administration design standards. The runway length would remain unchanged at 3,864 feet. A simplified diagram of the airport layout showing this change is included in the Supporting Data section of this *Compatibility Plan*.

Airport Activity Forecasts

In addition to the requirement that a compatibility plan be based upon the adopted airport master plan or state-accepted airport layout plan, the Public Utilities Code says that a compatibility plan must reflect "the anticipated growth of the airport during at least the next 20 years." Frequently, unless the master plan is very recent, its forecasts cannot be directly used because they do not cover the requisite 20-year time period. A final forecasting factor therefore is one pointed out in the *Handbook*:

> "…most airports presumably will remain in operation for more than 20 years. This factor combined with the characteristic uncertainty of forecasting suggests that, for the purpose of airport land use compatibility planning, using a high estimate of long-range activity levels is generally preferable to underestimating the future potential. This strategy especially applies with respect to assessment of noise impacts. Too low of a forecast may allow compatibility conflicts that cannot later be undone."

The caveat to this methodology, as also stated in the *Handbook*, is that "activity projections must also be reasonable."

The 2010 *Master Plan* indicates that the airport experienced 41,000 operations in 2009, the forecast base year. Although newer data is not available, activity for the 2012-2103 time period is likely about the same. Three long-range forecast scenarios are presented in the *Master Plan* ranging from no growth to a very high growth rate. The *Master Plan* selected the middle or "baseline" forecast for master planning purposes. This forecast anticipates as many as 103,300 annual aircraft operations in 2030. Given that recent airport activity has presumably remained relatively constant, this *Master Plan* forecast is judged to have the requisite 20-year time horizon needed for the purposes of this *Cable Airport Land Use Compatibility Plan* and is therefore used here as well. Additional data regarding current and future airport activity is included in the Supporting Data section of this document.

Relationship to General Plans

As noted at the beginning of this chapter, preparation of the *Cable Airport Land Use Compatibility Plan* was done in conjunction with efforts by the City of Upland to update its citywide general plan. Guidance contained in the *Compatibility Plan* was utilized in the general plan to help ensure that future land use development around the airport is compatible with airport activity.

Several sections of state law further establish the relationship between airport land use compatibility plans and county and city general plans. In particular, Government Code Section 65302.3 requires that general plans and any applicable specific plans "shall be consistent with" the compatibility plan. This requirement is echoed in local agencies' obligations under the alternative process as quoted above (Public Utilities Code Section 21670.1(c)(2)(D)). It is important to recognize the directionality of this consistency requirement: general plans and specific plans must be made consistent with the compatibility plan, not the opposite. In the case of the Upland General Plan and the *Cable Airport Land Use Compatibility Plan*, the overlapping work has enabled close coordination between the two documents and no inconsistencies are expected to result.

A second point to emphasize is that the consistency requirement pertains only to future land use development. Nothing in state law or the *Cable Airport Land Use Compatibility Plan* requires that already existing development be removed or modified to eliminate incompatibilities that may already exist. Furthermore, general plans and specific plans can show such land uses as continuing even though they would be nonconforming with the *Compatibility Plan* criteria. Conflicts of this type do not constitute inconsistencies between a general plan or specific plan and the *Compatibility Plan*.

Finally, another aspect of the relationship between general plans and compatibility plans that is important to understand is that a general plan does not need to be identical with the compatibility plan in order to be consistent with it. To meet the consistency test, a general plan must do two things:

- It must specifically address compatibility planning issues, either directly or through reference to a zoning ordinance or other policy document; and

- It must avoid direct conflicts with compatibility planning criteria (for example, by allowing new development in locations where the *Compatibility Plan* would deem the particular use to be incompatible).

Compatibility planning issues can be reflected in a general plan in any, or a combination, of several ways:

- **Incorporate Policies into Existing General Plan Elements**—One method of achieving the necessary planning consistency is to modify existing general plan elements. For example, airport land use noise policies could be inserted into the noise element, safety policies could be placed into a safety element, and the primary compatibility criteria and associated maps plus the procedural policies might fit into the land use element. With this approach, direct conflicts would be eliminated and the majority of the mechanisms and procedures necessary to ensure compliance with compatibility criteria could be fully incorporated into the local jurisdiction's general plan.

- **Adopt a General Plan Airport Element**—Another approach is to prepare a separate airport element of the general plan. Such a format may be advantageous when the community's general plan also needs to address on-airport development and operational issues. Modification of other plan elements to provide cross-referencing and eliminate conflicts would still be necessary.

- **Adopt Compatibility Plan as Stand-Alone Document**—A jurisdiction selecting this option would simply adopt as a local policy document the relevant portions of the compatibility plan—specifically, the policies and maps. Applicable background information could be included as well if desired. Changes to the community's existing general plan would be minimal. Policy reference to the compatibility plan would need to be added and any direct land use or other conflicts with compatibility planning criteria would have to be removed. Limited discussion of compatibility planning issues could be included in the general plan, but the substance of most compatibility policies would appear only in the stand-alone document.

- **Adopt Airport Combining District or Overlay Zoning Ordinance**—This approach is similar to the stand-alone document except that the local jurisdiction would not explicitly adopt the compatibility plan as policy. Instead, the compatibility policies would be restructured as an airport combining or overlay zoning ordinance. A combining zone serves as an overlay of standard community-wide land use zones and modifies or limits the uses permitted by the underlying zone. Flood hazard combining zoning is a common example. An airport combining zone ordinance can serve as a convenient means of bringing various airport compatibility criteria into one place. The airport-related height-limit zoning that many jurisdictions have adopted as a means of protecting airport airspace is a form of combining district zoning. Noise and safety compatibility criteria, together with procedural policies, would need to be added to create a complete airport compatibility zoning ordinance. Other than where direct conflicts need to be eliminated from the local plans, implementation of compatibility policies would be accomplished solely through the zoning ordinance. Policy reference to airport compatibility in the general plan could be as simple as mentioning support for the compatibility planning process indicated in the compatibility plan and stating that policy implementation is by means of the combining zone. (An outline of topics which could be addressed in an airport combining zone is included in Appendix E.)

Multiple formats are utilized by the City of Upland. First, as a requirement of the alternative process, the city has adopted the *Cable Airport Land Use Compatibility Plan* as a stand-alone policy document. Additionally, key components of the *Compatibility Plan*, particularly the basic compatibility criteria, are reflected in the General Plan. Lastly, to facilitate implementation, the city will adopt an airport overlay

zone. These same options are available to the City of Montclair with respect to the portion of the Cable Airport influence area that extends into its jurisdiction.

PLAN CONTENTS

This *Cable Airport Land Use Compatibility Plan* is organized into three chapters, a Supporting Data section, and a set of appendices. The intent of this introductory chapter is to set the overall context of airport land use compatibility planning in general and for Cable Airport and the alternative process in particular.

The most important components of the plan are found in Chapters 2 and 3. Chapter 2 outlines the processes to be used by the City of Upland, City of Montclair, and other affected local agencies in the review of future general plan or specific plan amendments and individual development actions within the airport influence area. Policies addressing the review of certain types of potential airport development are also indicated. The policies and procedures in this chapter are specifically written with the alternative process in mind. If state law changes to eliminate the alternative process option and mandate establishment of a countywide airport land use commission in San Bernardino County, then much of Chapter 2 would need to be revised.

Chapter 3 contains the compatibility criteria applicable to the Cable Airport influence area, excluding the portion that extends into Los Angeles County jurisdictions. The general plans of Upland and Montclair must be consistent with these criteria in terms of future land use development.

Background information regarding Cable Airport and the land uses around the airport is summarized in the Supporting Data section. Also in this section is a discussion of airport land use compatibility planning concepts and strategies and a description of the impacts created by Cable Airport activity.

Finally, the document appendices contain a copy of state statutes concerning airport land use commissions and other general information pertaining to airport land use compatibility planning. This material is taken from other sources and does not represent ALUC policy or criteria except where cited as such in Chapters 2 and 3—specifically the state ALUC statutes and certain other laws (Appendix A) and Federal Aviation Regulations Part 77 (Appendix B).

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Chapter 2

Compatibility Review Procedures

2

Compatibility Review Procedures

Basic Purpose:

The basic purpose of this *Cable Airport Land Use Compatibility Plan* is to articulate procedural policies and compatibility criteria, established in accordance with the California State Aeronautics Act (Public Utilities Code Section 21670 et seq.), applicable to airport land use compatibility planning in the vicinity of Cable Airport. Specifically, Section 21670(a)(2) states that:

> "It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

The "Alternative Process:"

Land use compatibility planning for airports in San Bernardino County, including Cable Airport, is conducted under the "alternative process" as enabled by Public Utilities Code Section 21670.1(c). A countywide airport land use commission (ALUC) is not established in the county, but preparation of airport land use compatibility plans and processes to implement the plans is required. The process approved by the California Division of Aeronautics in 1996 assigns the City of Upland with the lead responsibility for compatibility planning around Cable Airport.

Review Procedure Under the "Alternative Process:"

In counties where an ALUC is established, state law requires that certain types of land use and airport-related actions proposed by local agencies be submitted to the commission for determination of whether the proposed action is consistent with the policies adopted for that airport by the commission. With the alternative process, an ALUC is not established, but airport land use compatibility planning—including preparation and adoption of an airport land use compatibility plan and the requirement that general plans and specific plans be consistent with the compatibility plan—remains mandatory. The intent of the policies in this chapter of the *Cable Airport Land Use Compatibility Plan* is to define a comparable review process to be followed directly by the affected local agencies.

2.1. Purpose and Use

2.1.1. *Government Entities Affected:* The policies of this *Compatibility Plan* apply to the following governmental entities in San Bernardino County having control over lands within the Cable Airport influence area depicted on **Map 3A**, *Compatibility Map*.

(a) The affected local agencies (see definition in Policy 2.2.16) are:

(1) The City of Upland.

(2) The City of Montclair.

(3) Special districts, school districts, and community college districts, either existing or future, to the extent that the district boundaries extend into the airport influence area.

(b) The Cable Airport influence area extends into the County of Los Angeles and affects lands within the jurisdiction of the City of Claremont; however the policies of this *Compatibility Plan* do not apply to the Los Angeles County jurisdictions. The Los Angeles County Airport Land Use Commission (ALUC) is responsible for compatibility planning within the Los Angeles County boundaries.

(c) Lands controlled by federal agencies, state agencies, or Native American tribes are not subject to the provisions of this plan.

2.1.2. *Use by Particular Local Agencies:* The City of Upland and other affected local agencies shall use the policies in this *Compatibility Plan* in the following manner:

(a) The City of Upland shall:

(1) Adopt this *Compatibility Plan* as the basis for determining the compatibility of new development in the Cable Airport influence area.

(2) As required by state law,[1] modify its general plan and zoning ordinance to be consistent with the policies in the *Compatibility Plan*.

(3) Utilize the *Compatibility Plan*, either directly or as reflected in the appropriately modified general plan and zoning ordinance, when making other planning decisions regarding proposed development of lands within the Cable Airport influence area.

(4) Utilize the *Compatibility Plan* as the basis for reviewing proposed plans for development of Cable Airport that could have implications on land use compatibility around the airport.

(5) Coordinate with and assist (such as by providing information and guidance regarding compatibility issues) other entities having jurisdiction over lands within the Cable Airport influence area to help them ensure compliance with the policies of this *Compatibility Plan*.

(6) Encourage the Los Angeles County ALUC to adopt a compatibility plan for the portion of the Cable Airport influence area lying within its jurisdiction. Provide information to the City of Claremont regarding Cable Airport land use compatibility matters.

(b) The City of Montclair shall:

(1) Incorporate the relevant compatibility policies and criteria (see Policy 2.3.2(b)) of this *Compatibility Plan* into city plans, zoning, and other policy documents.

(2) Inform the City of Upland and Cable Airport management about any proposed development within the city's portion of the airport influence area that could affect or be affected by airport operations.

(c) Special districts, school districts, and community college districts shall:

(1) Incorporate the relevant compatibility policies of this *Compatibility Plan* when creating plans and making other planning decisions regarding the proposed development of lands under their control with the Cable Airport influence area.

[1] Public Utilities Code Section 21676(a).

(2) Submit proposed land use actions to the City of Upland for review in accordance with Policies 2.5.1 and 2.5.2 herein.

(d) The Los Angeles County ALUC is encouraged to adopt an airport influence area and a compatibility plan for the portion of the Cable Airport influence area lying within its jurisdiction.

(e) The City of Claremont is encouraged to:

(1) Adopt a compatibility plan for the portion of the Cable Airport influence area lying within its jurisdiction or otherwise incorporate the relevant compatibility policies into its plans, zoning, and other policy documents.

(2) Inform the City of Upland and Cable Airport management about any proposed development within the city limits that could affect or be affected by airport operations.

(f) Cable Airport management shall:

(1) Provide information to the City of Upland regarding any proposed changes in the configuration or use of the airport that could affect the airport's impacts on nearby land uses and seek city approval in accordance with established conditional use permit procedures.

(2) Assist the City of Upland in the review of proposed land use development near the airport by providing comments on those proposals, if requested.

2.2. Definitions

The following definitions apply for the purposes of the policies set forth in this *Compatibility Plan*. In addition, general terms pertaining to airport and land use planning are defined in the *Glossary* (Appendix G).

2.2.1. *Aeronautics Act:* Except as indicated otherwise, the article of the California Public Utilities Code (Sections 21670 *et seq.*) pertaining to airport land use commissions and airport land use compatibility planning.

2.2.2. *Airport:* Cable Airport, an airport in the City of Upland that is privately owned, but open to public use.

2.2.3. *Airport Influence Area:* An area, as delineated on **Map 3A**, *Compatibility Map*, in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. The airport influence area constitutes the area within which certain land use actions are subject to review to determine consistency with the policies herein.

2.2.4. *Airport Land Use Committee:* A committee comprised of the full City of Upland Planning Commission and two additional community members that have aviation-related experience.

2.2.5. *Airport Proximity Disclosure:* A form of buyer awareness documentation required by California state law and applicable to many transactions involving residential real estate including previously occupied dwellings. The disclosure notifies a prospective purchaser that the property is located in proximity to an airport and may be subject to annoyances and inconveniences associated with the flight of aircraft to, from, and around the airport. See

Criterion 3.5.2 in Chapter 3 for applicability. Also see Policy 2.2.24 for a related buyer awareness tool, *Recorded Overflight Notification*.

2.2.6. *Airspace Protection Area:* The area beneath the airspace protection surfaces for Cable Airport as depicted on **Map 3B**, *Existing Airspace Protection Surfaces*, and **Map 3C**, *Future Airspace Protection Surfaces*.

2.2.7. *Airspace Protection Surfaces:* Imaginary surfaces in the airspace surrounding the Cable Airport defined in accordance with criteria set forth in Federal Aviation Regulations Part 77. These surfaces, depicted on **Map 3B**, *Existing Airspace Protection Surfaces*, and **Map 3C**, *Future Airspace Protection Surfaces*, establish the maximum height that objects on the ground can reach without potentially creating constraints or hazards to the use of the airspace by aircraft approaching, departing, or maneuvering in the vicinity of the airport.

2.2.8. *Aviation-Related Use:* Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. Such uses specifically include runways, taxiways, and their associated protection areas defined by the Federal Aviation Administration, together with aircraft aprons, hangars, fixed base operations facilities, terminal buildings, etc.

2.2.9. *Avigation Easement:* An easement that conveys rights associated with aircraft overflight of a property, including but not limited to creation of noise and limits on the height of structures and trees, etc. (see Appendix E).

2.2.10. *Community Noise Equivalent Level (CNEL):* The noise metric adopted by the State of California for land use planning purposes, including describing airport noise impacts. The noise impacts are typically depicted by a set of contours, each of which represents points having the same CNEL value.

2.2.11. *Compatibility Plan:* This document, the *Cable Airport Land Use Compatibility Plan*.

2.2.12. *Compatibility Zone:* Any of the zones established herein that indicate where noise, safety, airspace protection, or overflight factors associated with Cable Airport may represent a compatibility concern.

2.2.13. *Density:* The number of dwelling units per acre. Density is used in this *Compatibility Plan* as the measure by which proposed residential development is evaluated for compliance with noise and safety compatibility criteria (compare *intensity*). Density is calculated on the basis of the overall site size (i.e., gross acreage of the site).

2.2.14. *Existing Land Use:* A land use that either physically exists or for which local agency (see Policy 2.2.16) commitments to the proposal have been obtained and entitle the project to move forward (see Policy 2.4.2).

2.2.15. *Federal Aviation Regulations (FAR) Part 77:* The part of Federal Aviation Regulations that deals with objects affecting navigable airspace in the vicinity of airports. Objects that exceed the Part 77 height limits constitute airspace obstructions (also see *Glossary*).

2.2.16. *Intensity:* The number of people per acre. Intensity is used in this *Compatibility Plan* as the measure by which most proposed nonresidential development is evaluated for compliance with safety compatibility criteria (compare *density*). Sitewide average intensity is calculated on the basis of the overall site size (i.e., gross acreage of the site).

2.2.17. *Local Agency:* For the purposes of this *Compatibility Plan*, the cities of Upland and Montclair or other local governmental entity such as a special district, school district, or community college district—including any future new district—having jurisdictional territory lying

within the Cable Airport influence area as defined herein. These entities are subject to the provisions of this *Compatibility Plan*.

2.2.18. *Major Land Use Action:* Actions related to proposed land uses for which compatibility with airport activity is a particular concern. These types of actions are listed in Policy 2.5.6 and require Airport Land Use Committee review.

2.2.19. *Noise Impact Area:* The area within which the noise impacts, measured in terms of CNEL, generated by the airport may represent a land use compatibility concern. The noise impact area for Cable Airport is depicted on **Map 3E**, *Future Noise Impact Area*.

2.2.20. *Noise-Sensitive Land Uses:* Land uses for which the associated primary activities, whether indoor or outdoor, are susceptible to disruption by loud noise events. The most common types of noise sensitive land uses include, but are not limited to, the following: residential, hospitals, nursing facilities, intermediate care facilities, educational facilities, libraries, museums, places of worship, child-care facilities, and certain types of passive recreational parks and open space where quiet is expected.

2.2.21. *Nonconforming Use:* An existing land use that does not comply with the compatibility criteria set forth in this *Compatibility Plan*. See Criterion 3.6.2 in Chapter 3 for criteria applicable to land use actions involving nonconforming uses.

2.2.22. *Project; Land Use Action; Development Proposal:* Terms similar in meaning and all referring to the types of land use matters, either publicly or privately sponsored, that are subject to the provisions of this *Compatibility Plan*.

2.2.23. *Reconstruction*: The rebuilding of an existing nonconforming structure that has been fully or partially destroyed as a result of a calamity (as opposed to *redevelopment* which may involve intentional destruction of structures). See Criterion 3.6.4 in Chapter 3.

2.2.24. *Recorded Overflight Notification:* A form of buyer awareness documentation recorded in the chain of title of a property stating that the property may be subject to annoyances and inconveniences associated with the flight of aircraft to, from, and around a nearby airport. Unlike an *avigation easement* (see Policy 2.2.9), a *recorded overflight notification* does not convey property rights from the property owner to the airport and does not restrict the height of objects. See Criterion 3.5.1 for applicability. Also see Criterion 3.5.2 for a related buyer awareness tool, *airport proximity disclosure*.

2.2.25. *Redevelopment:* Any new construction that replaces the existing use of a site, particularly at a density or intensity greater than that of the existing use. Redevelopment projects are subject to the provisions of this *Compatibility Plan* to the same extent as other forms of proposed development.

2.3. Geographic Scope

2.3.1. *Nature of Compatibility Concerns:*

(a) Four types of airport land use compatibility concerns are addressed by the policies in this *Compatibility Plan*:

(1) Noise: Locations exposed to potentially disruptive levels of aircraft noise.

(2) Safety: Areas where the risk of an aircraft accident poses heightened safety concerns for people and property on the ground.

(3) Airspace Protection: Places where height and various other land use characteristics need to be restricted in order to prevent creation of physical, visual, or electronic hazards to flight within the airspace required for operation of aircraft to and from the airport.

(4) Overflight: Locations where aircraft overflights can be intrusive and annoying to many people.

(b) Other impacts sometimes created by airports (e.g., air pollution, automobile traffic, etc.) are not addressed herein and are not factors to be considered in the review of land use actions or airport projects for consistency with the policies of this *Compatibility Plan*.

2.3.2. *Cable Airport Influence Area*: As defined in accordance with state law, the influence area of Cable Airport (see **Map 3A**, *Compatibility Map*, in Chapter 3) encompasses all lands on which the uses could be negatively affected by present or future aircraft operations at the airport as well as lands on which the uses could negatively affect airport usage.

(a) In delineating the airport influence area, the geographic extent of four types of compatibility concerns are taken into account:

(b) All four of the above factors affect lands within the City of Upland. Only the airspace protection and overflight factors affect lands within the City of Montclair.

2.3.3. *Los Angeles County Jurisdictions:* The policies of this *Compatibility Plan* do not apply to the portion of the Cable Airport influence area that extends into Los Angeles County or to the jurisdictions within that county.

2.4. Limitations of this Compatibility Plan

2.4.1. *Airport Operations:* In general, neither the City of Upland nor this *Compatibility Plan* have authority over the operation of Cable Airport including where and when aircraft fly, the types of aircraft flown, and other aspects of aviation.[2] However, through its conditional use permit process, the city does have authority over new development of airport property, as well as over the airport master plan. The policies included in this *Compatibility Plan* are intended to supplement that process.[3]

2.4.2. *Existing Land Uses:* The policies of this *Compatibility Plan* do not apply to existing land uses. A land use is considered to be "existing" when one or more of the qualifying conditions below has been met prior to the adoption date of the *Compatibility Plan* by the City of Upland. In effect, a project that qualifies as an existing land use in accordance with this policy is "grandfathered" even if it has not yet been constructed and will be inconsistent with the compatibility criteria.

(a) Qualifying Criteria: An existing land use is one that either physically exists or for which local agency commitments to the proposal have been obtained in one or more of the following manners:

(1) A parcel or tentative subdivision map has been approved and not expired;

[2] This is an explicit limitation of state law under Public Utilities Code Section 21674(e) and also of federal law and aviation regulations.

[3] Note that in counties where an ALUC exists, the ALUC has much more limited authority over on-airport development. ALUC review is primarily limited to airport master plans, certain development plans that have off-airport land use compatibility implications, and nonaviation development of airport property.

(2) A vesting parcel or tentative subdivision map has been approved and not yet expired;

(3) A development agreement has been approved and remains in effect;

(4) A final subdivision map has been recorded;

(5) A use permit or other discretionary entitlement has been approved and not yet expired; or

(6) A valid building permit has been issued and not yet expired.

(b) Revisions to Approved Development: Filing of a new version of any of the approval documents listed in Paragraph (a) of this policy means that the use no longer qualifies as existing land use and, therefore, is subject to review under the policies of this *Compatibility Plan* in accordance with the policies of Section 2.5.

(c) Expiration of Local Agency Commitment: If a local agency's commitment to a development proposal, as set forth in Paragraph (a) of this policy, expires, the proposal will no longer qualify as an existing land use. As such, the proposal shall be subject to the policies and criteria of this *Compatibility Plan*.

(d) Existing Nonconforming Uses: This *Compatibility Plan* is not intended to serve as justification for local agency action to reduce or remove nonconforming or otherwise incompatible existing land uses from the airport environs. However, proposed changes to existing uses (i.e., reconstruction, redevelopment) are subject to review under the policies of this *Compatibility Plan* if the changes would result in increased nonconformity with the compatibility criteria (see Criterion 3.6.2).

2.4.3. *Development by Right*:

(a) Nothing in this *Compatibility Plan* prohibits:

(1) Construction of a single-family home on a legal lot of record as of the effective date of this *Compatibility Plan* provided that the home is not within Compatibility Zone A and the use is permitted by local land use regulations.

(2) Construction of a secondary unit as defined by state law and local regulations.

(3) Lot line adjustments provided that new developable parcels would not be created and the resulting density or intensity of the affected property would not exceed the applicable criteria indicated in **Table 3A**, *Basic Compatibility Criteria*.

(4) Construction or establishment of a family day care home serving 14 or fewer children either in an existing dwelling or in a new dwelling permitted by the policies of this *Compatibility Plan*.

(b) The sound attenuation and avigation easement dedication requirements set by Criteria 3.2.2 and 3.6.1 shall apply to development permitted under this policy.

2.5. Review of Land Use Actions in City of Upland

2.5.1. *Major Land Use Actions:* For each proposed land use action located within the City of Upland portion of the Cable Airport influence area that is a type listed below in Policy 2.5.6 (Types of Major Land Use Actions), the Airport Land Use Committee shall make a determination as to whether the action is consistent with the Cable Airport compatibility criteria in Chapter 3.

(a) The City of Upland may request data and analysis prepared by the applicant or developer documenting that the proposed land use action is consistent with the applicable noise, safety, airspace protection, and overflight compatibility criteria listed in Sections 3.2 through 3.5, respectively, and the criteria for special conditions in Section 3.6. Such data and analysis is applicable both to projects that are "conditional" (see Criterion 3.1.2(a)(2)) and to ones for which a site-specific limited exception is sought for an "incompatible" project (see Criterion 3.1.2(a)(3)). City staff shall consider this analysis in making its recommendations to the Airport Land Use Committee.

(b) The Airport Land Use Committee determination shall be based on findings regarding the action's consistency with the general criteria in Section 3.1, supported where applicable by findings relative to the noise, safety, airspace protection, and overflight compatibility criteria listed in Sections 3.1.7 through 3.5, respectively, and the criteria for special conditions in Section 3.6.

(c) The determination shall be made in writing and included in a resolution of the Airport Land Use Committee.

(d) If the development application(s) for the proposed land use action require a public hearing, the Airport Land Use Committee shall conduct a public hearing in accordance with California Government Code Sections 65090 through 65096. If the project application(s) for the proposed land use action do not require a public hearing, the Airport Land Use Committee may consider their determination during regular business.

(e) The Airport Land Use Committee shall render its determination prior to action on the project by the City of Upland decision-making body.

2.5.2. *Minor Land Use Actions:* Proposed land use actions located within the City of Upland portion of the airport influence area, but not of a type listed in Policy 2.5.6 (Types of Major Land Use Actions), are presumed to be compatible with Cable Airport operations or to have limited compatibility implications.

(a) The city's normal review process for such actions shall be followed and referral to the Airport Land Use Committee for a consistency determination shall not be required. In approving minor land use actions within the airport influence area, the decision-making authority for the land use action shall make a finding that the action is consistent with the general criteria in Section 3.1, supported where applicable by findings relative to the noise, safety, airspace protection, and overflight compatibility criteria listed in Sections 3.1.7 through 3.5, respectively, and the criteria for special conditions in Section 3.6.

(b) Paragraph (a) of this policy notwithstanding, the Director of Development Services may determine that the characteristics of a minor land use action is more similar to one of the types of listed major land use actions or otherwise presents compatibility concerns. In this case, a consistency determination by the Airport Land Use Committee shall be required as provided for in Policy 2.5.1.

(c) Furthermore, the Director of Development Services may determine that the approval of a minor land use action that occurs in sequence after the approval of other minor land use actions in the same development has the potential to present compatibility concerns and therefore requires a consistency determination by the Airport Land Use Committee as outlined in Section 2.5.1.

2.5.3. *Consultation with Cable Airport Management:* Staff of any affected local agency may consult with Cable Airport management regarding any proposed land use action that is not clearly consistent with the compatibility criteria.

2.5.4. *Relationship to Upland General Plan:* In conjunction with the adoption of this *Compatibility Plan*, the City of Upland has amended its General Plan to eliminate any direct conflicts with the compatibility criteria in Chapter 3 of this *Compatibility Plan* as those policies pertain to future land use development. Additionally, the General Plan includes policies ensuring that future land use development actions will comply with the Chapter 3 compatibility criteria. Implementation of the compatibility criteria is accomplished through use of this *Compatibility Plan.*

2.5.5. *Relationship to CEQA Documents:* The California Environmental Quality Act (CEQA) requires environmental documents for projects situated within an airport influence area to evaluate whether the project would expose people residing or working in the project area to excessive levels of airport-related noise or to airport-related safety hazards.[4] In the preparation of such environmental documents, the law specifically requires that the *Airport Land Use Planning Handbook* published by the California Division of Aeronautic be utilized as a technical resource. If a project within the Cable Airport influence area is determined to be consistent with the compatibility criteria contained in this *Compatibility Plan,* it shall be presumed that no significant impacts related to airport hazards or noise compatibility will occur.

2.5.6. *Types of Major Land Use Actions:* The following types of proposed land use actions represent airport compatibility concerns that warrant special analysis. Actions of these types affecting land within the City of Upland portion of the airport influence area shall be reviewed by the Airport Land Use Committee in accordance with Policy 2.5.1.

(a) General Plan amendments;

(b) Specific Plan adoption or amendments;

(c) Zoning Code amendments;

(d) Proposed development agreements or amendments to such agreements that would have potential airport land use compatibility implications (for example, agreements that would allow more intense or concentrated uses, taller structures, or hazardous materials).

(e) Proposed residential development, including land divisions, consisting of 5 or more dwelling units or parcels.

(f) Any discretionary development proposal for a project having a new or enlarged building floor area of 20,000 square feet or greater;

(g) Any discretionary development proposal for a project expected to attract more than 100 people (including employees and customers/visitors) to the project site, both indoors and outdoors, during a typical busy period.

(h) Proposed land acquisition by a local agency for any facility (for example, a school or hospital) designed to accommodate more than 100 people during a typical busy period.

[4] Public Resources Code Section 21096.

(i) Proposed redevelopment of a property where the existing use is consistent with the General Plan and zoning or Specific Plan, but nonconforming with the compatibility criteria set forth in this *Compatibility Plan*.

(j) Proposed use or modification of the interior space of an existing building so as to enable a higher usage intensity that would potentially conflict with the criteria set forth in **Table 3A**, *Basic Compatibility Criteria*, of this *Compatibility Plan*.

(k) Proposed land acquisition by a government entity for any facility accommodating a congregation of people (for example, a school or hospital).

(l) Any nonaviation use of land within Compatibility Zone A.

(m) Any proposed object (including buildings, antennas, poles, and other structures) having a height that requires review by the Federal Aviation Administration in accordance with Part 77 of the Federal Aviation Regulations.

(n) Any project having the potential to create electrical or visual hazards to aircraft in flight, including:

(1) Electrical interference with radio communications or navigational signals;

(2) Lighting which could be mistaken for airport lighting;

(3) Glare in the eyes of pilots of aircraft using the airport; and

(4) Impaired visibility (such as from steam, smoke, or dust) near the airport.

(o) Any project having the potential to create a thermal plume extending to an altitude where aircraft fly.

(p) Any project (e.g., water treatment facilities, waste transfer or disposal facilities, parks with open water areas) or plan (e.g., Habitat Conservation Plan) having the potential to cause an increase in the attraction of birds or other wildlife that can be hazardous to aircraft operations on or in the vicinity of the airport.

(q) Any other proposed land use action, as determined by the local planning agency, involving a question of compatibility with airport activities.

2.6. Review of Land Use Actions in City of Montclair

2.6.1. *Types of Compatibility Factors Affecting City of Montclair:* Because of the distance from Cable Airport to the city limits, only the airspace protection and overflight compatibility criteria of Sections 3.4 and 3.5 of Chapter 3 are applicable within the City of Montclair. Noise and safety compatibility factors do not affect land within the city limits.

2.6.2. *Land Use Actions Requiring Compatibility Review:* Given the limited compatibility concerns, only the following types land use actions (a subset of those listed in Policy 2.5.6) within the City of Montclair warrant special airport compatibility analysis:

(a) Any proposed object (including buildings, antennas, poles, and other structures) having a height that requires review by the Federal Aviation Administration in accordance with Part 77 of the Federal Aviation Regulations.

(b) Any project having the potential to create electrical or visual hazards to aircraft in flight, including:

(1) Electrical interference with radio communications or navigational signals;

(2) Lighting which could be mistaken for airport lighting;

(3) Glare in the eyes of pilots of aircraft using the airport; and

(4) Impaired visibility (such as from steam, smoke, or dust) near the airport.

(c) Any project having the potential to create a thermal plume extending to an altitude where aircraft fly.

(d) Any project (e.g., water treatment facilities, waste transfer or disposal facilities, parks with open water areas) or plan (e.g., Habitat Conservation Plan) having the potential to cause an increase in the attraction of birds or other wildlife that can be hazardous to aircraft operations on or in the vicinity of the airport.

(e) Any other proposed land use action, as determined by the local planning agency, involving a question of compatibility with airport activities.

2.6.3. *Review Process:* When reviewing land use actions of the types indicated in Policy 2.6.2, the City of Montclair may use the normal review process it follows with respect to other land use actions, provided that specific attention is paid to the airspace protection compatibility criteria set forth in Section 3.4 and the overflight compatibility criteria set forth in Section 3.5, as applicable.

(a) Proposed land use actions located within the City of Montclair portion of the airport influence area, but not of a type listed in Policy 2.6.2 are presumed to be compatible with Cable Airport operations or to have limited compatibility implications and do not require special review.

(b) Any land use action found by the City of Montclair staff to be inconsistent with the compatibility criteria in Chapter 3 of this *Compatibility Plan* is expected to be modified to become consistent with the criteria. However, if significant issues remain unresolved during the planning process, any of the affected parties (City of Upland, City of Montclair, other local agencies, Cable Airport management, or owners of property in the airport influence area) may request that a Mediation Board be convened in accordance with the policies in Section 2.8. The mediation process is intended to be limited in application and only utilized when less formal resolution of disputes is unsuccessful.

2.6.4. *Airport Proximity Disclosure:* State law requires that notice disclosing information about the presence of a nearby airport be given to prospective buyers of certain residential real estate within an airport influence area. The statutes define an airport influence area as "the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission."[5]

(a) Airport proximity disclosure provisions are applicable to the portion of the City of Montclair that is within the Cable Airport influence area.

(b) The City of Montclair should implement the provisions as detailed in Criterion 3.5.2.

2.7. Review of Airport Projects

2.7.1. *Airport Planning and Development Actions Subject to Compatibility Review:* The Cable Airport compatibility zones delineated on **Map 3A**, *Compatibility Map* are based upon the airport configuration described in Criterion 3.1.3 and projected aircraft activity summarized in Chapter 4. If, at a future time, changes in the configuration or use of the airport are pro-

[5] See California Business and Professions Code Section 11010(b) and Civil Code Section 1353(a).

posed and those changes could result in expansion of the airport's impacts beyond the impacts identified in this *Compatibility Plan*, the Airport Land Use Committee shall review the proposed changes for consistency with the criteria in Section 3.7 of Chapter 3.

(a) The following airport planning and development actions shall always be subject to review by the Airport Land Use Committee:

(1) Adoption or modification of the Cable Airport master plan.

(2) Any proposal for "expansion" of Cable Airport if such expansion will require an amended Airport Permit from the State of California. As used in the statutes, "expansion" primarily includes construction of a new runway, extension or realignment of an existing runway, or related acquisition of land.

(3) Improvements that would increase the capacity of the airport for storage of aircraft unless the improvements, or ones with a similar capacity, are identified in a previously reviewed Cable Airport master plan.

(b) Except as identified in Paragraph (a) above, airport projects that do not have potential off-airport compatibility implications (e.g. construction of buildings, installation of signs, pavement maintenance, etc.) do not require compatibility review under the provisions of this *Compatibility Plan*.[6]

(c) The City of Upland has limited or no authority over aeronautical matters such as where and when aircraft fly and the types of aircraft flown at the airport. This authority rests with the Federal Aviation Administration. Actions taken by Cable Airport management or the FAA associated with operation of the airport are not subject to compatibility review under the provisions of this *Compatibility Plan.*

2.7.2. *City of Upland Action Choices for Airport Projects:* When reviewing a proposed planning and development actions pertaining to Cable Airport, the City of Upland has four action choices:

(a) Find the airport plan consistent with this *Compatibility Plan*.

(b) Find the airport plan consistent with this *Compatibility Plan* subject to specified conditions or limitations on the airport plans or use.

(c) Find the airport plan inconsistent with this *Compatibility Plan.*

(d) Modify this *Compatibility Plan* (after duly noticed public hearing) to reflect the assumptions and proposals in the airport plan—thereby making the airport plan consistent—or establish an intent to modify the *Compatibility Plan* at a later date.

2.7.3. *Disputes:* If the Cable Airport management should conclude that the conditions or limitations reached under Section 2.7.2 would unduly or inappropriately restrict development and use of the airport or that a finding of inconsistency was incorrectly reached, then the airport management can request that the matter be forwarded for mediation in accordance with Section 2.8.

2.8. Mediation of Disputes

2.8.1. *Mediation of Disputes Regarding Compatibility Plan Adoption and Implementation:* State law pertaining to the alternative process requires that a process be established for "the mediation of

[6] City of Upland approval of an amended conditional use permit may nevertheless be required.

disputes arising from the preparation, adoption, and amendment" of an airport land use compatibility plan.[7] The Mediation Board created in accordance with Policy 2.8.4 of this section may be utilized to provide input to the Upland City Council prior to the adoption or amendment of this *Compatibility Plan*. However, the primary purpose of the mediation process is to enable resolution of issues that may arise with regard to implementation of the *Compatibility Plan*.

2.8.2. *Actions Open to Mediation:* The mediation process of this section may be used with regard to any of the types of land use actions listed in Policy 2.5.6. The mediation process may also be used with regard to airport plans and projects listed in Policy 2.7.1.

2.8.3. *Mediation Process for Land Use Actions:* Any land use action found by City of Upland or City of Montclair staffs or by the Airport Land Use Committee to be inconsistent with the compatibility criteria in Chapter 3 of this *Compatibility Plan* is expected to be modified to become consistent with the criteria. However, if significant issues remain unresolved during the planning process, any of the affected parties (City of Upland, City of Montclair, other local agencies, Cable Airport management, or owners of property in the airport influence area) may request that a Mediation Board be convened in accordance with the policies in this section. The mediation process is intended to be limited in application and only utilized when less formal resolution of disputes is unsuccessful.

2.8.4. *Mediation Board:* If a dispute arises for which an affected party requests mediation, a Mediation Board shall be formed on an ad hoc basis for that specific dispute.

(a) The Mediation Board shall consist of five members: two representatives from the City of Upland and one each from the City of Montclair, Cable Airport management, and the County of San Bernardino Department of Airports.

(b) The City of Upland shall be responsible for notifying the other three appointing agencies to request that they each appoint a representative to the Mediation Board and for arranging a meeting time and place.

(c) The Mediation Board shall convene within 45 days of a request for mediation.

(d) Decisions of the Mediation Board shall be made by majority vote.

2.8.5. *Overruling of Mediation Board:* An affected local agency may overrule a Mediation Board decision. The overruling shall follow a process similar to that required for overruling of an airport land use commission in counties where such a commission is established.

(a) A public hearing shall be held on the matter.

(b) Formal findings shall be made to support a conclusion that the proposed action will not impair the orderly expansion of Cable Airport or expose the public to excessive noise and safety hazards.

(c) The overruling action shall require a 4/5 vote of the governing body of the local agency.

[7] Public Utilities Code Section 21670.1(c)(2)(C).

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Chapter 3

Compatibility Criteria

3

Compatibility Criteria

3.1. Basic Criteria for Review of Land Use Actions

3.1.1. *Evaluating Compatibility of New Land Use Development:* The compatibility of proposed land uses within the Cable Airport influence area shall be evaluated in accordance with the criteria and maps included in this chapter.

(a) The criteria listed in **Table 3A**, *Basic Compatibility Criteria*, together with the compatibility zones depicted on **Map 3A**, *Compatibility Zones* shall be the primary basis for determining whether a proposed land use project will be compatible with Cable Airport activity. For most land use projects, **Table 3A** and **Map 3A** will be sufficient to determine the project's compatibility. The table and map both take into account all four compatibility concerns—noise, safety, airspace protection, and overflight.

(b) Complex projects or ones for which the compatibility is indicated in **Table 3A** as "conditional" may require more detailed evaluation using the specific noise, safety, airspace protection, and overflight compatibility criteria set forth in Sections 3.1.7 through 3.5 and criteria for special circumstances outlined in Section 3.6 of this chapter. A similar analysis may be required if a site-specific limited exception is to be sought for an "incompatible" project in accordance with Criterion 3.1.2(a)(3).

(c) **Table 3B**, *Compatibility Zone Factors*, identifies the relative contributions of noise, safety, airspace protection, and overflight factors to the delineation of each of the compatibility zones in **Map 3A**. This information can be used to help assess how heavily each compatibility factor should be weighed when evaluating proposed projects in a particular zone. It also can serve to suggest what types of modifications to the project might make the proposal acceptable given the project's degree of sensitivity to a particular compatibility factor (for example, knowing that a noise-sensitive type of land use is in a high-noise zone may indicate a need for sound attenuation in the structure, whereas a safety-sensitive land use in a high-risk zone may need to be altered to reduce the number of people present).

3.1.2. *Basic Compatibility Criteria Table:* Each of the land use categories listed in **Table 3A** is indicated as being either "normally compatible," "conditional," or "incompatible" depending upon the compatibility zone in which it is located.

(a) These terms are defined to mean the following:

(1) "Normally Compatible" means that normal examples of the use are presumed to comply with the noise, safety, airspace protection, and overflight criteria set forth in this chapter. Atypical examples of a use may require review to ensure compliance with usage intensity, lot coverage, and height limit criteria.

(2) "Conditional" means that the proposed land use is compatible if the indicated usage intensity, lot coverage, and other listed conditions are met. For the purposes of these criteria, "avoid" is intended as cautionary guidance, not a prohibition of the use.

(3) "Incompatible" means that the use should not be permitted under any normal circumstances. Limited exceptions are possible for site-specific special circumstances. See Criterion 3.1.6.

(b) Multiple land use categories and the compatibility criteria associated with them may apply to a project. See Criterion 3.1.4 regarding mixed-use development.

(c) Land uses not specifically listed in **Table 3A** shall be evaluated using the criteria for similar listed uses.

(d) For details regarding usage intensity and lot coverage criteria indicated in **Table 3A** see the safety compatibility criteria in Section 3.3.

3.1.3. *Airport Runway Configuration:* The April 2011 *Cable Airport Master Plan* proposes shifting the position of the airport runway 50 feet northward and approximately 164 feet westward of its existing position. The runway length would remain unchanged at 3,864 feet.

(a) Until such time as either the proposed runway realignment is constructed or the proposal is officially abandoned, land use compatibility protection shall be provided for both scenarios. **Maps 3A** and **3D** reflect a composite of both runway positions.

(b) At such time as either the proposed runway realignment is constructed or the proposal is officially abandoned, **Maps 3A** and **3D** should be modified to eliminate protection for the scenario no longer applicable.

3.1.4. *Mixed Residential and Nonresidential Development:* For projects involving a mixture of residential and nonresidential uses, the following policies apply:

(a) Where the residential development and nonresidential development are proposed to be situated on separate parts of the project site, the project shall be evaluated as separate developments.

(1) The residential density shall be calculated with respect to the area(s) to be devoted to residential development and the nonresidential intensity calculated with respect to the area(s) proposed for nonresidential uses.

(2) This provision means that the residential density cannot be averaged over the entire project site when nonresidential uses will occupy some of the area. The same limitation applies in reverse—that is, the nonresidential intensity cannot be averaged over an area that includes residential uses.

(b) Development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or nearby buildings on the same site must meet both residential density and nonresidential intensity criteria.

(1) The number of dwelling units shall not exceed the density limits indicated in **Table 3A** *Basic Compatibility Criteria*.

(2) Additionally, the normal occupancy of the residential portion shall be added to that of the nonresidential portion and the total occupancy shall be evaluated with respect to the nonresidential usage intensity criteria cited in **Table 3A.** The City of Upland may make exceptions to this provision if the residential and nonresi-

dential components of the development would clearly not be simultaneously occupied to their maximum intensities.

(c) Mixed-use development shall not be allowed where the residential component would be situated in a compatibility zone where residential development is indicated as "Incompatible" in **Table 3A**.

3.1.5. *Parcels Lying within Two or More Compatibility Zones:* For the purposes of evaluating consistency with the compatibility criteria in **Table 3A**, any parcel that is split by compatibility zone boundaries shall be considered as if it were multiple parcels divided at the compatibility zone boundary line.

(a) The preceding notwithstanding, where no part of the building(s) or areas of outdoor congregation of people proposed on the project site fall within the more restrictive compatibility zone, the criteria for the compatibility zone where the proposed building(s) or outdoor uses are located shall apply.

Exhibit 3A: Transferring Usage Intensity

An example of transferring usage intensity to the less restrictive safety zone is provided below.

Project Site
Zone B1: 1.0 acres
Zone B2: 2.0 acres

Allowable Total Occupancy
Zone B1: 40 *people*/acre = 40 people
Zone B2: 80 *people*/acre = 160 people
Total Allowed on Site: 200 people

Transfer People from Zone B1 to Zone B2
Zone B1: 0 *people*
Zone B2: 200 people
* 200 people in 2.0 acres exceeds 80 people/acre limit for ZoneB2, but is allowable under usage intensity transfer policy

(b) Modification of the project site plan so as to transfer the allowed density of residential development or intensity of nonresidential development from the more restricted portion to the less restricted portion is encouraged. The purpose of this policy is to move people outside of the higher-risk zones.

(1) This full or partial reallocation of density or intensity is permitted even if the resulting intensity in the less restricted area would then exceed the sitewide average density or intensity limits that apply within that compatibility zone (see **Exhibit 3A**). However, transferring of density or intensity to a zone in which the proposed use is listed as incompatible is not allowed.

(2) The single-acre intensity criterion for the zone to which the use is transferred must still be satisfied.

3.1.6. *Special Conditions Exception:* The policies and criteria set forth in this *Compatibility Plan* are intended to be applicable to all locations within the Cable Airport influence area. However, there may be specific situations where a normally incompatible use can be considered compatible because of terrain, specific location, or other extraordinary factors or circumstances related to the site.

(a) The burden for demonstrating that special conditions apply to a particular development proposal rests with the project proponent.

(b) After due consideration of all the factors involved in such situations and consultation with Cable Airport management, the local agency may find a normally incompatible use to be acceptable.

(c) In considering any such exceptions, the decision-making body for the project shall also take into account the potential for the use of a building to change over time. A building could have planned low-intensity use initially, but later be converted to a

higher-intensity use. Local agency permit language or other mechanisms to ensure continued compliance with the usage intensity criteria must be put in place.

(d) In reaching such a decision, the decision-making body for the project shall make specific findings as to why the exception is being made and that the land use will neither create a safety hazard to people on the ground or aircraft in flight nor result in excessive noise exposure for the proposed use. Findings also shall be made as to the nature of the extraordinary circumstances that warrant the policy exception.

(e) Approval of a special conditions exception for a proposed project shall require a two-thirds vote of the local agency's decision-making body voting on the matter.

(f) The granting of a special conditions exception shall be considered site specific and shall not be generalized to include other sites.

3.1.7. *Rare Special Events Exception:* Local agencies may make exceptions for "Conditional" or "Incompatible" land uses associated with rare special events (e.g., an air show at the airport, a street fair, or a golf tournament) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

3.2. Noise Compatibility Criteria

NOISE COMPATIBILITY CRITERIA BACKGROUND INFORMATION

The Noise Compatibility Criteria Background Information in this box has been considered in formulating the noise compatibility criteria in this section, but is provided for informational purposes only and does not itself constitute *Compatibility Plan* criteria or policy. For additional discussion of noise compatibility concepts, see **Appendix D**.

Criteria Objective

The purpose of noise compatibility criteria is to avoid establishment of noise-sensitive land uses in the portions of the airport environs that are exposed to significant levels of aircraft noise.

Measures of Noise Exposure

As is standard practice in California, this *Compatibility Plan* uses the Community Noise Equivalent Level (CNEL) metric as the primary basis for evaluating the degree to which lands around the airport are exposed to airport-related noise. CNEL is a cumulative noise metric in that it takes into account not just the loudness of individual noise events, but also the number of events over time. Cumulative exposure to aircraft noise is depicted by a set of contours, each of which represents points having the same CNEL value.

The noise contours shown in **Map 3E**, *Future Noise Impact*, were produced for the April 2011 *Cable Airport Master Plan Update Draft Final Report* and reflect the airport activity levels documented in the Supporting Data included in this *Compatibility Plan*. The noise contours represent the greatest annualized noise impact, measured in terms of CNEL, that is anticipated to be generated by the aircraft operating at the airport over the planning time frame.

Factors Considered in Setting Noise Compatibility Criteria

Factors considered in setting the criteria in this section include the following:

- Established state regulations and guidelines, including noise compatibility recommendations in the *California Airport Land Use Planning Handbook* (2011).
- Ambient noise levels in the community, as well as noise from other transportation noise sources. Ambient noise levels influence the potential intrusiveness of aircraft noise upon a particular land use and

vary greatly between rural, suburban, and urban communities.

- The extent to which noise would intrude upon and interrupt the activity associated with a particular use. Susceptibility to speech interference or sleep disturbance as a result of single-event noise levels is a factor in this regard. Noise levels above approximately 65 dBA are sufficient to cause speech interference. Highly noise-sensitive land uses include residences, schools, libraries, and outdoor theaters.
- The extent to which the land use activity itself generates noise.
- The extent of outdoor activity, particularly noise-sensitive activities, associated with a particular land use.
- The extent to which indoor uses associated with a particular land use may be made compatible with application of sound attenuation. (Typical new building construction provides sufficient insulation to attenuate outdoor-to-indoor noise by at least 20 dB.)

3.2.1. *Maximum Acceptable Exterior Noise Exposure:* To minimize noise-sensitive development in noisy areas around Cable Airport, new land use development shall be restricted in accordance with the following.

(a) New residential development shall be deemed incompatible within the projected CNEL 60 dB contour of Cable Airport depicted on **Map 3E,** *Future Noise Impact* and is one of the factors considered in establishing the *Compatibility Zone* boundaries in **Map 3A**. For the purposes of implementing this policy:

(1) No new dwelling shall be permitted within Compatibility Zones A, B1, B2, C1, or C2 except as allowed by right in accordance with Policy 2.4.3 in Chapter 2.

(2) New residential development either single-family or multi-family should be avoided in Compatibility Zones B3 and C3. To be acceptable, the development must meet these criteria:

- Comply with the infill criteria set forth in Criterion 3.6.2.
- Incorporate sound attenuation as necessary to comply with the interior noise level conditions in Criterion 3.2.2.
- Have a density no greater than allowed in accordance with Criterion 3.3.1.
- Dedicate an avigation easement to the City of Upland in accordance with Criterion 3.6.1.

(b) New nonresidential development shall be deemed incompatible in locations where the airport-related noise exposure would be highly disruptive to the specific land use. Highly noise-sensitive land uses are flagged with a symbol (✈) in **Table 3A**.

(1) The City of Upland and project proponents should exercise caution with regard to creation of new outdoor uses—the potential for aircraft noise to disrupt the activity should be evaluated.

(2) Uses that are primarily indoor are acceptable if sound attenuation is provided in accordance with Criterion 3.2.2 and as noted in **Table 3A**.

3.2.2. *Maximum Acceptable Interior Noise Levels:* To minimize disruption of indoor activities by aircraft noise, new structures within any Compatibility Zone except D or E shall incorporate sound attenuation design features sufficient to meet the interior noise level criteria specified by this criterion.

(a) For the following land uses, the aircraft-related interior noise level shall be no greater than CNEL 40 dB.

(1) Any habitable room of single- or multi-family residences (including family day care homes with 14 or fewer children);

(2) Hotels, motels, and other lodging;

(3) Hospitals, nursing homes, and other congregate care facilities;

(4) Places of worship, meeting halls, theaters, and mortuaries; and

(5) Schools, libraries, and museums.

(b) When structures are part of a proposed land use action, evidence that proposed structures will be designed to comply with the criteria in Paragraph (a) of this criterion shall be submitted to the City of Upland as part of the building permit process. The calculations should assume that windows are closed.

(c) Exceptions to the interior noise level criteria in Paragraph (a) of this criterion may be allowed where evidence is provided that the indoor noise generated by the use itself exceeds the listed criteria.

3.2.3. *Noise-Sensitive Land Uses*:: Single-event noise levels should be considered when evaluating the compatibility of highly noise-sensitive land uses such as residences, schools, libraries, and outdoor theaters. Susceptibility to speech interference and sleep disturbance are among the factors that make certain land uses noise sensitive. The compatibility evaluations in **Table 3A** take into account single-event noise concerns.

(a) The City of Upland may require acoustical studies or on-site noise measurements to assist in determining the compatibility of sensitive uses.

(b) Single-event noise levels are especially important in areas that are regularly overflown by aircraft, but that do not produce significant CNEL contours (helicopter overflight areas are a particular example). Flight patterns for Cable Airport should be considered in the review process including in locations beyond the mapped noise contours.

3.3. Safety Compatibility Criteria

SAFETY COMPATIBILITY CRITERIA BACKGROUND INFORMATION

The Safety Compatibility Criteria Background Information in this box has been considered in formulating the safety compatibility criteria in this section, but is provided for informational purposes only does not itself constitute *Compatibility Plan* criteria or policy. For additional discussion of safety compatibility concepts, see **Appendix D**.

Criteria Objective

The intent of land use safety compatibility criteria is to minimize the risks associated with an off-airport aircraft accident or emergency landing. The criteria focus on reducing the potential consequences of such events should they occur. Risks both to people and property in the vicinity of an airport and to people on board the aircraft are considered (land use features that can be the *cause* of an aircraft accident are addressed under Airspace Protection, Section 3.4.

Measures of Risk Exposure

This *Compatibility Plan* evaluates the risk that potential aircraft accidents pose to lands and people around the airport in terms of two parameters: where aircraft accidents are most likely to occur near the airport; and the potential consequences if an accident occurs in one of those locations.

- The accident likelihood is measured in terms of the geographic distribution of where accidents have historically occurred around other airports having similar types of activity. Because aircraft accidents

are infrequent occurrences, the pattern of accidents at any one airport cannot be used to predict where future accidents are most likely to happen around that airport. Reliance must be placed on data about aircraft accident locations at comparable airports nationally, refined with respect to information about the characteristics of aircraft use at the individual airport.

- The consequences component of the risk considers the number of people in harm's way and their ability to escape harm. For most nonresidential development, potential consequences are measured in terms of the usage intensity—the number of people per acre on the site. For residential development, density—the number of dwelling units per acre—is substituted for intensity. Additional criteria are applicable to specific types of uses.

Factors Considered in Setting Safety Compatibility Criteria

Factors considered in setting the criteria in this section include the following:

- The runway length, approach categories, normal flight patterns, and aircraft fleet mix at Cable Airport. These factors are reflected in the compatibility zone shapes and sizes.
- The locations, delineated with respect to the airport runway, where aircraft accidents typically occur near airports and the relative concentration of accidents within these locations. The most stringent land use controls are applied to the areas with the greatest potential accident exposure. The risk information utilized is the general aviation accident data and analyses contained in the *California Airport Land Use Planning Handbook*. The *Handbook* guidance regarding safety compatibility forms the basis for the safety component of the composite compatibility zones established for Cable Airport in **Map 3A** and the maximum usage intensities (people per acre) criteria indicated in Criterion 3.3.2 and in **Table 3A**.
- *Handbook* guidance regarding residential densities in urban areas. Residential density limitations cannot be equated to the usage intensity limitations for nonresidential uses. Consistent with pervasive societal views and as suggested by the *Handbook* guidelines, a greater degree of protection is warranted for residential uses.
- The presence of certain land use characteristics that represent safety concerns regardless of the number of people present; specifically: vulnerable occupants (children, elderly, disabled), hazardous materials, and critical community infrastructure.
- The extent to which development covers the ground and thus limits the options of where an aircraft in distress can attempt an emergency landing.
- The extent to which the occupied parts of a project site are concentrated in a small area. Concentrated high intensities heightens the risk to occupants if an aircraft should strike the location where the development is concentrated. To guard against this risk, limitations on the maximum concentrations of dwellings or people in a small area of a large project site is appropriate within the highest risk parts of the airport influence area.

3.3.1. *Residential Development Density Criteria:* Proposed residential development shall be evaluated in accordance with the following criteria:

(a) For projects that are solely residential, the acreage evaluated equals the project site size (gross acreage) which may include multiple parcels. See Criterion 3.1.4 with regard to mixed-use development.

(b) Except as allowed by right in accordance with Policy 2.4.3 in Chapter 2, the maximum allowable residential density within each compatibility zone is as indicated below and shown in Table 3A:

Compatibility Zone	*A*	*B1*	*B2*	*B3*	*C1*	*C2*	*C3*	*D*	*E*
	Dwelling Units per Acre								
Maximum Sitewide Average Density	0	0*	0*	4.0	0*	0*	15.0	25.0	No Limit
Maximum Single-Acre Density	0	0	0	8.0	0	0	30.0	50.0	No Limit
* Portions of a project site may extend into these zones provided that no dwelling is located there.									

(c) Density bonuses and other bonuses or allowances that local agencies may provide for affordable housing developed in accordance with the provisions of state and/or local law or regulation shall be included when calculating residential densities. The overall density of a development project, including any bonuses or allowances, must comply with the allowable density criteria.

(d) Secondary units, as defined by state law and local regulations, shall be excluded from density calculations.

(e) In accordance with state law, a family day care home serving 14 or fewer children may be established in any existing dwelling or in any new dwelling permitted by the policies of this *Compatibility Plan*.

3.3.2. *Nonresidential Development Intensity Criteria:* Nonresidential development shall be evaluated in accordance with the following criteria:

(a) The usage intensity (people per acre) limit indicated in **Table 3A** for each compatibility zone is the fundamental criterion against which the safety compatibility of most nonresidential land uses shall be measured. Other criteria may be applicable to uses of special concern (see Criterion 3.3.7).

(b) All nonresidential uses, including uses listed in **Table 3A**, *Basic Compatibility Criteria*, as "Normally Compatible," must comply with both the "sitewide average" and "single-acre" usage intensity limits indicated below and shown in **Table 3A** for each compatibility zone.

Compatibility Zone	*A*	*B1*	*B2*	*B3*	*C1*	*C2*	*C3*	*D*	*E*
	People per Acre								
Maximum Sitewide Average Intensity	10	40	80	120	120	240	No Limit	No Limit	No Limit
Maximum Single-Acre Intensity	20	80	160	300	300	600	No Limit	No Limit	No Limit

(1) The "sitewide average" intensity equals the total number of people expected to be on the entire site divided by the site size in acres (i.e., the gross acreage of the project site) which may include multiple parcels.

(2) The "single-acre" intensity equals the number of people expected to occupy the most intensively used 1.0-acre area(s) of the site.

(c) No new structures intended to be occupied regularly are allowed in Compatibility Zone A.

(d) The need to calculate the usage intensity of a particular project proposal for compliance with the intensity criteria in the Paragraph (b) table is to be governed by the following:

(1) Land use categories indicated in **Table 3A** as "Normally Compatible" for a particular compatibility zone are presumed to meet the intensity criteria indicated in the Paragraph (b) table. Calculation of the usage intensity is not required unless the particular project proposal represents an atypical example of the usage type.

(2) Calculation of the usage intensity must be done for all proposed projects where the land use category for the particular compatibility zone is indicated in **Table 3A** as "Conditional" and the additional criteria column says "Ensure intensity criteria met."

(3) Where **Table 3A** indicates that land use category is "Conditional" for the particular safety zone, but the criteria are other than "Ensure intensity criteria met," calculation of the usage intensity is not necessary for typical examples of the use. However, the project proposal must comply with the other criteria listed for the applicable land use category and compatibility zone.

(e) Usage intensity calculations shall include all people (e.g., employees, customers/visitors) who may be on the property at any single point in time, whether indoors or outdoors. For the purposes of these calculations, the total number of occupants during normal busiest periods shall be used.[8]

(f) Each component use within a nonresidential development that has multiple types of uses shall comply with the usage intensity criteria in Paragraph (b) above and in **Table 3A**, *Basic Compatibility Criteria*, unless the use is ancillary to the primary use. Ancillary uses must be considered in the sitewide average intensity limits, but may be excluded from the single-acre intensity calculations.

(1) To quality as an ancillary use, the use must be associated with the primary use (e.g. a cafeteria in an office building) and occupy no more than 10% of total building floor area.

(2) An ancillary use may be more intensively occupied (more people in a given area) than the primary use, provided that the ancillary use is neither:

- An assembly room having more than 750 square feet of floor area (this criterion is intended to parallel building code standards) and a capacity of 50 people; nor
- A K-12 school, day care center (greater than 14 children), or other risk-sensitive use that is "incompatible" within the safety zone where the primary use is to be located.

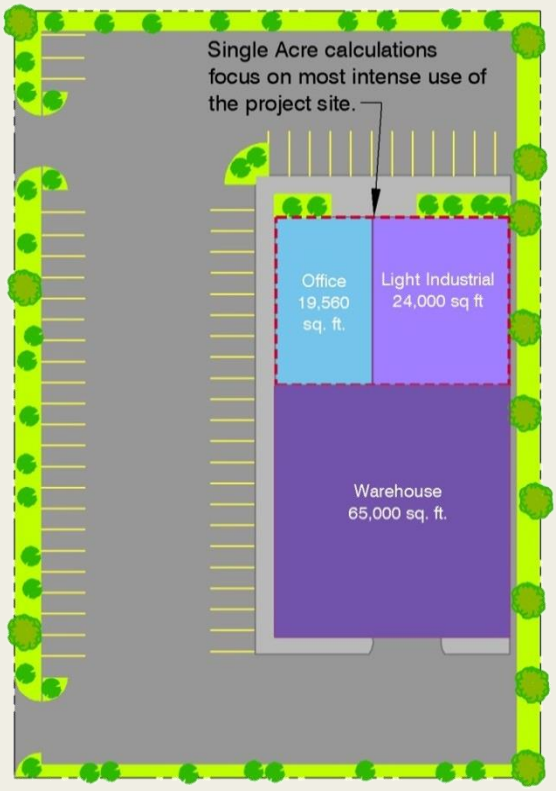
3.3.3. *Maximum Lot Coverage:* In addition to the single-acre density and intensity limits set by Criterion 3.3.2(b), new residential and nonresidential development shall also be limited with respect to lot coverage—the percentage of the project site covered by buildings. The specific limits for each compatibility zone are as shown at the top of **Table 3A**.

3.3.4. *Methodology for Calculation of Sitewide Average Intensity:* Determination of compliance with the sitewide average intensity criteria indicated in Criterion 3.3.2(b) requires calculating the total occupancy of the site at any given time under normal busy use (see Criterion 3.3.2(e)), then dividing by the total (gross) acreage of the project site (see **Exhibit 3B**).

[8] This number will typically be lower than the absolute maximum number of occupants the facility can accommodate (such as would be used in determining compliance with building and fire codes).

Exhibit 3B: Intensity Calculation Example

In this example, both the sitewide and single-acre Intensity of a proposed warehouse facility is calculated using the common Occupancy Load Factors [number of square feet per person] information in Table 3A, *Basic Compatibility Criteria* together with project specifications. The results are then compared with the maximum sitewide and single-acre Intensity limits in Table 3A to determine consistency of the project with the safety criteria.



Safety Criteria Data

Compatibility Zone B3 Intensity Limits

Max. Sitewide Average: 120 people per acre
Max. Single-Acre: 300 people per acre

Common Occupancy Load Factors

Office: approx. 215 s.f. per person
Light Industrial, Low Intensity: approx. 350 s.f. per person
Warehouse: approx. 1,000 s.f. per person

Project Data

Site Acreage: 3 acres
Office: 19,560 s.f.
Light Industrial: 24,000 s.f.
Warehouse: 65,000 s.f.

Occupancy Load Calculation

Office: $\frac{19{,}560 \text{ s.f}}{215 \text{ s.f. per person}} = 91$ people

L-industrial: $\frac{24{,}000 \text{ s.f.}}{350 \text{ s.f. per person}} = 69$ people

Warehouse: $\frac{65{,}000 \text{ s.f.}}{1{,}000 \text{ s.f. per person}} = 65$ people

Total: = 225 people

Intensity Results

The results of the intensity calculations indicate that the proposed development satisfies the sitewide and single-acre intensity criteria.

Sitewide Average Intensity

$\frac{\text{Total people}}{\text{Site Acreage}} = \frac{225 \text{ people}}{3 \text{ acres}} = 75$ people per acre

Single-Acre Intensity

$\frac{\text{Total people}}{\text{Single-Acre}} = \frac{91 + 69 \text{ people}}{1 \text{ acre}} = 160$ people per acre

(a) If a project site lies within multiple compatibility zones, the site shall be considered as if it is multiple parcels divided at the zone boundary line (see **Exhibit 3C**).

(b) Determination of total occupancy shall consider the following factors (additional guidance is found in **Appendix E**):

(1) Fixed Seating: For uses having fixed seating for customers (for example, restaurants and theaters), occupancy shall equal the total number of seats plus the number of employees on site.

Exhibit 3C: Site Split by Compatibility Zones

In this example, the restaurant and office uses are split between Compatibility Zones B2 and B3. When determining compliance with the Zone B2 intensity limits, only the portions of the uses in Zone B2, together with the retail use that is fully in Zone B2 are considered and the site size is the 3.5 acres in Zone B2.

Compatibility Zone B2

Retail: 50,000 s.f. / 170 s.f. per person = 294 people

Restaurant: 50% of 18,000 s.f. / 60 s.f. per person = 150 people

Office: 50% of 24,000 s.f. / 215 s.f. per person = 56 people

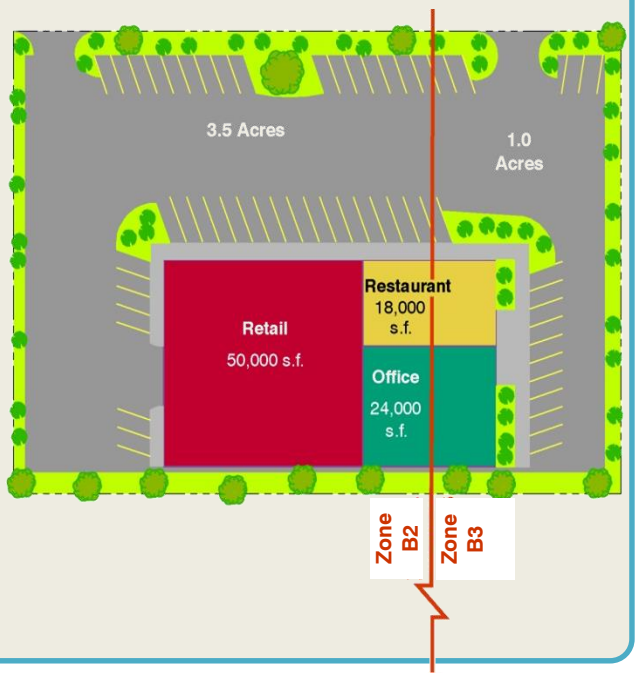
Total Occupancy = 500 people

Intensity: 500 people / 3.5 acres = 143 people/acre*

* Would not meet Zone B2 sitewide average limit of 80 people/acre

Compatibility Zone B3

A similar analysis is required for the uses in Zone B3.



(2) Occupancy Load Factors: For most other uses, the Occupancy Load Factor indicated in **Table 3A** for the use shall be applied.[9] The Occupancy Load Factor is the assumed approximate number of square feet occupied by each person in that use. Dividing the square footage of the building or component use by the Occupancy Load Factor for the use yields the number of occupants.

- For projects involving a mixture of uses in a building, the Occupancy Load Factor for each component use shall be applied to give the occupancy for that use, then the component occupancies added to determine total occupancy. Ancillary uses (see Criterion 3.3.2(f)) shall be disregarded in the calculation.
- If the project applicant can document a higher or lower Occupancy Load Factor for a particular use, then the local agency may use that number in lieu of the number in **Table 3A**. In considering any such exceptions, the local agency shall also take into account the potential for the use of a building to change over time (see Criterion 3.3.6).

(3) Vehicle Parking Requirements: For many commercial and industrial uses, the occupancy can be estimated by considering the number of parking spaces required by the local agency and multiplying by the average occupancy per vehicle. This method is not suitable for land uses where many users arrive on foot or by transit, bicycle, or other means of transportation (see **Appendix E**).

(4) Building and Fire Codes: This method is essentially the same as the Occupancy Load Factor method in that the codes provide a square footage per person for various types of building uses. Building and Fire Codes, though, are based on a maximum, never to be exceeded, number of occupants rather than the average

[9] Occupancy Load Factors are based on information from various sources and are intended to represent busy-period usage for typical examples of the land use category. They can be used as a factor in determining the appropriate land use category for unlisted uses or atypical examples of a use.

busy period that is the basis for airport land use compatibility planning. As such, the total occupancy calculated using these codes must be reduced by a set factor—one half for most uses—to provide a number consistent with the intensity limits listed in Criterion 3.3.2(b).

3.3.5. *Methodology for Calculation of Single-Acre Intensity:* The single-acre intensity of a proposed development shall be calculated by determining the total number of people expected to be within any 1.0-acre portion of the site, typically the most intensively used building or part of a building. Calculation of the single-acre intensity depends upon the building footprint and site sizes and the distribution of activities on the site.

(a) For sites less than 1.0 acre, the single-acre intensity equals the total number of people on the site divided by the site size.

(b) For sites more than 1.0 acre and a building footprint less than 1.0 acre, the single-acre intensity equals the total number of building occupants divided by the site size unless the project includes substantial outdoor occupancy in which case such usage should be taken into account.

(c) For sites having both site size and building footprint of more than 1.0 acre, the single-acre intensity shall normally be calculated as the total number of building occupants divided by the building footprint in acres. This calculation assumes that the occupancy of the building is evenly distributed. However, if the occupancy of the building is concentrated in one area—the office area of a large warehouse, for example—then the all occupants of that area shall be included in the single-acre calculation.

(d) The 1.0-acre areas to be evaluated shall normally match the building footprints provided that the buildings are generally rectangular (reasonably close to square) and not elongated in shape and, for buildings larger than 1.0 acre, may represent a portion of the building.

(e) If a building has multiple floors, then the total number of occupants on all floors falling within the 1.0-acre footprint shall be counted.

3.3.6. *Long-Term Changes in Occupancy:* In evaluating compliance of a proposed nonresidential development with the usage intensity criteria in Criterion 3.3.2(b), the local agency shall take into account the potential for the use of a building to change over time. A building could have planned low-intensity use initially, but later be converted to a higher-intensity use. Local agencies must provide permit language or other mechanisms to ensure continued compliance with the usage intensity criteria. (Note that this provision applies only to new development and redevelopment—projects for which discretionary local agency action is required—not to tenant improvements or other changes to existing buildings for which local approval is ministerial.)

3.3.7. *Land Uses of Special Concern:* Certain types of land uses represent special safety concerns irrespective of the number of people associated with those uses. Land uses of particular concern and the nature of the concern are listed below along with the criteria applicable to these uses. In some cases, these uses are not allowed in portions of the airport environs regardless of the number of occupants associated with the use. In other instances these uses should be avoided—that is, allowed only if an alternative site outside the zone would not serve the intended function. When the use is allowed, special measures should be taken to minimize hazards to the facility and occupants if the facility were to be struck by an aircraft.

(a) Uses Having Vulnerable Occupants: These uses are ones in which the majority of occupants are children, elderly, and/or disabled—people who have reduced effective mobility or may be unable to respond to emergency situations.

(1) The primary uses in this category are:
- Children's schools (grades K–12).
- Day care centers (facilities with more than 14 children, as defined in the California Health and Safety Code).
- In-patient hospitals, mental hospitals, nursing homes, and similar facilities where patients remain overnight.
- Congregate care facilities including retirement homes, assisted living, and intermediate care facilities.
- Penal institutions.

(2) Criteria for new or expanded facilities of these types are as follows:
- All of the above uses are incompatible within Compatibility Zones A, B1, B2, B3, C1, and C2. Additionally, children's schools are incompatible in Compatibility Zone C3. No new sites or facilities or expansion of existing sites or facilities shall be allowed.
- Nonconforming existing facilities on existing sites may be expanded or reconstructed only as allowed under Criteria 3.6.2 and 3.6.4.
- All facilities must comply with the intensity limits set forth in Criterion 3.3.2(b).

(b) Hazardous Materials Storage: Materials that are flammable, explosive, corrosive, or toxic constitute special safety compatibility concerns to the extent that an aircraft accident could cause release of the materials and thereby pose dangers to people and property in the vicinity.

(1) Facilities in this category include:
- Facilities such as oil refineries and chemical plants that manufacture, process, and/or store bulk quantities of hazardous materials generally for shipment elsewhere.
- Facilities associated with otherwise compatible land uses where hazardous materials are stored in smaller quantities primarily for on-site use.

(2) Criteria for new or expanded facilities of these types are as follows:
- Facilities in the first group are incompatible in Compatibility Zones A, B1, B2, B3, C1, and C2. No new sites or facilities or expansion of existing sites or facilities shall be allowed. New sites or construction of new expanded facilities shall be allowed in Compatibility Zones C3, D, and E only if an alternative site outside of the airport influence area would not serve the intended function of the facility.
- Facilities in the second group are incompatible in Compatibility Zone A. No new sites or facilities or expansion of existing sites or facilities shall be allowed. Bulk storage of hazardous materials shall not be allowed in Compatibility Zones B1, B2, and C1. In Compatibility Zones B3, C2, C3, and D, bulk storage of hazardous materials should be avoided, but storage of smaller amounts for near-term on-site use is acceptable. Permitting agencies should evaluate the need for special measures to minimize hazards if the facility should be struck by an aircraft.

- All facilities must comply with the intensity limits set forth in Criterion 3.3.2(b).

(c) Critical Community Infrastructure: This category pertains to facilities the damage or destruction of which would cause significant adverse effects to public health and welfare well beyond the immediate vicinity of the facility.

(1) Among these facilities are:
- Public safety facilities such as police and fire stations.
- Communications facilities including emergency communications, broadcast, and cell phone towers.
- Primary, peaker, and renewable energy power plants, electrical substations, and other utilities.

(2) Criteria for new or expanded facilities of these types are as follows:
- Public safety facilities are incompatible in Compatibility Zones A and B1. No new sites or facilities or expansion of existing sites or facilities shall be allowed. In Compatibility Zones B2 and B3, creation or expansion of these types of facilities shall be allowed only if an alternative site outside of these zones would not serve the intended function of the facility. In Compatibility Zone C1, public safety facilities shall be allowed only if the facility serves or has an airport-related function.
- Communications facilities are incompatible in Compatibility Zones A, B1, and C1. No new sites or facilities or expansion of existing sites or facilities shall be allowed. In Compatibility Zones B2, B3, C2, C3, and D, creation or expansion of these types of facilities shall be allowed only if an alternative site outside of these zones would not serve the intended function of the facility and the height of the facility complies with airspace protection criteria set forth in Section 3.4 of this *Compatibility Plan*.
- Primary power plants are incompatible in the entire airport influence area except that they may be allowed in Compatibility Zone E if an alternative site outside of these zones would not serve the intended function of the facility. Peaker and renewable energy power plants are incompatible in Compatibility Zones A, B1, B2, B3, C1, and C2. No new sites or facilities or expansion of existing sites or facilities shall be allowed. Any facility to be located elsewhere in the airport influence area must comply with the height limit, electrical interference, glare, visible and thermal plume, and other criteria contained in the airspace protection section, Section 3.4, of this *Compatibility Plan*.

3.4. Airspace Protection Compatibility Criteria

AIRSPACE PROTECTION COMPATIBILITY CRITERIA BACKGROUND INFORMATION

The Airspace Protection Compatibility Criteria Background Information in this box has been considered in formulating the Airspace Protection Compatibility criteria in this section, but is provided for informational purposes only and does not itself constitute *Compatibility Plan* criteria or policy. For additional discussion of airspace protection concepts, see **Appendix D**.

Criteria Objective

Airspace protection compatibility policies seek to prevent creation of land use features that can pose hazards to the airspace required by aircraft in flight and have the potential for causing an aircraft

accident.

Measures of Hazards to Airspace

Three categories of hazards to airspace are a concern: physical, visual, and electronic.

- *Physical* hazards include tall structures that have the potential to intrude upon protected airspace as well as land use features that have the potential to attract birds or other potentially hazardous wildlife to the airport area.
- *Visual hazards* include certain types of lights, sources of glare, and sources of dust, steam, or smoke.
- *Electronic hazards* are ones that may cause interference with aircraft communications or navigation.

Factors Considered in Setting Airspace Protection / Object Height Compatibility Criteria

The *Compatibility Plan* airspace protection policies rely upon the regulations and standards enacted by the Federal Aviation Administration (FAA) and the State of California. The FAA has well defined standards by which potential hazards to flight, especially airspace obstructions, can be assessed. The following FAA regulations and documents, and any later versions of these documents, are specifically relevant.

- Federal Aviation Regulations (FAR) Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace* (provides standards regarding FAA notification of proposed objects and height limits of objects near airports).
- FAA Advisory Circular 150/5300-13, *Airport Design* (provides standards regarding safety-related areas in the immediate vicinity of runways).
- Advisory Circular 70/7460-1K, *Obstruction Marking and Lighting* (sets standards for how essential marking and lighting should be designed).

These regulations and standards do not give the FAA authority to prevent the creation of hazards to flight. That authority rests with state and local government. The State of California has enacted regulations enabling state and *Local Agencies* to enforce the FAA standards. The *Compatibility Plan* criteria are intended to help implement the federal and state regulations.

Factors Considered in Setting Airspace Protection / Wildlife Hazard Compatibility Criteria

Natural features and agricultural practices may include open water and food sources that are attractive to wildlife, especially waterfowl and other bird species. The *Compatibility Plan* relies upon the wildlife hazard guidelines established by the FAA in the following Advisory Circulars:

- FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports* (provides guidance on types of attractants to be avoided).
- FAA Advisory Circular 150/5200-34A, *Construction or Establishment of Landfills near Public Airports* (sets guidelines on proximity of these facilities to airports).

3.4.1. *Evaluating Airspace Protection / Object Height Compatibility for New Development:* The object height compatibility of proposed land uses within the influence area of Cable Airport shall be evaluated in accordance with the policies in this section, including the existing and future airspace protection surfaces depicted on **Map 3B**, *Existing Airspace Protection Surfaces*, and **Map 3C**, *Future Airspace Protection Surfaces*.

(a) The airspace protection / height limit surfaces are drawn in accordance with FAR Part 77, Subpart C, and reflect the runway length, runway end locations, and approach type for each end of the runway. As indicated in Criterion 3.1.3, airspace protection must be provided for both the existing and planned future runway configurations.

(b) The Critical Airspace Protection Zone consists of the FAR Part 77 primary surface and the area beneath portions of the approach and transitional surfaces to where these surfaces intersect with the horizontal surface.

(c) The High Terrain Area encompasses locations where the ground elevation exceeds or is within 35 feet beneath an Airspace Protection Surface as defined by FAR Part 77 for the airport.

3.4.2. *Object Height Criteria:* The criteria for determining the acceptability of a project with respect to height shall be based upon the standards set forth in FAR Part 77, Subpart C, *Safe, Efficient Use and Preservation of the Navigable Airspace*, and applicable airport design standards published by the FAA. Additionally, where an FAA aeronautical study of a proposed object has been required as described in Policy 3.4.4, the results of that study shall be taken into account by the local agency.

(a) Except as provided in Paragraphs (c) and (d) of this criterion, no object, including a mobile object such as a vehicle or temporary object such as construction crane, shall have a height that would result in penetration of an airspace protection surface depicted for Cable Airport on either **Map 3B** or **Map 3C**. Any object that penetrates one of these surfaces is, by FAA definition, deemed an obstruction.[10]

(b) The allowable height at any particular point in the airport environs depends not only on the elevation of the airspace protection surface above that point, but also upon the ground elevation. **Map 3D** indicates the allowable height range for all areas in the airport influence area. This map takes into account both the current (**Map 3B**) and airport-proposed (**Map 3C**) airspace protection surfaces and reflects whichever of the two sets of surfaces results in the most restrictive height limitation at any particular point.

(c) Objects within the High Terrain Area but not situated within the Critical Airspace Protection Zone (see Criterion 3.4.1(b)) may be allowed to have heights that penetrate the Airspace Protection Surfaces defined by FAR Part 77 criteria.

(1) The maximum allowable height for these objects is 35 feet above ground level.

(2) The height of all objects is subject to local agency zoning limits.

(d) Unless exempted under Paragraph (c) of this policy, a proposed object having a height that exceeds any of the airport's Airspace Protection Surfaces shall be allowed only if *all* of the following apply:

(1) As the result of an aeronautical study, the FAA determines that the object would not be a hazard to air navigation.

(2) FAA or other expert analysis conducted under the auspices of the City of Upland or the airport operator concludes that, despite being an airspace obstruction (not necessarily a hazard), the object that would not cause any of the following:

- An increase in the ceiling or visibility minimums of the airport for an existing or planned instrument procedure (a planned procedure is one that is formally on file with the FAA);
- A reduction of the established operational efficiency and capacity of the airport, such as by causing the usable length of the runway to be reduced; or
- Conflict with the visual flight rules (VFR) airspace used for the airport traffic pattern or en route navigation to and from the airport.

[10] An obstruction may or may not be a hazard. The purpose of FAA aeronautical studies is to determine whether an obstruction is a hazard and, if so, what remedy is recommended. The FAA's remedies are limited to making changes to the airspace and an airport's approach procedures, but it also can indicate an objection to proposed structures that it deems to be a hazard.

(3) Marking and lighting of the object will be installed as directed by the FAA aeronautical study or the California Division of Aeronautics and in a manner consistent with FAA standards in effect at the time the construction is proposed.[11]

(4) An avigation easement is dedicated to Cable Airport in accordance with Criterion 3.6.1.

(5) The proposed project/plan complies with all other policies of this *Compatibility Plan*.

3.4.3. *Criteria Addressing Other Flight Hazards:* Land uses that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft in flight or taking off or landing at the airport shall not be allowed within the airport influence area unless the uses are consistent with FAA rules and regulations.

(a) Specific characteristics to be avoided include:

(1) Sources of glare (such as from mirrored or other highly reflective structures or building features) or bright lights (including search lights and laser light displays);

(2) Distracting lights that could be mistaken for airport lights;

(3) Sources of dust, steam, or smoke that may impair pilots' vision;

(4) Sources of steam or other emissions that cause thermal plumes or other forms of unstable air;

(5) Sources of electrical interference with aircraft communications or navigation; and

(6) Any proposed use that creates an increased attraction for wildlife and that is inconsistent with FAA rules and regulations.[12] Of particular concern are landfills and certain recreational or agricultural uses that attract large flocks of birds which pose bird strike hazards to aircraft in flight.

(b) To resolve any uncertainties with regard to the significance of the above types of flight hazards, local agencies should consult with FAA officials, the California Division of Aeronautics, and Cable Airport management.

3.4.4. *Requirements for FAA Notification of Proposed Construction:* Project proponents are responsible for notifying the FAA about proposed construction that may affect navigable airspace.[13] The following is *Compatibility Plan* policy on this topic.

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[11] Advisory Circular 70/7460-1J, *Obstruction Marking and Lighting*, or any later FAA guidance.

[12] The FAA rules and regulations include, but are not limited to: Public Law 106-181 (Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, known as AIR 21), Section 503; 40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, Airport Safety; Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*; Advisory Circular 150/5200-34A, *Construction or Establishment of Landfills near Public Airports*; and any subsequent applicable FAA guidance.

[13] FAR Part 77 requires that a project proponent submit notification of a proposal to the FAA where required by the provisions of FAR Part 77, Subpart B. California Public Utilities Code Sections 21658 and 21659 likewise include this requirement. FAA notification requirements apply to all objects including structures, antennas, trees, mobile objects, and temporary objects such as construction cranes. The FAA will conduct an "aeronautical study" of the object(s) and determine whether the object(s) would be of a height that would constitute a hazard to air navigation. (See **Appendix C** of this *Compatibility Plan* for a copy of FAR Part 77 and online procedures for filing Form 7460-1.) FAA notification is required under the following circumstances:

(a) The project contains proposed structures or other objects that exceed the height standards defined in FAR Part 77, Subpart B. Objects shielded by nearby taller objects are exempted in accordance with FAR Part 77, Paragraph 77.15. Note that notification to the FAA under FAR Part 77, Subpart B, is required even for certain proposed construction that does not exceed the height limits allowed by Subpart C of the regulations. Also, the FAA notification area extends beyond the Airport

(a) Reference to FAA notification requirements is included here for informational purposes only, not as an *Compatibility Plan* policy.

(b) The local agency having jurisdiction over the project site should inform the project proponent of the requirements for notification to the FAA.

(c) Any proposed development project that includes construction of a structure or other object and that is required to be submitted to the local agency for a consistency review in accordance with Policy 2.5.1, 2.5.2, or 2.6.2 shall include a copy of the completed FAR Part 77 notification form (Form 7460-1) submitted to the FAA, if applicable, and of the resulting FAA findings from its aeronautical study (i.e., notice of determination letter). A proposed project may be referred to the local agency in advance of the completion of the FAA aeronautical study. However, the completed aeronautical study must be forwarded to the local agency when available and the local agency may reconsider its previous consistency determination if the FAA study provides new information and airspace protection was a factor in the local agency's determination.

3.5. Overflight Compatibility Criteria

OVERFLIGHT COMPATIBILITY CRITERIA BACKGROUND INFORMATION

The Overflight Compatibility Criteria Background Information in this box has been considered in formulating the Overflight Compatibility criteria in this section, but is provided for informational purposes only and does not itself constitute *Compatibility Plan* criteria or policy. For additional discussion of overflight compatibility concepts, see **Appendix D**.

Policy Objective

Noise from individual aircraft operations, especially by comparatively loud aircraft, can be intrusive and annoying in locations beyond the limits of the noise exposure areas addressed by the criteria in Section 3.1.7. Sensitivity to aircraft overflight varies from one person to another.

Measures of Overflight Exposure

The loudness and frequency of occurrence of individual aircraft noise events are key determinants of where airport proximity and aircraft overflight notification is warranted. Single-event noise levels are especially important in areas that are overflown regularly by aircraft, but that do not produce significant CNEL contours.

Locations where aircraft regularly fly at approximately the traffic pattern altitude—800 feet above ground level—or lower are considered to be within the overflight impact area of Cable Airport. Note that the flight altitude above ground level will be more or less than this amount depending upon the terrain below. Areas of high terrain beneath the traffic patterns are exposed to comparatively greater noise levels, a factor that is considered in the overflight policies.

Factors Considered in Setting Overflight Compatibility Criteria

Factors considered in establishing overflight criteria include the following:

- Unlike the function of the noise, safety, and airspace protection compatibility policies in this *Compati-*

Influence Area depicted on **Map 3A**, *Compatibility Map*. For Cable Airport, the Subpart B notification airspace surface extends outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from the nearest point on any runway.

(b) Any proposal for construction or alteration of a structure, including antennas, taller than 200 feet above the ground level at the site regardless of proximity to any airport.

bility Plan, overflight compatibility policies do not restrict the manner in which land can be developed or used. The policies serve only to establish the form and requirements for notification about airport proximity and aircraft overflights to be given in conjunction with local agency approval of new development and with certain real estate transactions involving existing development.

- To be most effective, overflight policies should establish notification requirements for transactions involving existing residential land uses, not just future residential development. However, the only function of the *Compatibility Plan* with regard to existing land uses is to define the boundaries within which airport proximity disclosure in conjunction with real estate transactions should be provided as specified under state law. Other than setting the disclosure boundary, the criteria in this section apply only to new residential development.
- State airport proximity disclosure law applies to existing development, but not to all transactions. [California state statutes (*Business and Professional Code Section 11010* and *Civil Code Sections 1102.6*, *1103.4*, and *1353*) require that, as part of many residential real estate transactions, information be disclosed regarding whether the property is situated within an airport influence area. These state requirements apply to the sale or lease of newly subdivided lands and condominium conversions and to the sale of certain existing residential property. In general, airport proximity disclosure is required with existing residential property transfer only when certain natural conditions (earthquake, fire, or flood hazards) warrant disclosure.]
- Need for continuity of notification to future property owners and tenants. To the extent that this *Compatibility Plan* sets notification requirements for new development, notifications should be in a form that runs with the land and is provided to prospective future owners and tenants.
- To avoid inappropriateness of avigation easement dedication solely for buyer awareness purposes. Avigation easements involve conveyance of property rights from the property owner to the party owning the easement and are thus best suited to locations where land use restrictions for noise, safety, or airspace protection purposes are necessary. Property rights conveyance is not needed for buyer awareness purposes.

3.5.1. *Recorded Overflight Notification:* As a condition for local agency approval of residential land use development within Compatibility Zones C3 and D as defined by **Map 3A**, an overflight notification shall be recorded in the chain of title of the property. A recorded overflight notification is not required in Compatibility Zones A, B1, B2, B3, C1 or C2 as the avigation easement dedication requirement within those zones accomplishes the notification function.

(a) The notification shall be of a format similar to that indicated in **Appendix H** and shall contain the following language dictated by state law with regard to *Airport Proximity Disclosure i*n conjunction with real estate transfer:

> NOTICE OF AIRPORT IN VICINITY: This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

(b) The notification shall be evident to prospective purchaser(s) of the property and shall appear on the property deed.

(c) A recorded overflight notification is not required where an avigation easement is provided (i.e., within portions of Compatibility Zone D that also fall within the Critical Airspace Zone).

(d) Recording of an overflight notification is not required for nonresidential development.

3.5.2. *Airport Proximity Disclosure:* State law requires that notice disclosing information about the presence of a nearby airport be given to prospective buyers of certain residential real estate within an airport influence area. The statutes define an airport influence area as "the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission."[14] *Compatibility Plan* criteria with regard to airport proximity disclosure is as follows:

(a) For existing residences:

(1) Airport proximity disclosure as part of real estate transactions involving existing residences is a matter between private parties. Neither the ALUC nor local agencies have authority to mandate that airport proximity disclosure be provided and neither the ALUC nor local agencies have enforcement responsibilities with regard to this disclosure.

(2) The sole responsibility of the City of Upland and the City of Montclair with regard to airport proximity disclosure for existing residences is to recommend the boundary of the area within which the disclosure is deemed appropriate and to provide this information to local title companies and real estate agents.[15] The recommended airport proximity disclosure for Cable Airport is identified on **Map 3A** in this chapter and includes the entire Airport Influence Area.

(3) Airport proximity disclosure should be provided as part of *all* real estate transactions (sale, lease, or rental) involving residential property anywhere within the Airport Influence Area.

(b) For proposed residential development:

(1) The disclosure provisions of state law are deemed mandatory for new residential development anywhere within the Airport Influence Area and shall continue in effect as *Compatibility Plan* criteria even if the state law is made less stringent or rescinded. The disclosure shall be of a format similar to that indicated in **Appendix H** and shall contain the language dictated by state law (see Policy 3.5.1(a)).

(2) Signs providing the notice included in Criterion 3.5.1(a) and a map of the Airport Influence Area shall be prominently posted in the real estate sales office and/or other key locations at any new residential development within the Airport Influence Area.

3.6. Criteria for Special Circumstances

3.6.1. *Avigation Easement Dedication:* As a condition for approval of projects that are subject to the review provisions of this *Compatibility Plan* and that meet the conditions in Paragraphs (a) and (b) of this criterion, the property owner shall be required to dedicate an avigation easement to Cable Airport.

[14] See California Business and Professions Code Section 11010(b) and Civil Code Section 1353(a).

[15] In counties having ALUCs, this responsibility rests with the ALUC in accordance with Business and Professions Code Section 11010(b) and Civil Code Section 1353(a)..

(a) Avigation easement dedication is required for all off-airport projects situated on a site that lies completely or partially within any of the following portions of the Cable Airport influence area as depicted on **Map 3A**, *Compatibility Map*:

(1) Within the Compatibility Zones A, B1, B2, B3, C1, or C2.

(2) Within the Critical Airspace Protection Zone as shown on **Map 3B**, *Existing Airspace Protection Surfaces*, or **Map 3C**, *Future Airspace Protection Surfaces*.

(b) Avigation easement dedication shall be required for any proposed development, including infill development, for which discretionary local agency approval is required.

(1) Avigation easement dedication is not required for ministerial approvals such as building permits or actions associated with modification of existing single-family residences.

(2) Further, unless previously required prior to the adoption date of this *Compatibility Plan*, the requirement to dedicate an avigation easement shall not be applicable to existing land uses located within the area where dedication is required for new land use projects.

(c) The avigation easement shall:

(1) Provide the right of flight in the airspace above the property;

(2) Allow the generation of noise and other impacts associated with aircraft overflight;

(3) Restrict the height of structures, trees and other objects in accordance with the policies in Section 3.4 and **Maps 3A** and **3B**;

(4) Permit access to the property for the removal or aeronautical marking of objects exceeding the established height limit; and

(5) Prohibit electrical interference, glare, and other potential hazards to flight from being created on the property.

(d) An example of an avigation easement is provided in **Appendix F**.

3.6.2. *Infill:* Where land uses not in conformance with the criteria set forth in this *Compatibility Plan* exist at the time of the plan's adoption, infill development of similar land uses may be allowed to occur in that area even if the proposed land use is otherwise incompatible with respect to the compatibility criteria for that location.

(a) Infill development under the provisions of this criterion is not permitted in Compatibility Zones A and B1.

(b) To qualify for infill development, a project site must either:

(1) Be part of a cohesive area, defined by the local land use jurisdiction, within which at least 65% of the uses were developed prior to the *Compatibility Plan* adoption with uses not in conformance with the plan; or

(2) Meet *all* of the following conditions:

- Already be served with streets, water, sewer, and other infrastructure;
- Have at least 65% of the site's perimeter bounded (disregarding roads) by existing uses similar to, or more intensive than, those proposed;
- Be no larger than 20 acres;
- Not extend the perimeter of the infill area defined by the surrounding, already developed, incompatible uses; and

- Land uses proposed for the infill area must be consistent with the local agency's zoning regulations governing the existing, already developed, surrounding area.

(c) For infill residential development in Compatibility Zones B2, C1, and C2, the average sitewide density (dwelling units per acre) of the proposed project shall not exceed the median density represented by all existing residential lots that lie fully or partially within a distance of 300 feet from the boundary of the defined infill area or site.

(d) For infill nonresidential development, the average usage intensity (the number of people per acre) of the site's proposed use shall not exceed the lesser of:

(1) The median intensity of all existing nonresidential uses that lie fully or partially within a distance of 300 feet from the boundary of the defined infill area; or

(2) Double the average sitewide intensity permitted in accordance with the criteria for that location as indicated in Criterion 3.3.2(b) and **Table 3A**.

(For example, if the zone allows an average sitewide intensity of 120 people per acre and the median of nearby existing uses is 150 people per acre, the infill development would be limited to 150 people per acre rather than 240.)

(e) The single-acre intensity limits for nonresidential development described listed in Criterion 3.3.2(b) and **Table 3A** are applicable to infill development. Also, the sound attenuation and avigation easement dedication requirements set by Criteria 3.2.2 and 3.6.1 shall apply to infill development.

(f) The intent this criterion is that all parcels eligible for infill be identified at one time by the local agency.

(1) The local agency is responsible for identifying, in its general plan or other adopted planning document, the qualifying locations that lie within that agency's boundaries..

(2) If a proposal is made to apply infill criteria to an infill area or site not initially identified, the local agency may evaluate the project to determine whether it would meet the qualifying conditions listed in Paragraphs (a) through (e) of this criterion.

(3) In either case, the burden for demonstrating that an area or an individual site qualifies as infill rests with the affected land use agency and/or project proponent.

3.6.3. *Existing Nonconforming Uses:* Proposed changes to existing land uses (including a parcel or building) that are not in conformance with the criteria in this chapter shall be limited as follows:

(a) Residential uses.

(1) A nonconforming residential land use may be continued, sold, leased, or rented without restriction or airport land use compatibility review provided that no discretionary local agency approval (such as a conditional use permit) is required.

(2) A nonconforming single-family dwelling may be maintained, remodeled, reconstructed (see Criterion 3.6.4), or expanded in size. The lot line of an existing single-family residential parcel may be adjusted. Also, a new single-family residence may be constructed on an existing lot in accordance with Policy 2.4.3. However:

- Any remodeling, reconstruction, or expansion must not increase the number of dwelling units. For example, a bedroom could be added to an existing residence, but an additional dwelling unit could not be built on the parcel unless

that unit is a secondary dwelling unit as defined by state law and local regulations.

- Any increase in height must comply with the criteria of Section 3.4 (Airspace Protection Compatibility Criteria).
- A single-family residential parcel may not be divided for the purpose of allowing additional dwellings to be constructed.

(3) Nonconforming multi-family residential dwellings may be maintained, remodeled, or reconstructed (see Criterion 3.6.4(a)). The size of individual dwelling units may be increased, but additional dwelling units may not be added.

(4) The sound attenuation and avigation easement dedication requirements set by Criteria 3.2.2 and 3.6.1 shall apply.

(b) Nonresidential uses (other than children's schools):

(1) A nonconforming nonresidential use may be continued, sold, leased, or rented without restriction or airport land use compatibility review.

(2) Nonconforming nonresidential facilities may be maintained, altered, or, if required by state law, reconstructed (see Criterion 3.6.4). However, any such work:

- Must not result in expansion of either the portion of the site devoted to the nonconforming use or the floor area of the buildings; and
- Must not result in an increase in the usage intensity (people per acre) above the levels existing at the time of adoption of this *Compatibility Plan*.
- Must not increase the storage or use of hazardous materials.

(3) The sound attenuation and avigation easement dedication requirements set by Criteria 3.2.2 and 3.6.1 shall apply.

(c) Children's schools (including grades K-12, day care centers with more than 14 children, and school libraries):

(1) Land acquisition for new schools or expansion of existing school sites is not permitted in Compatibility Zones A, B1/2/3, or C1/2/3.

(2) Existing schools in Compatibility Zone D may continue in use. Expansion of existing school sites shall not be allowed and expansion of facilities on existing sites shall be limited to a one-time capacity increase of no more than 50 students.

(3) The sound attenuation and avigation easement dedication requirements set by Criteria 3.2.2 and 3.6.1 shall apply.

(4) The limitations of Paragraphs (1) and (2) do not preclude work required for normal maintenance or repair.

3.6.4. *Reconstruction:* An existing nonconforming development that has been fully or partially destroyed as the result of a calamity or natural catastrophe, and would not otherwise be reconstructed but for such event, may be rebuilt only under the following conditions:

(a) Single-family or multi-family residential nonconforming uses may be rebuilt provided that the reconstruction does not result in more dwelling units than existed on the parcel at the time of the damage. Addition of a secondary dwelling unit to a single-family residence is permitted if in accordance with state law and local regulations.

(b) A nonresidential nonconforming use may be rebuilt provided that the reconstruction does not increase the floor area of the previous structure or result in an increased usage intensity (people per acre).

(c) Reconstruction under Paragraphs (a) or (b) above:

(1) Must have a permit deemed complete by the local agency within the time frame established by the local agency.

(2) Shall incorporate sound attenuation features to the extent required by Policy 3.2.2.

(3) Shall require dedication of an avigation easement to Cable Airport if required under Criterion 3.6.1.

(4) Shall comply with Federal Aviation Regulations Part 77 requirements (see Section 3.4).

(d) Reconstruction in accordance with Paragraphs (a), (b), and (c) above shall not be permitted in Compatibility Zone A or where it would be in conflict (not in conformance) with the general plan or zoning ordinance of the local agency.

(e) Nothing in the above policies is intended to preclude work required for normal maintenance and repair.

3.7. Criteria for Review of Airport Plans

3.7.1. *Substance of Review:* If a review of a Cable Airport master plan or development plan is required in accordance with Chapter 2, the review shall evaluate whether the airport plan would result in greater noise, safety, airspace protection, or overflight impacts than indicated in Chapter 3 of this *Compatibility Plan*. Attention should specifically focus on:

(a) Proposals for facilities or procedures not assumed herein, specifically:

(1) Construction of a new runway or helicopter takeoff and landing area.

(2) Change in the length, width, or landing threshold location of an existing runway.

(3) Establishment of an instrument approach procedure that changes the approach capabilities at a particular runway end.

(4) Modification of the flight tracks associated with existing visual or instrument operations procedures.

(b) New activity forecasts that are:

(1) Significantly higher than those used in developing the **Map 3A**, *Compatibility Map*, and **Map 3E**, *Future Noise Impact Area*; or

(2) Assume a higher proportion of larger or noisier aircraft.

3.7.2. *Noise Impacts of Airport Expansion:* Any proposed expansion of airport facilities that would result in a significant increase in cumulative noise exposure (measured in terms of CNEL) shall include measures to reduce the exposure to a less-than-significant level. For the purposes of this plan, a noise increase shall be considered significant if:

(a) In locations having an existing ambient noise level of CNEL 60 dB or less, the project would increase the noise level by 3.0 dB or more.

(b) In locations having an existing ambient noise level of more than CNEL 60 dB, the project would increase the noise level by 1.5 dB or more.

3.7.3. *Consistency Determination:* The City of Upland shall determine whether the proposed airport plan or development plan is consistent with this *Compatibility Plan*. The city's decision-making body shall base its determination of consistency on:

(a) Findings that the development and forecasts identified in the airport plan would not result in greater noise, safety, airspace protection, or overflight impacts on surrounding land uses than are assumed in this *Compatibility Plan*.

(b) Consideration of:

(1) Mitigation measures incorporated into the plan or project to reduce any increases in the noise, safety, airspace protection, and overflight impacts to a less-than-significant level in accordance with provisions of CEQA; or

(2) In instances where the impacts cannot be reduced to a less-than-significant level, a statement of overriding considerations approved by the project proponent in accordance with provisions of CEQA.

(c) A determination that any nonaviation development proposed for locations within the airport boundary (excluding federal- or state-owned property) will be consistent with the compatibility criteria and policies indicated in this *Compatibility Plan* with respect to the airport (see Policy 2.2.8 for definition of aviation-related use).

Land Use Category [1] *Multiple land use categories and compatibility criteria may apply to a project*	**Compatibility Zone**									**Additional Criteria** [2] *Intensity and lot coverage criteria apply to all nonresidential uses including ones shown as "Normally Compatible" (green)* *Additional conditions listed below apply to uses listed as "Conditional" (yellow) in a particular zone*
	A	**B1**	**B2**	**B3**	**C1**	**C2**	**C3**	**D**	**E**	
Max. Sitewide Avg. Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** [3]	**10** **20**	**40** **80**	**80** **160**	**120** **300**	**120** **300**	**240** **600**	**no limit**	**no limit**	**no limit**	
Maximum Lot Coverage (bldg footprint)	**0 %**	**35 %**	**45 %**	**60 %**	**45 %**	**100 %**	**100 %**	**100 %**	**100 %**	
General Characteristics										
Any use having more than 3 habitable floors [4]										
Any use for which all structures (including poles or antennas) and trees are less than 35 feet in height										A, B1, C1: Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Any use having structures (including poles or antennas) or trees 35 to 100 feet in height										B1/2/3, C2/3: Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Any use having structures (including poles or antennas) or trees more than 100 feet in height										C3, D, E: Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Any use having the potential to cause an increase in the attraction of birds or other wildlife										B2/3, C2/3, D, E: Avoid use or provide mitigation consistent with FAA regulations [5]
Any use creating visual or electronic hazards to flight [6]										
Outdoor Uses (limited or no activities in buildings)										
Natural Land Areas: woods, brush lands, desert										A: Objects above runway elevation not allowed in OFA [7] A, B1, C1: Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Water: flood plains, wetlands, lakes, reservoirs ✹										A: Objects above runway elevation not allowed in OFA [7] All: Avoid new features that attract more birds
Agriculture (except residences and livestock): field crops, orchards, vineyards, pasture, range land ✹										A: Not allowed in OFA [7] All: Avoid crops that attract birds
Livestock Uses: feed lots, stockyards, breeding, fish hatcheries, horse stables ✈✹										B1 - E: Avoid uses that attract birds; exercise caution with uses involving noise-sensitive animals
Outdoor Major Assembly Facilities (capacity ≥1,000 people): spectator-oriented outdoor stadiums, amphitheaters, fairgrounds, zoos ✈										D: Allowed only if alternative site outside zone would not serve intended function; exercise caution if clear audibility by users is essential
Group Recreation (limited spectator stands): athletic fields, water recreation facilities, picnic areas ✈										B2/3, C2: Ensure intensity criteria met; not allowed if intended primarily for use by children; exercise caution if clear audibility by users is essential
Small/Non-Group Recreation: golf courses, tennis courts, shooting ranges ✈✹										B1/2/3, C2: Ensure intensity criteria met; not allowed if intended primarily for use by children; exercise caution if clear audibility by users is essential

Table 3A

Compatibility Criteria

Cable Airport

Land Use Category [1] *Multiple land use categories and compatibility criteria may apply to a project*	**Compatibility Zone**									**Additional Criteria** [2] *Intensity and lot coverage criteria apply to all nonresidential uses including ones shown as "Normally Compatible" (green)* *Additional conditions listed below apply to uses listed as "Conditional" (yellow) in a particular zone*
	A	**B1**	**B2**	**B3**	**C1**	**C2**	**C3**	**D**	**E**	
Max. Sitewide Avg. Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** [3]	**10** **20**	**40** **80**	**80** **160**	**120** **300**	**120** **300**	**240** **600**	**no limit**	**no limit**	**no limit**	
Maximum Lot Coverage (bldg footprint)	**0 %**	**35 %**	**45 %**	**60 %**	**45 %**	**100 %**	**100 %**	**100 %**	**100 %**	
Local Parks: neighborhood parks, playgrounds ✈										B2/3, C2: Must have little or no permanent recreational facilities (ball fields, etc.); exercise caution if clear audibility by users is essential
Camping: campgrounds, recreational vehicle/ motor home parks ✈										B3, C1: Ensure intensity criteria met
Cemeteries (except chapels)										B1: Ensure airspace obstruction does not occur (see Maps 3B and 3C) B1/2/3, C2: Noise-compatible at levels indicated, but noise disruption of outdoor activities may occur
Residential and Lodging Uses										
Single-Family Residential (<8 d.u./acre): detached dwellings, townhouses, mobile homes, bed & breakfast inns ✈										B3, C3: Avoid new subdivisions; sound attenuation design required [see Criteria 3.2.1(a)(2) and 3.2.2] B3: Maximum 4 d.u./acre sitewide average, 8 d.u./single acre
Multi-Family Residential (≥8 d.u./acre): condominiums, apartments, mixed residential/nonresidential uses ✈										C3: Avoid new development; sound attenuation design required [see Criteria 3.2.1(a)(2) and 3.2.2] C3: Maximum 15 d.u./acre sitewide average, 30 d.u./single acre D: Maximum 25 d.u./acre sitewide average, 50 d.u./single acre
Long-Term Lodging (>30 nights): extended-stay hotels, dormitories ✈										C3: Sound attenuation design required [see Criterion 3.2.2]
Short-Term Lodging (≤ 30 nights): hotels, motels, other transient lodging (except conference/assembly facilities) [approx. 200 s.f./person]										B3, C2: Ensure intensity criteria met C2: Ensure sound attenuation criteria met [see Criterion 3.2.2]
Congregate Care: retirement homes, assisted living, intermediate care facilities ✈										C3: Ensure sound attenuation criteria met [see Criterion 3.2.2]
Educational and Institutional Uses										
Family day care homes (≤14 children) ✈										C3: Only small family care homes (≤8 children) as permitted by state law [8]
Children's Schools: K-12, day care centers (>14 children); school libraries ✈										D: No new sites or land acquisition; building replacement/expansion allowed for existing schools; expansion limited to ≤50 students [see Criterion 3.6.3(c)]
Adult Education classroom space: adult schools, colleges, universities [approx. 40 s.f./person]										B2/3, C2: Ensure intensity criteria met; also see individual components of campus facilities (e.g., assembly facilities, gymnasiums, offices)

Table 3A, continued

Land Use Category [1] *Multiple land use categories and compatibility criteria may apply to a project*	**Compatibility Zone**									**Additional Criteria** [2] *Intensity and lot coverage criteria apply to all nonresidential uses including ones shown as "Normally Compatible" (green)* *Additional conditions listed below apply to uses listed as "Conditional" (yellow) in a particular zone*
	A	**B1**	**B2**	**B3**	**C1**	**C2**	**C3**	**D**	**E**	
Max. Sitewide Avg. Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** [3]	**10** **20**	**40** **80**	**80** **160**	**120** **300**	**120** **300**	**240** **600**	**no limit**	**no limit**	**no limit**	
Maximum Lot Coverage (bldg footprint)	**0 %**	**35 %**	**45 %**	**60 %**	**45 %**	**100 %**	**100 %**	**100 %**	**100 %**	
Community Libraries [approx. 100 s.f./person]										C3: Avoid outdoor spaces intended for noise-sensitive activities
Indoor Major Assembly Facilities (capacity ≥1,000 people): auditoriums, conference centers, concert halls, indoor arenas										D: Allowed only if alternative site outside zone would not serve intended function
Indoor Large Assembly Facilities (capacity 300 to 999 people): movie theaters, places of worship, cemetery chapels, mortuaries [approx. 15 s.f./person]										C2: Ensure intensity criteria met
Indoor Recreation: gymnasiums, club houses, athletic clubs, dance studios [approx. 60 s.f./person]										B3, C2: Ensure intensity criteria met
In-Patient Medical: hospitals, mental hospitals, nursing homes ✈										C2: No new sites or land acquisition; replacement/expansion of existing facilities limited to existing size
Out-Patient Medical: health care centers, clinics [approx. 240 s.f./person]										B3, C2: Ensure intensity criteria met
Penal Institutions: prisons, reformatories										
Public Safety Facilities: police, fire stations										B2/3: Allowed only if alternative site outside zone would not serve intended public function C1: Allowed only if airport serving
Commercial, Office, and Service Uses										
Major Retail: regional shopping centers, 'big box' retail [approx. 110 s.f./person]										B3, C2: Ensure intensity criteria met; capacity <1,000 people per bldg; evaluate eating/drinking areas separately if >10% of total floor area
Local Retail: community/neighborhood shopping centers, grocery stores [approx. 170 s.f./person]										B2/3; C2: Ensure intensity criteria met; evaluate eating/drinking areas separately if >10% of total floor area B2: Capacity <160 people per bldg B3: Capacity <300 people per bldg C2: Capacity <1,000 people per bldg
Eating/Drinking Establishments: restaurants, fast-food dining, bars [approx. 60 s.f./person]										B2/3, C2: Ensure intensity criteria met B2: Capacity <160 people per bldg B3: Capacity <300 people per bldg C2: Capacity <1,000 people per bldg
Limited Retail/Wholesale: furniture, automobiles, heavy equipment, lumber yards, nurseries [approx. 250 s.f./person]										B1/2, C1: Ensure intensity criteria met B1, C1: Design site to place parking inside and bldgs outside of zone if possible
Offices: professional services, doctors, finance, civic; radio, television & recording studios, office space associated with other listed uses [approx. 215 s.f./person]										B1/2/3, C1: Ensure intensity criteria met B1, C1: Design site to place parking inside and bldgs outside of zone if possible B1: Allowable only if <80 people per bldg

Table 3A, continued

Land Use Category [1] *Multiple land use categories and compatibility criteria may apply to a project*	**Compatibility Zone**									**Additional Criteria** [2] *Intensity and lot coverage criteria apply to all nonresidential uses including ones shown as "Normally Compatible" (green)* *Additional conditions listed below apply to uses listed as "Conditional" (yellow) in a particular zone*
	A	**B1**	**B2**	**B3**	**C1**	**C2**	**C3**	**D**	**E**	
Max. Sitewide Avg. Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** [3]	**10** **20**	**40** **80**	**80** **160**	**120** **300**	**120** **300**	**240** **600**	**no limit**	**no limit**	**no limit**	
Maximum Lot Coverage (bldg footprint)	**0 %**	**35 %**	**45 %**	**60 %**	**45 %**	**100 %**	**100 %**	**100 %**	**100 %**	
Personal & Miscellaneous Services: barbers, car washes, print shops [approx. 200 s.f./person]										B1/2/3, C1: Ensure intensity criteria met B1, C1: Design site to place parking inside and bldgs outside of zone if possible B1: Allowable only if <80 people per bldg
Vehicle Fueling Facilities: gas stations, trucking & transportation terminals										C1: Allowable only for aircraft fueling
Industrial, Manufacturing, and Storage Uses										
Hazardous Materials Production: oil refineries, chemical plants ✹										C3, D, E: Allowed only if alternative site outside zone would not serve intended function C3, D: Generation of steam or thermal plumes not allowed
Heavy Industrial ✹										B3, C2: Bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials not allowed C3, D: Bulk storage of hazardous materials allowed only for on-site use; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft; generation of steam or thermal plumes not allowed
Light Industrial, High Intensity: food products preparation, electronic equipment [approx. 200 s.f./person]										B1/2/3, C2/3, D: Bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials allowed only for on-site use; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft B1/2/3, C2: Ensure intensity criteria are met
Light Industrial, Low Intensity: machine shops, wood products, auto repair [approx. 350 s.f./person]										B1/2/3, C2/3, D: Bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials allowed only for on-site use; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft B1/2/3, C1/2: Ensure intensity criteria are met
Research & Development [approx. 300 s.f./person]										B1/2/3, C2/3, D: Bulk storage of hazardous (flammable, explosive, corrosive, or toxic) materials allowed only for on-site use; permitting agencies to evaluate possible need for special measures to minimize hazards if struck by aircraft B2/3, C2: Ensure intensity criteria are met
Indoor Storage: wholesale sales, warehouses, mini/other indoor storage, barns, greenhouses [approx. 1,000 s.f./person]										B1, C1: Ensure intensity criteria are met; ensure airspace obstruction does not occur [see Map 3B]

Table 3A, continued

Land Use Category [1] *Multiple land use categories and compatibility criteria may apply to a project*	**Compatibility Zone**									**Additional Criteria** [2] *Intensity and lot coverage criteria apply to all nonresidential uses including ones shown as "Normally Compatible" (green)* *Additional conditions listed below apply to uses listed as "Conditional" (yellow) in a particular zone*
	A	**B1**	**B2**	**B3**	**C1**	**C2**	**C3**	**D**	**E**	
Max. Sitewide Avg. Intensity (people/acre) **Max. Single-Acre Intensity (people/acre)** [3]	**10** **20**	**40** **80**	**80** **160**	**120** **300**	**120** **300**	**240** **600**	**no limit**	**no limit**	**no limit**	
Maximum Lot Coverage (bldg footprint)	**0 %**	**35 %**	**45 %**	**60 %**	**45 %**	**100 %**	**100 %**	**100 %**	**100 %**	
Outdoor Storage: public works yards, automobile dismantling										C1: Ensure intensity criteria are met; ensure airspace obstruction does not occur [see Maps 3B and 3C]
Mining & Extraction ✹										B1/2/3, C1: Generation of dust clouds, smoke, steam plumes not allowed B1, C1; Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Transportation, Communication, and Utilities										
Airport Terminals: airline, general aviation										C1: Ensure airspace obstruction does not occur (see Maps 3B and 3C)
Rail & Bus Stations										B1/2, C1: Allowed only if alternative site outside zone would not serve intended public function
Transportation Routes: road & rail rights-of-way, bus stops										A, C1: Avoid road intersections if traffic congestion occurs; ensure airspace obstruction does not occur [see Maps 3B and 3C] A: Not allowed in Object Free Area [7]
Auto Parking: surface lots, structures										C1: Ensure airspace obstruction does not occur [see Maps 3B and 3C]
Communications Facilities: emergency communications, broadcast & cell towers ✹										B2/3, C2/3, D: Allowed only if alternative site outside zone would not serve intended public function; ensure airspace obstruction does not occur [see Maps 3B and 3C]
Power Plants: primary, peaker, alternative energy ✹										C3, D: Primary power plants not allowed C3, D, E: Ensure peaker and alternative energy plants and associated power lines meet airspace protection criteria (height, thermal plumes, glare, etc.) [see Criteria 3.4.2 and 3.4.3 and Maps 3B and 3C] E: Primary power plants allowed only if alternative site outside zone would not serve intended public function
Electrical Substations ✹										B3, C2/3: Allowed only if alternative site outside zone would not serve intended public function; ensure airspace obstruction does not occur for facility or power lines
Wastewater Facilities: treatment, disposal										C1: Allowed only if alternative site outside zone would not serve intended public function
Solid Waste Disposal Facilities: landfill, incineration ✹										E: Allowed only if alternative site outside zone would not serve intended public function
Solid Waste Transfer Facilities, Recycle Centers ✹										B2/3, C2/3, D: Ensure that facility does not attract birds

Table 3A, continued

Land Use Acceptability		Interpretation/Comments
	Normally Compatible	Normal examples of the use are presumed to comply with the noise, safety, and airspace protection criteria. Atypical examples of a use may require review to ensure compliance with usage intensity, lot coverage, and height limit criteria.
	Conditional	Use is compatible if indicated usage intensity, lot coverage, and other listed conditions are met. For the purposes of these criteria, "avoid" is intended as cautionary guidance, not a prohibition of the use.
	Incompatible	Use should not be permitted under any normal circumstances. Limited exceptions are possible for site-specific special circumstances. See Criterion 3.1.6.

Notes

✈ Indicates land use that is or may be highly noise sensitive. Exercise caution with regard to approval of outdoor uses—evaluate potential for aircraft noise to disrupt the activity. Indoor uses may require addition of sound attenuation to structure. See Section 3.2 for criteria.

✹ Indicates land use that may attract birds, generate dust, produce smoke or steam plumes, create electronic interference, or otherwise pose hazards to flight. See Section 3.4 for criteria.

[1] Land uses not specifically listed shall be evaluated using the criteria for similar uses. Occupancy Load Factors (square feet/person) cited for many listed uses are based on information from various sources and are intended to represent busy-period usage for typical examples of the land use category; they can be used as a factor in determining the appropriate land use category for unlisted uses or atypical examples of a use.

[2] Dedication of an avigation easement to Cable Airport is required as a condition for approval of any proposed residential or nonresidential development, except ministerial actions associated with modification of existing single-family residences, situated on a site that lies completely or partially within any of the following: Compatibility Zones A, B1, B2, B3, C1, or C2; the High Terrain Zone; or, as defined by FAR Part 77 and shown on Map 3B – Existing Airspace Protection surfaces or Map 3C – Future Airspace Protection Surfaces, the area beneath the approach or transitional surfaces. A recorded overflight notification is required for any residential development in Compatibility Zones C3 or D, except where an avigation easement is provided.

[3] Usage intensity calculations shall include all people (e.g., employees, customers/visitors) who may be on the property at any single point in time, whether indoors or outdoors. Local agencies may make exceptions for rare special events (e.g., an air show at the airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate. The City of Upland shall calculate usage intensities in accordance with the methodologies cited in Criteria 3.3.3 and 3.3.4.

[4] The intent of this criterion is to facilitate evacuation of a building if it were to be hit by an aircraft. It is separate from the height limits set for airspace protection purposes.

[5] No proposed use shall be allowed that would create an increased attraction for wildlife and that is inconsistent with FAA rules and regulations including, but not limited to, FAA Advisory Circulars 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, and 150/5200-34A, *Construction or Establishment of Landfills Near Public Airports*. Of particular concern are landfills and certain recreational or agricultural uses that attract large flocks of birds which pose bird strike hazards to aircraft in flight.

[6] Specific characteristics to be avoided include: sources of glare (such as from mirrored or other highly reflective structures or building features) or bright lights (including search lights and laser light displays); distracting lights that could be mistaken for airport lights; sources of dust, steam, or smoke that may impair pilots' vision; sources of steam or other emissions that cause thermal plumes or other forms of unstable air; and sources of electrical interference with aircraft communications or navigation.

[7] Object Free Area (OFA): Dimensions are established by FAA airport design standards for the runway.

[8] Small family day care homes provide family day care for eight or fewer children (Health and Safety Code Section 1596.78).

Table 3A, continued

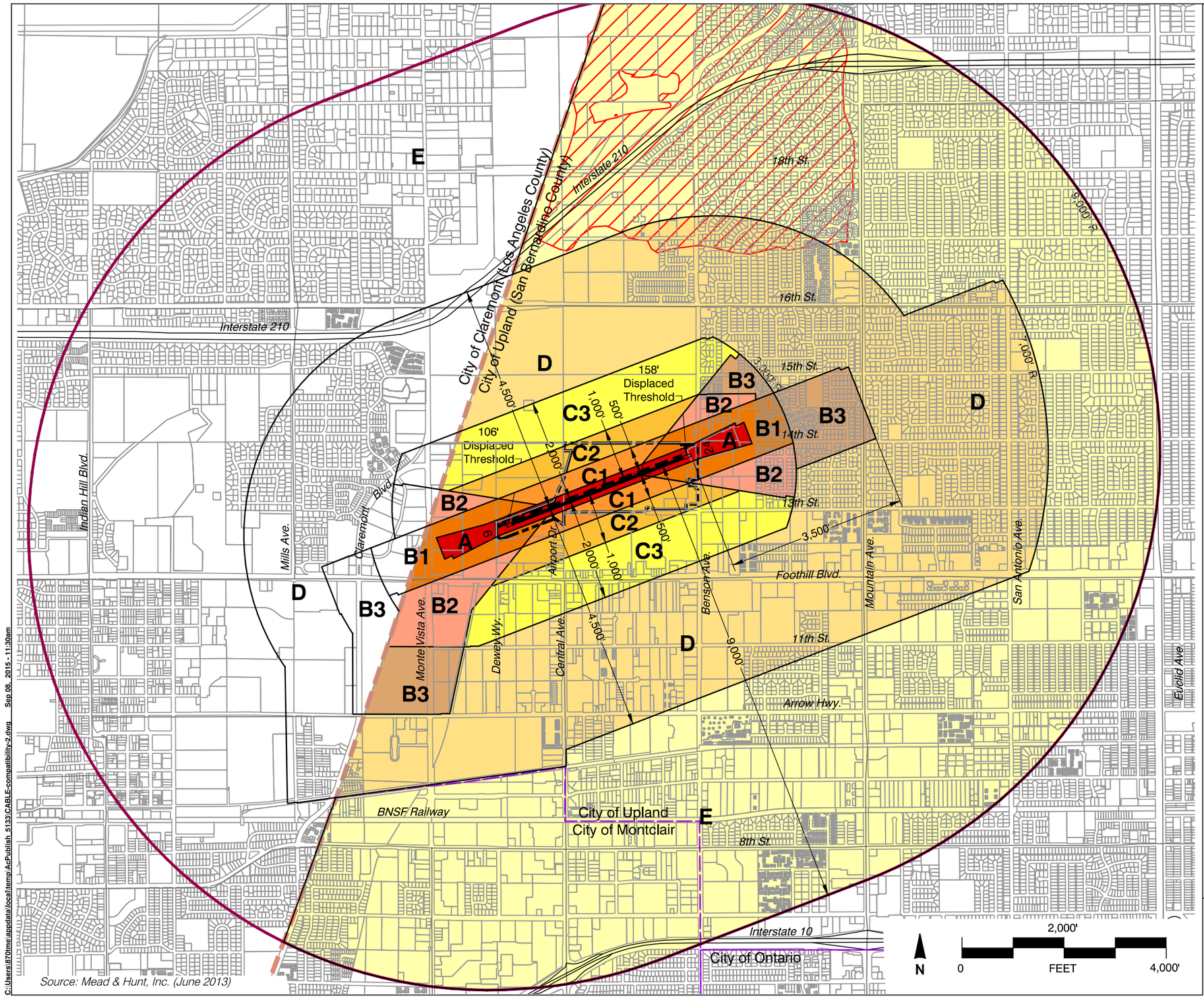
Zone	Noise and Overflight Factors	Safety and Airspace Protection Factors
A *Runway Protection Zone and Primary Surface*	*Noise Impact: Very High* ▪ Mostly above projected 65 dB CNEL ▪ High single-event noise levels ▪ FAA-defined safety and airspace factors are primary determinants of zone boundaries	*Risk Level: Very High* ▪ Lateral to runway, zone boundary defined by Primary Surface as depicted on approved Airport Layout Plan drawing ▪ Length set to include Runway Protection Zones as indicated on Airport Layout Plan drawing ▪ Nationally, nearly 40% of off-runway general aviation accidents near airports occur in this zone
B1 *Inner Approach/ Departure Zone*	*Noise Impact: High* ▪ Mostly above projected 60 dB CNEL; much above projected 65 dB CNEL ▪ High single-event noise levels	*Risk Level: High* ▪ Encompasses areas overflown by aircraft at low altitudes—typically only 200 to 400 feet above runway ▪ For runways similar in length to that at Cable Airport, about 20% of near-airport, off-runway general aviation accidents take place here ▪ Object heights restricted to as little as zero closest to runway end
B2 *Inner Turning Zone*	*Noise Impact: Moderate to High* ▪ Much of area above projected 60 dB CNEL ▪ Single-event noise sufficient to disrupt many land use activities including indoors if windows open ▪ Aircraft typically below 1,000 feet altitude	*Risk Level: Moderate* ▪ On arrival, aircraft flying close-in base leg overfly this area, sometimes making sharp turns to final approach; overflight altitude usually below 300 feet ▪ On departure, aircraft normally complete transition from takeoff power and flap settings to climb mode and begin turns to en route heading; to west, aircraft regularly overfly this area for noise abatement purposes ▪ About 5% of off-runway general aviation accidents near airports occur in this zone ▪ Object heights restricted to as little as 50 feet
B3 *Extended Approach/ Departure Zone*	*Noise Impact: Moderate* ▪ Mostly above projected 55 dB CNEL ▪ Single-event noise sufficient to disrupt some land use activities including indoors if windows open	*Risk Level: Low to Moderate* ▪ On arrival, aircraft below traffic pattern altitude on or entering final approach ▪ On departure, aircraft nearing traffic pattern altitude ▪ Less than 5% of accidents occur in this area ▪ Object heights restricted to as little as 100 feet
C1 *Adjacent to Runway*	*Noise Impact: High* ▪ All above projected 65 dB CNEL; some areas above projected 70 dB CNEL ▪ Exposed to loud single-event noise from takeoffs and jet thrust-reverse on landing; also from pre-flight run-ups	*Risk Level: Moderate* ▪ Area not normally overflown; primary risk is with aircraft (especially twin-engine planes) losing directional control on takeoff ▪ About 5% of off-runway general aviation accidents near airports happen in this zone ▪ Object heights restricted to as little as zero
C2 *Lateral to Runway*	*Noise Impact: Moderate to High* ▪ Mostly above projected 65 dB CNEL	*Risk Level: Low to Moderate* ▪ Area not normally overflown except on overhead pattern; some risk from takeoff loss of directional control; less than 5% of accidents occur in this area ▪ Object heights restricted to as little as 50 feet
C3 *Lateral to Runway*	*Noise Impact: Moderate* ▪ Mostly above projected 60 dB CNEL	*Risk Level: Low* ▪ Most of area not normally overflown except on overhead pattern; few accidents ▪ Object heights limited to less than 150 feet
D *Primary Traffic Patterns*	*Noise Impact: Moderate* ▪ Contains remaining 55-CNEL contour ▪ More concern with respect to individual loud events than with cumulative noise contours	*Risk Level: Low* ▪ On approach, aircraft at traffic pattern altitude or beginning descent ▪ On departure, or closed pattern, aircraft at or above pattern altitude; engine failure on takeoff could result in aircraft reaching this area ▪ About 20% of general aviation accidents take place in this zone, but large area encompassed means low likelihood of accident occurrence in any given location ▪ Object heights limited to less than 150 feet
E *Other Airport Environs*	*Noise Impact: Low* ▪ Beyond 55-CNEL contour ▪ Occasional overflights intrusive to some outdoor activities	*Risk Level: Low* ▪ Wide area overflown by aircraft entering or leaving traffic pattern ▪ Less than 10% of near-airport accidents take place at this distance from the runway
***** *High Terrain Zone*	*Noise Impact: Low* ▪ Individual noise events slightly louder because high terrain reduces altitude of overflights	*Risk Level: Moderate* ▪ Modest risk because high terrain constitutes airspace obstruction ▪ Concern is tall single objects (e.g., antennas)

Note: All zones reflect a composite of factors for both existing and proposed runway positions; see Criterion 3.1.3

Table 3B

Compatibility Zone Factors

Cable Airport



Source: Mead & Hunt, Inc. (June 2013)

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Legend

Boundary Lines

- Airport Property
- Existing Runway 6-24 Length: 3,864'
- Future Runway 6-24 Length: 3,864'
- Airport Influence Area
- High Terrain Zone

Compatibility Zones

- Zone A
- Zone B1
- Zone B2
- Zone B3
- Zone C1
- Zone C2
- Zone C3
- Zone D
- Zone E

Notes

1. See Table 3A for applicable criteria.
2. Policies apply only within San Bernardino County jurisdictions.

Cable Airport

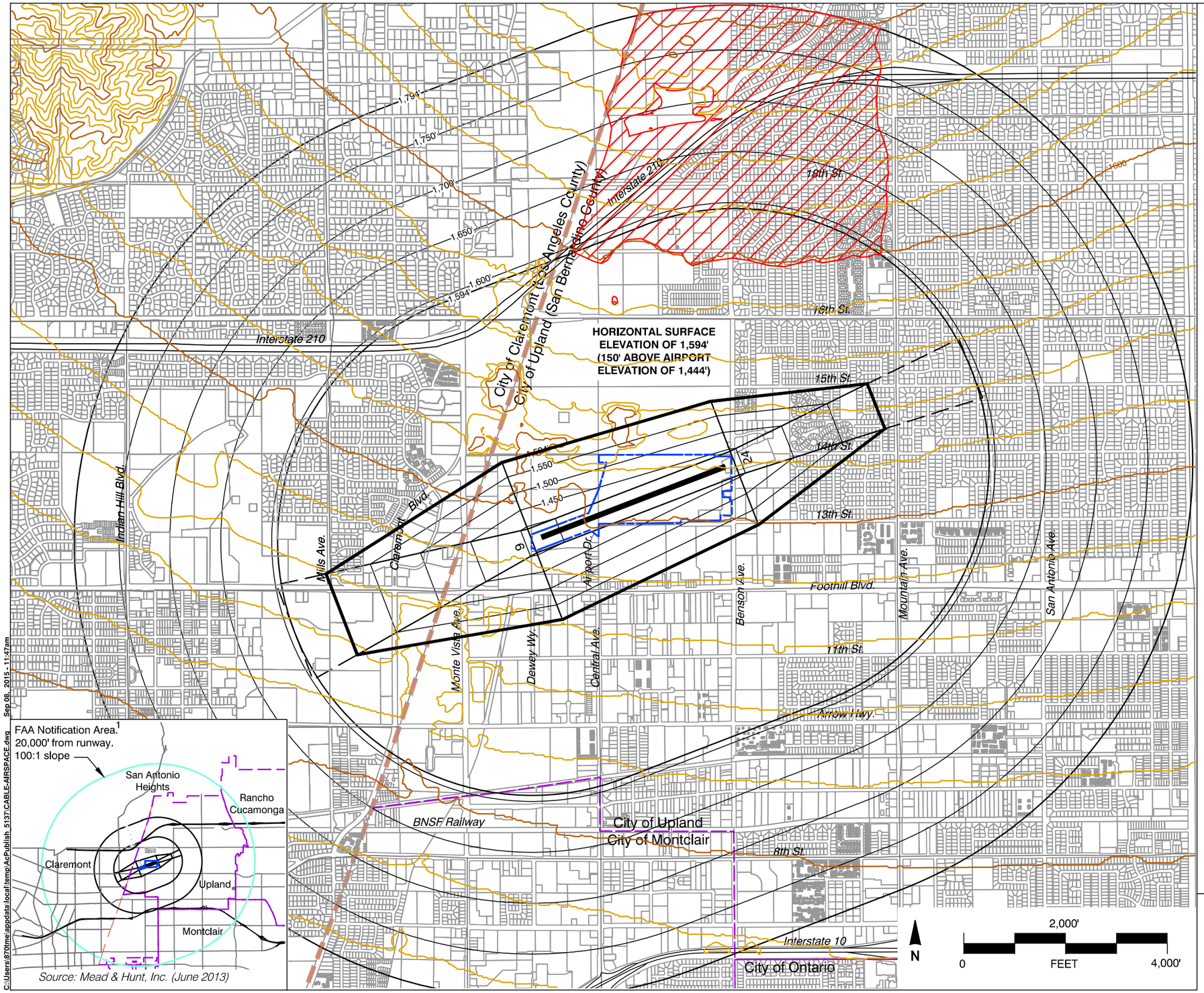
Land Use Compatibility Plan

(September 2015)

Map 3A

Compatibility Policy Map

Cable Airport



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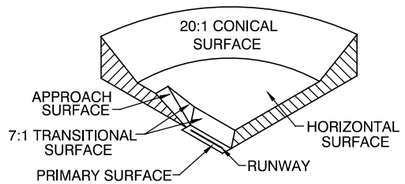
RUNWAY END DATA				
APPROACH END OF RUNWAY:			6	24
AIRPORT REFERENCE CODE		Existing	B-I	
		Future	No Change	
APPROACH TYPE [FAR Part 77 Category]		Existing	Nonprecision [A(NP)]	Visual [A(V)]
		Future	No Change	No Change
APPROACH VISIBILITY		Existing	1 Mile (Straight In)	Visual
		Future	No Change	No Change
APPROACH and LANDING AIDS	Visual	Existing	VASI/MIRL	VASI/MIRL
		Future	No Change	No Change
	Electronic	Existing	VOR/GPS	None
		Future	No Change	No Change
RUNWAY ELEVATIONS		Existing	1393.1'	1443.7'
		Future	No Change	No Change
SOURCE: Cable Airport Master Plan (April 2011)				

Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Critical Airspace Protection Zone
- High Terrain Area (Terrain penetrates FAR Part 77 Surfaces or is within 35 feet).

TYPICAL HEIGHT NOTIFICATION DIAGRAM [1]



TYPICAL FAR PART 77 OBSTRUCTION SURFACES

Notes

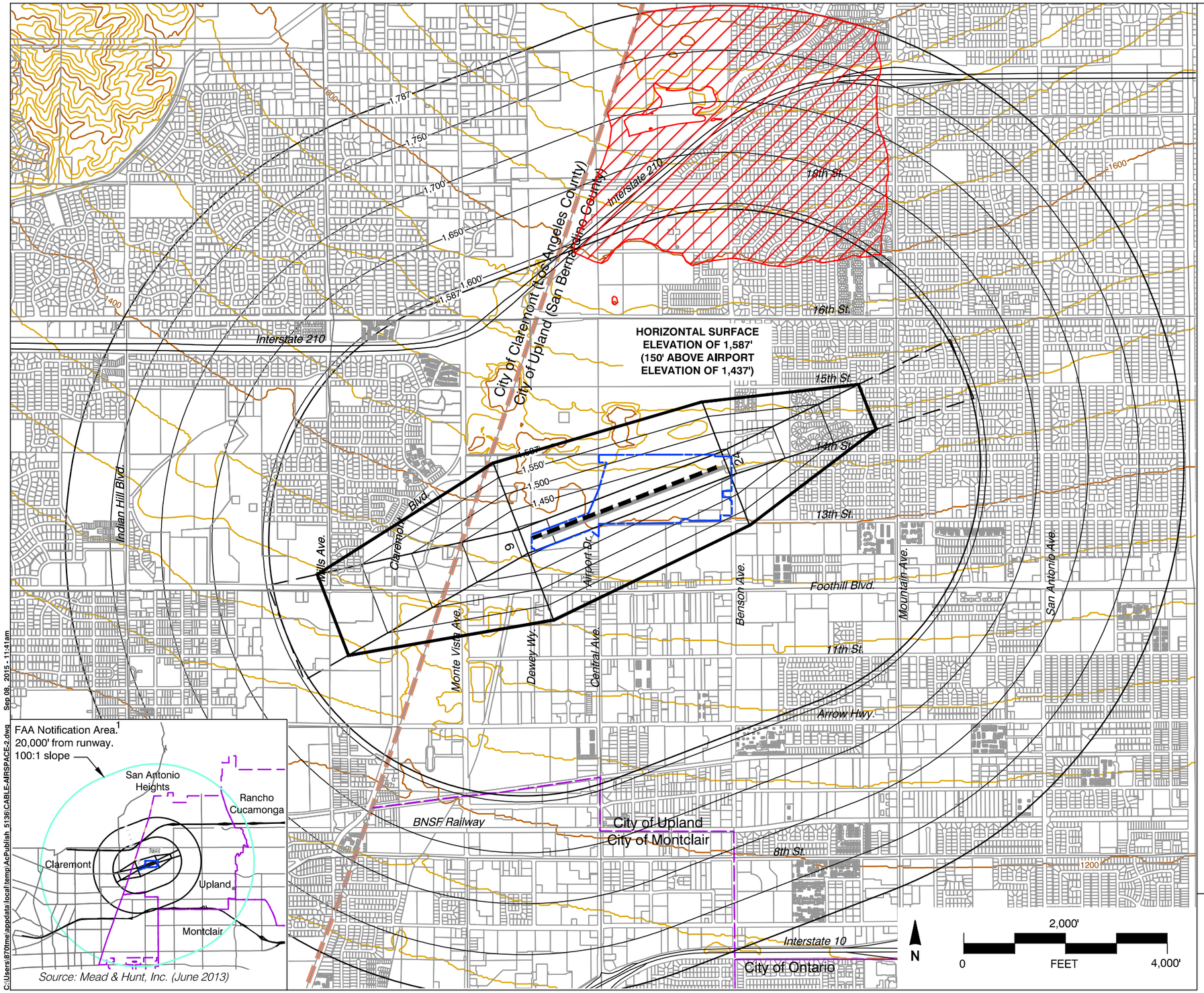
1. FAA Height Notification Area: Based on FAR Part 77, Subpart B, which requires that the FAA be notified of any proposed construction or alteration having a height greater than an imaginary surface extending 100 feet outward and 1 foot upward (slope of 100 to 1) for a distance of 20,000 feet from the nearest point of any runway. Beyond this boundary, any object taller then 200 feet requires FAA notification.

Cable Airport
Land Use Compatibility Plan
(September 2015)

Map 3B

Existing Airspace Protection Surfaces

Cable Airport



Source: Mead & Hunt, Inc. (June 2013)

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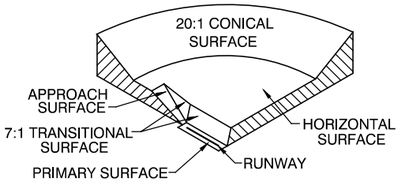
RUNWAY END DATA				
APPROACH END OF RUNWAY:			6	24
AIRPORT REFERENCE CODE		Existing	B-I	
		Future	No Change	
APPROACH TYPE [FAR Part 77 Category]		Existing	Nonprecision [A(NP)]	Visual [A(V)]
		Future	No Change	No Change
APPROACH VISIBILITY		Existing	1 Mile (Straight In)	Visual
		Future	No Change	No Change
APPROACH and LANDING AIDS	Visual	Existing	VASI/MIRL	VASI/MIRL
		Future	No Change	No Change
	Electronic	Existing	VOR/GPS	None
		Future	No Change	No Change
RUNWAY ELEVATIONS		Existing	N/A	N/A
		Future	1389.4'	1437.4'
SOURCE: Cable Airport Master Plan (April 2011)				

Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Future Runway[2]
- Critical Airspace Protection Zone
- High Terrain Area (terrain penetrates FAR Part 77 Surfaces or is within 35 feet).

TYPICAL HEIGHT NOTIFICATION DIAGRAM [1]



TYPICAL FAR PART 77 OBSTRUCTION SURFACES

Notes

1. FAA Height Notification Area: Based on FAR Part 77, Subpart B, which requires that the FAA be notified of any proposed construction or alteration having a height greater than an imaginary surface extending 100 feet outward and 1 foot upward (slope of 100 to 1) for a distance of 20,000 feet from the nearest point of any runway. Beyond this boundary, any object taller then 200 feet requires FAA notification.

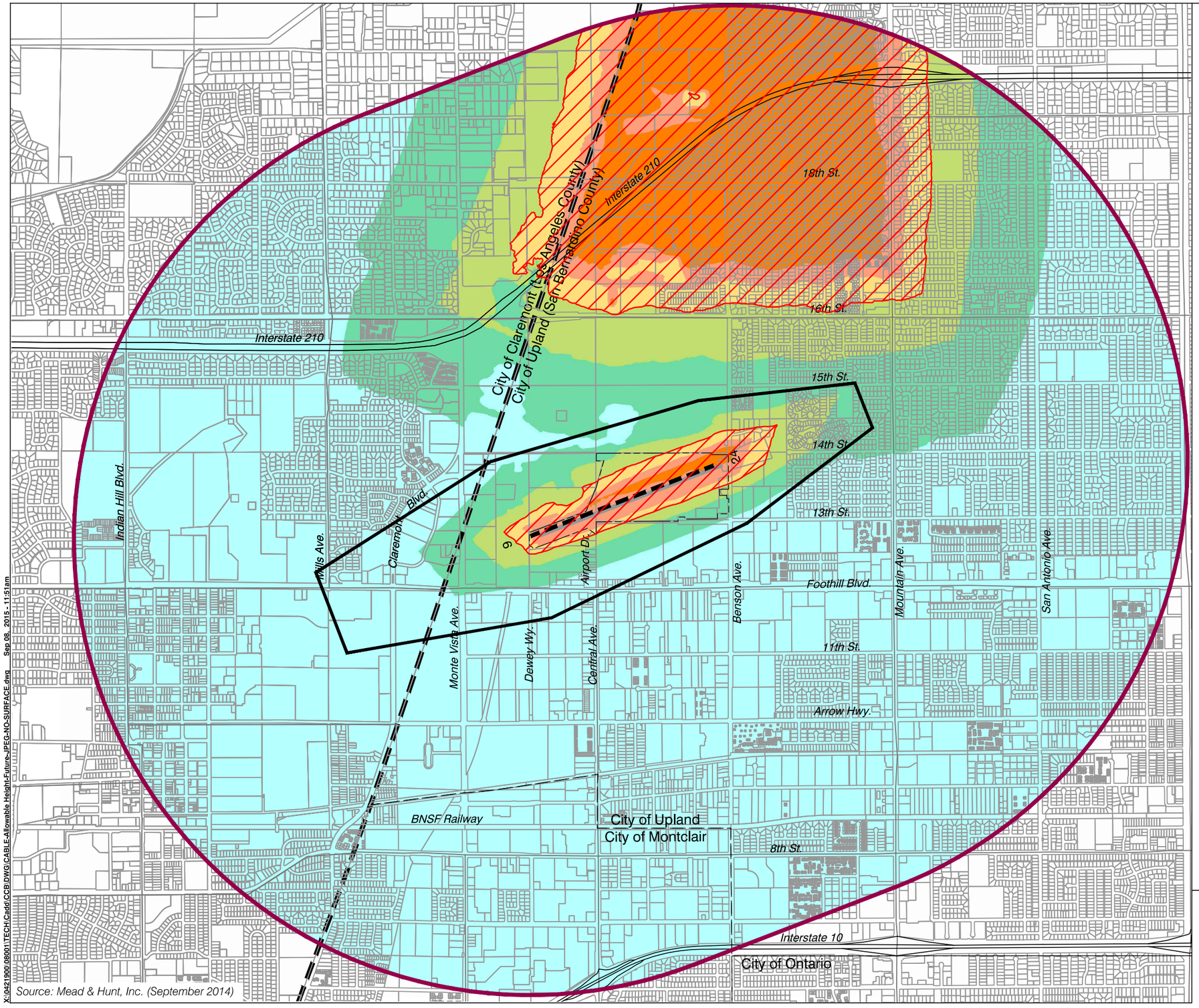
2. Future runway is proposed to shift 50 feet northward and approximately 164 feet westward of its existing position. The length remains unchanged.

Cable Airport
Land Use Compatibility Plan
(September 2015)

Map 3C

Future Airspace Protection Surfaces

Cable Airport



Source: Mead & Hunt, Inc. (September 2014)

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Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Airport Influence Area
- Existing Runway
- Proposed Runway Configuration
- Critical Airspace Protection Zone
- High Terrain Area (terrain penetrates FAR Part 77 Surfaces or is within 35 feet).
- -55' - 0'
- 0' - 15'
- 15' - 35'
- 35' - 75'
- 75' - 150'
- > 150'

Notes

1. The indicated height limit ranges are calculated by subtracting the ground elevations from the elevations of the airspace protection surfaces shown in Map 3B (existing runway configuration) and Map 3C (proposed runway configuration). The allowable height in any particular location is determined by whichever runway configuration results in the more restrictive height.
2. Only ranges of allowable heights are indicated on this map. Calculation of the precise allowable height at any given point requires reference to Maps 3B and 3C for the exact ground and airspace protection surface elevations for that point.
3. Except within the Critical Airspace Protection Zone, no object shall be limited to a height of less than 35 feet above ground level even if such height would result in an airspace protection surface penetration. The High Terrain Area encompasses the locations where a 35-foot object would be an airspace penetration. See Criterion 3.4.2 in Chapter 3 for details.

N

2,000'

0 FEET 4,000'

Cable Airport

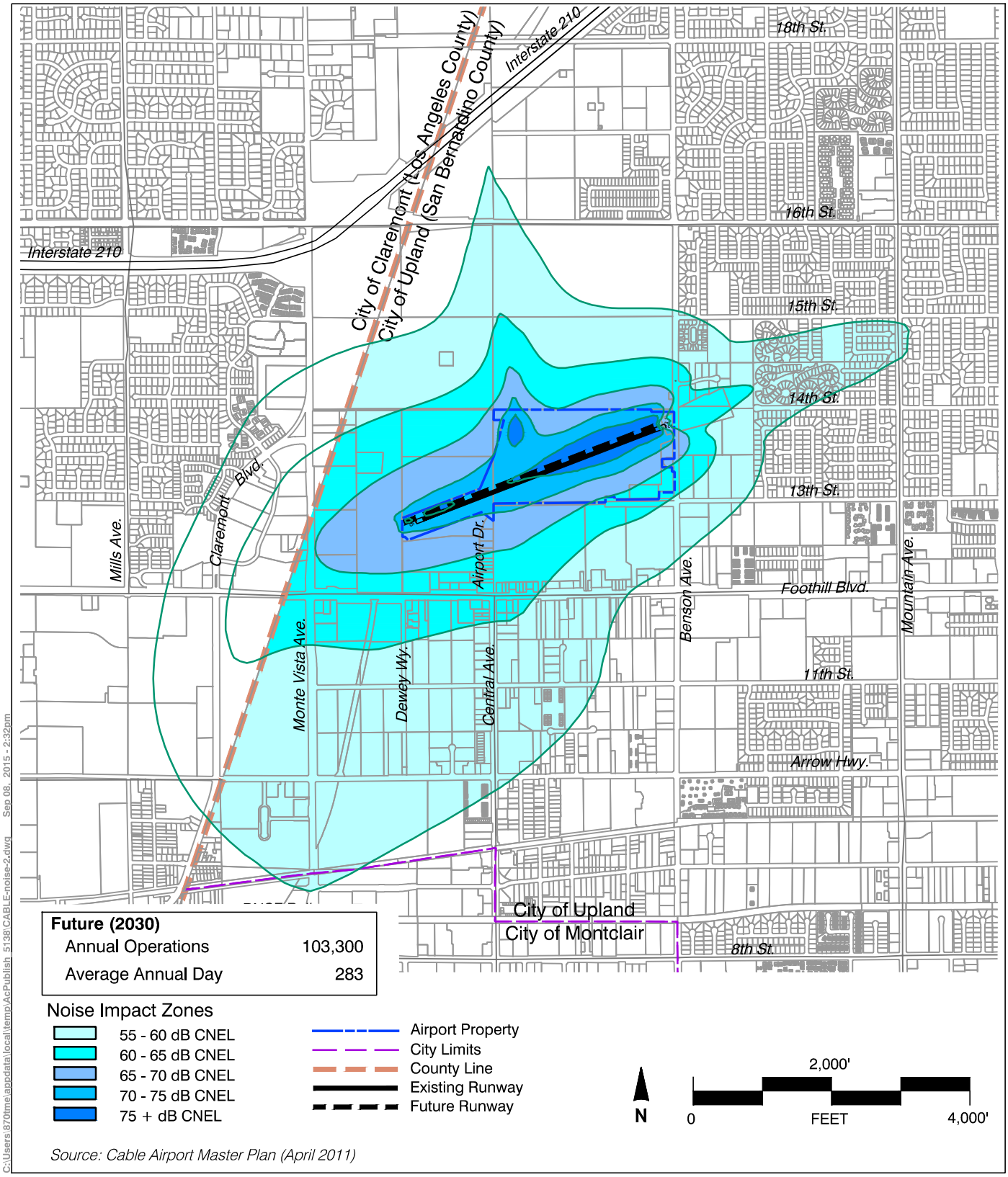
Land Use Compatibility Plan

(September 2015)

Map 3D

Allowable Object Heights

Cable Airport



Source: Cable Airport Master Plan (April 2011)

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Map 3E

Future Noise Impact Area

Cable Airport

Appendices

APPENDIX A

State Laws Related to Airport Land Use Planning

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(as of January 2015)

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(complete article)

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(excerpts pertaining to rights of aircraft flight)

21655, 21658, 21659 Regulation of Obstructions A–17
(excerpts)

21661.5, 21664.5 Regulation of Airports A–19
(excerpts pertaining to approval of new airports and airport expansion)

Government Code

Sections

65302.3 Authority for and Scope of General Plans A–20
(excerpts pertaining to general plans consistency with airport land use plans)

65943 – 65945.7 Application for Development Projects A–21
(excerpts referenced in State Aeronautics Act)

66030 – 66031 Mediation and Resolution of Land Use Disputes A–26
(excerpts applicable to ALUC decisions)

66455.9 School Site Review A–28
(excerpts applicable to ALUCs)

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Sections

17215 School Facilities, General Provisions A–29
(excerpts pertaining to Department of Transportation review of elementary and secondary school sites)

81033 Community Colleges, School Sites A–30
(excerpts pertaining to Department of Transportation review of community college sites)

Public Resources Code

Sections

21096 California Environmental Quality Act, Airport Planning.....A–32
(excerpts pertaining to projects near airports)

Business and Professions Code

Sections

11010 Regulation of Real Estate Transactions, Subdivided Lands.....A–33
(excerpts regarding airport influence area disclosure requirements)

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Sections

1103 – 1103.4 Disclosure of Natural Hazards upon Transfer of Residential Property A–34

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Legislative History Summary

Airport Land Use Commission Statutes A–39

AERONAUTICS LAW

PUBLIC UTILITIES CODE
Division 9—Aviation
Part 1—State Aeronautics Act
Chapter 4—Airports and Air Navigation Facilities
Article 3.5—Airport Land Use Commission

21670. Creation; Membership; Selection

(a) The Legislature hereby finds and declares that:

(1) It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.

(2) It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

(b) In order to achieve the purposes of this article, every county in which there is located an airport which is served by a scheduled airline shall establish an airport land use commission. Every county, in which there is located an airport which is not served by a scheduled airline, but is operated for the benefit of the general public, shall establish an airport land use commission, except that the board of supervisors of the county may, after consultation with the appropriate airport operators and affected local entities and after a public hearing, adopt a resolution finding that there are no noise, public safety, or land use issues affecting any airport in the county which require the creation of a commission and declaring the county exempt from that requirement. The board shall, in this event, transmit a copy of the resolution to the Director of Transportation. For purposes of this section, "commission" means an airport land use commission. Each commission shall consist of seven members to be selected as follows:

(1) Two representing the cities in the county, appointed by a city selection committee comprised of the mayors of all the cities within that county, except that if there are any cities contiguous or adjacent to the qualifying airport, at least one representative shall be appointed therefrom. If there are no cities within a county, the number of representatives provided for by paragraphs (2) and (3) shall each be increased by one.

(2) Two representing the county, appointed by the board of supervisors.

(3) Two having expertise in aviation, appointed by a selection committee comprised of the managers of all of the public airports within that county.

(4) One representing the general public, appointed by the other six members of the commission.

(c) Public officers, whether elected or appointed, may be appointed and serve as members of the commission during their terms of public office.

(d) Each member shall promptly appoint a single proxy to represent him or her in commission affairs and to vote on all matters when the member is not in attendance. The proxy shall be designated in

a signed written instrument which shall be kept on file at the commission offices, and the proxy shall serve at the pleasure of the appointing member. A vacancy in the office of proxy shall be filled promptly by appointment of a new proxy.

(e) A person having an "expertise in aviation" means a person who, by way of education, training, business, experience, vocation, or avocation has acquired and possesses particular knowledge of, and familiarity with, the function, operation, and role of airports, or is an elected official of a local agency which owns or operates an airport.

(f) It is the intent of the Legislature to clarify that, for the purposes of this article that special districts, school districts and community college districts are included among the local agencies that are subject to airport land use laws and other requirements of this article.

21670.1. Action by Designated Body Instead of Commission

(a) Notwithstanding any other provision of this article, if the board of supervisors and the city selection committee of mayors in the county each makes a determination by a majority vote that proper land use planning can be accomplished through the actions of an appropriately designated body, then the body so designated shall assume the planning responsibilities of an airport land use commission as provided for in this article, and a commission need not be formed in that county.

(b) A body designated pursuant to subdivision (a) that does not include among its membership at least two members having expertise in aviation, as defined in subdivision (e) of Section 21670, shall, when acting in the capacity of an airport land use commission, be augmented so that body, as augmented, will have at least two members having that expertise. The commission shall be constituted pursuant to this section on and after March 1, 1988.

(c) (1) Notwithstanding subdivisions (a) and (b), and subdivision (b) of Section 21670, if the board of supervisors of a county and each affected city in that county each makes a determination that proper land use planning pursuant to this article can be accomplished pursuant to this subdivision, then a commission need not be formed in that county.

(2) If the board of supervisors of a county and each affected city makes a determination that proper land use planning may be accomplished and a commission is not formed pursuant to paragraph (1), that county and the appropriate affected cities having jurisdiction over an airport, subject to the review and approval by the Division of Aeronautics of the department, shall do all of the following:

(A) Adopt processes for the preparation, adoption, and amendment of the airport land use compatibility plan for each airport that is served by a scheduled airline or operated for the benefit of the general public.

(B) Adopt processes for the notification of the general public, landowners, interested groups, and other public agencies regarding the preparation, adoption, and amendment of the airport land use compatibility plans.

(C) Adopt processes for the mediation of disputes arising from the preparation, adoption, and amendment of the airport land use compatibility plans.

(D) Adopt processes for the amendment of general and specific plans to be consistent with the airport land use compatibility plans.

(E) Designate the agency that shall be responsible for the preparation, adoption, and amendment of each airport land use compatibility plan.

(3) The Division of Aeronautics of the department shall review the processes adopted pursuant to paragraph (2), and shall approve the processes if the division determines that the processes are consistent with the procedure required by this article and will do all of the following:

(A) Result in the preparation, adoption, and implementation of plans within a reasonable amount of time.

(B) Rely on the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations.

(C) Provide adequate opportunities for notice to, review of, and comment by the general public, landowners, interested groups, and other public agencies.

(4) If the county does not comply with the requirements of paragraph (2) within 120 days, then the airport land use compatibility plan and amendments shall not be considered adopted pursuant to this article and a commission shall be established within 90 days of the determination of noncompliance by the division and an airport land use compatibility plan shall be adopted pursuant to this article within 90 days of the establishment of the commission.

(d) A commission need not be formed in a county that has contracted for the preparation of airport land use compatibility plans with the Division of Aeronautics under the California Aid to Airports Program (Chapter 4 (commencing with Section 4050) of Title 21 of the California Code of Regulations), Project Ker-VAR 90-1, and that submits all of the following information to the Division of Aeronautics for review and comment that the county and the cities affected by the airports within the county, as defined by the airport land use compatibility plans:

(1) Agree to adopt and implement the airport land use compatibility plans that have been developed under contract.

(2) Incorporated the height, use, noise, safety, and density criteria that are compatible with airport operations as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations as part of the general and specific plans for the county and for each affected city.

(3) If the county does not comply with this subdivision on or before May 1, 1995, then a commission shall be established in accordance with this article.

(e) (1) A commission need not be formed in a county if all of the following conditions are met:

(A) The county has only one public use airport that is owned by a city.

(B) (i) The county and the affected city adopt the elements in paragraph (2) of subdivision (d), as part of their general and specific plans for the county and the affected city.

(ii) The general and specific plans shall be submitted, upon adoption, to the Division of Aeronautics. If the county and the affected city do not submit the elements specified in paragraph (2) of subdivision (d), on or before May 1, 1996, then a commission shall be established in accordance with this article.

21670.2. Application to Counties Having over 4 Million in Population

(a) Sections 21670 and 21670.1 do not apply to the County of Los Angeles. In that county, the county regional planning commission has the responsibility for coordinating the airport planning of public

agencies within the county. In instances where impasses result relative to this planning, an appeal may be made to the county regional planning commission by any public agency involved. The action taken by the county regional planning commission on an appeal may be overruled by a four-fifths vote of the governing body of a public agency whose planning led to the appeal.

(b) By January 1, 1992, the county regional planning commission shall adopt the airport land use compatibility plans required pursuant to Section 21675.

(c) Sections 21675.1, 21675.2, and 21679.5 do not apply to the County of Los Angeles until January 1, 1992. If the airport land use compatibility plans required pursuant to Section 21675 are not adopted by the county regional planning commission by January 1, 1992, Sections 21675.1 and 21675.2 shall apply to the County of Los Angeles until the airport land use compatibility plans are adopted.

21670.3 San Diego County

(a) Sections 21670 and 21670.1 do not apply to the County of San Diego. In that county, the San Diego County Regional Airport Authority, as established pursuant to Section 170002, shall be responsible for the preparation, adoption, and amendment of an airport land use compatibility plan for each airport in San Diego County.

(b) The San Diego County Regional Airport Authority shall engage in a public collaborative planning process when preparing and updating an airport land use compatibility plan.

21670.4. Intercounty Airports

(a) As used in this section, "intercounty airport" means any airport bisected by a county line through its runways, runway protection zones, inner safety zones, inner turning zones, outer safety zones, or sideline safety zones, as defined by the department's Airport Land Use Planning Handbook and referenced in the airport land use compatibility plan formulated under Section 21675.

(b) It is the purpose of this section to provide the opportunity to establish a separate airport land use commission so that an intercounty airport may be served by a single airport land use planning agency, rather than having to look separately to the airport land use commissions of the affected counties.

(c) In addition to the airport land use commissions created under Section 21670 or the alternatives established under Section 21670.1, for their respective counties, the boards of supervisors and city selection committees for the affected counties, by independent majority vote of each county's two delegations, for any intercounty airport, may do either of the following:

(1) Establish a single separate airport land use commission for that airport. That commission shall consist of seven members to be selected as follows:

(A) One representing the cities in each of the counties, appointed by that county's city selection committee.

(B) One representing each of the counties, appointed by the board of supervisors of each county.

(C) One from each county having expertise in aviation, appointed by a selection committee comprised of the managers of all the public airports within that county.

(D) One representing the general public, appointed by the other six members of the commission.

(2) In accordance with subdivision (a) or (b) of Section 21670.1, designate an existing appropriate entity as that airport's land use commission.

21670.6. Court and Mediation Proceedings

Any action brought in the superior court relating to this article may be subject to mediation proceeding conducted pursuant to Chapter 9.3 (commencing with Section 66030) of Division I of Title 7 of the Government Code.

21671. Airports Owned by a City, District or County

In any county where there is an airport operated for the general public which is owned by a city or district in another county or by another county, one of the representatives provided by paragraph (1) of subdivision (b) of Section 21670 shall be appointed by the city selection committee of mayors of the cities of the county in which the owner of that airport is located, and one of the representatives provided by paragraph (2) of subdivision (b) of Section 21670 shall be appointed by the board of supervisors of the county in which the owner of that airport is located.

21671.5. Term of Office

(a) Except for the terms of office of the members of the first commission, the term of office of each member shall be four years and until the appointment and qualification of his or her successor. The members of the first commission shall classify themselves by lot so that the term of office of one member is one year, of two members is two years, of two members is three years, and of two members is four years. The body that originally appointed a member whose term has expired shall appoint his or her successor for a full term of four years. Any member may be removed at any time and without cause by the body appointing that member. The expiration date of the term of office of each member shall be the first Monday in May in the year in which that member's term is to expire. Any vacancy in the membership of the commission shall be filled for the unexpired term by appointment by the body which originally appointed the member whose office has become vacant. The chairperson of the commission shall be selected by the members thereof.

(b) Compensation, if any, shall be determined by the board of supervisors.

(c) Staff assistance, including the mailing of notices and the keeping of minutes and necessary quarters, equipment, and supplies, shall be provided by the county. The usual and necessary operating expenses of the commission shall be a county charge.

(d) Notwithstanding any other provisions of this article, the commission shall not employ any personnel either as employees or independent contractors without the prior approval of the board of supervisors.

(e) The commission shall meet at the call of the commission chairperson or at the request of the majority of the commission members. A majority of the commission members shall constitute a quorum for the transaction of business. No action shall be taken by the commission except by the recorded vote of a majority of the full membership.

(f) The commission may establish a schedule of fees necessary to comply with this article. Those fees shall be charged to the proponents of actions, regulations, or permits, shall not exceed the estimated reasonable cost of providing the service, and shall be imposed pursuant to Section 66016 of the Government Code. Except as provided in subdivision (g), after June 30, 1991, a commission that has not adopted the airport land use compatibility plan required by Section 21675 shall not charge fees pursuant to this subdivision until the commission adopts the plan.

(g) In any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, the commission may continue to

charge fees necessary to comply with this article until June 30, 1992, and, if the airport land use compatibility plans are complete by that date, may continue charging fees after June 30, 1992. If the airport land use compatibility plans are not complete by June 30, 1992, the commission shall not charge fees pursuant to subdivision (f) until the commission adopts the land use plans.

21672. Rules and Regulations

Each commission shall adopt rules and regulations with respect to the temporary disqualification of its members from participating in the review or adoption of a proposal because of conflict of interest and with respect to appointment of substitute members in such cases.

21673. Initiation of Proceedings for Creation by Owner of Airport

In any county not having a commission or a body designated to carry out the responsibilities of a commission, any owner of a public airport may initiate proceedings for the creation of a commission by presenting a request to the board of supervisors that a commission be created and showing the need therefor to the satisfaction of the board of supervisors.

21674. Powers and Duties

The commission has the following powers and duties, subject to the limitations upon its jurisdiction set forth in Section 21676:

(a) To assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.

(b) To coordinate planning at the state, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.

(c) To prepare and adopt an airport land use compatibility plan pursuant to Section 21675.

(d) To review the plans, regulations, and other actions of local agencies and airport operators pursuant to Section 21676.

(e) The powers of the commission shall in no way be construed to give the commission jurisdiction over the operation of any airport.

(f) In order to carry out its responsibilities, the commission may adopt rules and regulations consistent with this article.

21674.5. Training of Airport Land Use Commission's Staff

(a) The Department of Transportation shall develop and implement a program or programs to assist in the training and development of the staff of airport land use commissions, after consulting with airport land use commissions, cities, counties, and other appropriate public entities.

(b) The training and development program or programs are intended to assist the staff of airport land use commissions in addressing high priority needs, and may include, but need not be limited to, the following:

(1) The establishment of a process for the development and adoption of airport land use compatibility plans.

(2) The development of criteria for determining the airport influence area.

(3) The identification of essential elements that should be included in the airport land use compatibility plans.

(4) Appropriate criteria and procedures for reviewing proposed developments and determining whether proposed developments are compatible with the airport use.

(5) Any other organizational, operational, procedural, or technical responsibilities and functions that the department determines to be appropriate to provide to commission staff and for which it determines there is a need for staff training or development.

(c) The department may provide training and development programs for airport land use commission staff pursuant to this section by any means it deems appropriate. Those programs may be presented in any of the following ways:

(1) By offering formal courses or training programs.

(2) By sponsoring or assisting in the organization and sponsorship of conferences, seminars, or other similar events.

(3) By producing and making available written information.

(4) Any other feasible method of providing information and assisting in the training and development of airport land use commission staff.

21674.7. Airport Land Use Planning Handbook

(a) An airport land use commission that formulates, adopts or amends an airport land use compatibility plan shall be guided by information prepared and updated pursuant to Section 21674.5 and referred to as the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation.

(b) It is the intent of the Legislature to discourage incompatible land uses near existing airports. Therefore, prior to granting permits for the renovation or remodeling of an existing building, structure, or facility, and before the construction of a new building, it is the intent of the Legislature that local agencies shall be guided by the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, to the extent that the criteria has been incorporated into the plan prepared by a commission pursuant to Section 21675. This subdivision does not limit the jurisdiction of a commission as established by this article. This subdivision does not limit the authority of local agencies to overrule commission actions or recommendations pursuant to Sections 21676, 21676.5, or 21677.

21675. Land Use Plan

(a) Each commission shall formulate an airport land use compatibility plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission airport land use compatibility plan shall include and shall be based on a long-range master plan or an airport layout plan, as determined by the Division of Aeronautics of the Department of Transportation that reflects the anticipated growth of

the airport during at least the next 20 years. In formulating an airport land use compatibility plan, the commission may develop height restrictions on buildings, specify use of land, and determine building standards, including soundproofing adjacent to airports, within the airport influence area. The airport land use compatibility plan shall be reviewed as often as necessary in order to accomplish its purposes, but shall not be amended more than once in any calendar year.

(b) The commission shall include, within its airport land use compatibility plan formulated pursuant to subdivision (a), the area within the jurisdiction of the commission surrounding any military airport for all of the purposes specified in subdivision (a). The airport land use compatibility plan shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport. This subdivision does not give the commission any jurisdiction or authority over the territory or operations of any military airport.

(c) The airport influence area shall be established by the commission after hearing and consultation with the involved agencies.

(d) The commission shall submit to the Division of Aeronautics of the department one copy of the airport land use compatibility plan and each amendment to the plan.

(e) If an airport land use compatibility plan does not include the matters required to be included pursuant to this article, the Division of Aeronautics of the department shall notify the commission responsible for the plan.

21675.1. Adoption of Land Use Plan

(a) By June 30, 1991, each commission shall adopt the airport land use compatibility plan required pursuant to Section 21675, except that any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, shall adopt that airport land use compatibility plan on or before June 30, 1992.

(b) Until a commission adopts an airport land use compatibility plan, a city or county shall first submit all actions, regulations, and permits within the vicinity of a public airport to the commission for review and approval. Before the commission approves or disapproves any actions, regulations, or permits, the commission shall give public notice in the same manner as the city or county is required to give for those actions, regulations, or permits. As used in this section, "vicinity" means land that will be included or reasonably could be included within the airport land use compatibility plan. If the commission has not designated an airport influence area for the airport land use compatibility plan, then "vicinity" means land within two miles of the boundary of a public airport.

(c) The commission may approve an action, regulation, or permit if it finds, based on substantial evidence in the record, all of the following:

(1) The commission is making substantial progress toward the completion of the airport land use compatibility plan.

(2) There is a reasonable probability that the action, regulation, or permit will be consistent with the airport land use compatibility plan being prepared by the commission.

(3) There is little or no probability of substantial detriment to or interference with the future adopted airport land use compatibility plan if the action, regulation, or permit is ultimately inconsistent with the airport land use compatibility plan.

(d) If the commission disapproves an action, regulation, or permit, the commission shall notify the city or county. The city or county may overrule the commission, by a two-thirds vote of its governing

body, if it makes specific findings that the proposed action, regulation, or permit is consistent with the purposes of this article, as stated in Section 21670.

(e) If a city or county overrules the commission pursuant to subdivision (d), that action shall not relieve the city or county from further compliance with this article after the commission adopts the airport land use compatibility plan.

(f) If a city or county overrules the commission pursuant to subdivision (d) with respect to a publicly owned airport that the city or county does not operate, the operator of the airport is not liable for damages to property or personal injury resulting from the city's or county's decision to proceed with the action, regulation, or permit.

(g) A commission may adopt rules and regulations that exempt any ministerial permit for single-family dwellings from the requirements of subdivision (b) if it makes the findings required pursuant to subdivision (c) for the proposed rules and regulations, except that the rules and regulations may not exempt either of the following:

(1) More than two single-family dwellings by the same applicant within a subdivision prior to June 30, 1991.

(2) Single-family dwellings in a subdivision where 25 percent or more of the parcels are undeveloped.

21675.2. Approval or Disapproval of Actions, Regulations, or Permits

(a) If a commission fails to act to approve or disapprove any actions, regulations, or permits within 60 days of receiving the request pursuant to Section 21675.1, the applicant or his or her representative may file an action pursuant to Section 1094.5 of the Code of Civil Procedure to compel the commission to act, and the court shall give the proceedings preference over all other actions or proceedings, except previously filed pending matters of the same character.

(b) The action, regulation, or permit shall be deemed approved only if the public notice required by this subdivision has occurred. If the applicant has provided seven days advance notice to the commission of the intent to provide public notice pursuant to this subdivision, then, not earlier than the date of the expiration of the time limit established by Section 21675.1, an applicant may provide the required public notice. If the applicant chooses to provide public notice, that notice shall include a description of the proposed action, regulation, or permit substantially similar to the descriptions which are commonly used in public notices by the commission, the location of any proposed development, the application number, the name and address of the commission, and a statement that the action, regulation, or permit shall be deemed approved if the commission has not acted within 60 days. If the applicant has provided the public notice specified in this subdivision, the time limit for action by the commission shall be extended to 60 days after the public notice is provided. If the applicant provides notice pursuant to this section, the commission shall refund to the applicant any fees which were collected for providing notice and which were not used for that purpose.

(c) Failure of an applicant to submit complete or adequate information pursuant to Sections 65943 to 65946, inclusive, of the Government Code, may constitute grounds for disapproval of actions, regulations, or permits.

(d) Nothing in this section diminishes the commission's legal responsibility to provide, where applicable, public notice and hearing before acting on an action, regulation, or permit.

21676. Review of Local General Plans

(a) Each local agency whose general plan includes areas covered by an airport land use compatibility plan shall, by July 1, 1983, submit a copy of its plan or specific plans to the airport land use commission. The commission shall determine by August 31, 1983, whether the plan or plans are consistent or inconsistent with the airport land use compatibility plan. If the plan or plans are inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall have another hearing to reconsider its airport land use compatibility plans. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the public record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(c) Each public agency owning any airport within the boundaries of an airport land use compatibility plan shall, prior to modification of its airport master plan, refer any proposed change to the airport land use commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The public agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission

and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(d) Each commission determination pursuant to subdivision (b) or (c) shall be made within 60 days from the date of referral of the proposed action. If a commission fails to make the determination within that period, the proposed action shall be deemed consistent with the airport land use compatibility plan.

21676.5. Review of Local Plans

(a) If the commission finds that a local agency has not revised its general plan or specific plan or overruled the commission by a two-thirds vote of its governing body after making specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670, the commission may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. If, in the determination of the commission, an action, regulation, or permit of the local agency is inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall hold a hearing to reconsider its plan. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Whenever the local agency has revised its general plan or specific plan or has overruled the commission pursuant to subdivision (a), the proposed action of the local agency shall not be subject to further commission review, unless the commission and the local agency agree that individual projects shall be reviewed by the commission.

21677. Marin County Override Provisions

Notwithstanding the two-thirds vote required by Section 21676, any public agency in the County of Marin may overrule the Marin County Airport Land Use Commission by a majority vote of its governing body. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the public record of the final decision to overrule the commission, which may be adopted by a majority vote of the governing body.

21678. Airport Owner's Immunity

With respect to a publicly owned airport that a public agency does not operate, if the public agency pursuant to Section 21676, 21676.5, or 21677 overrules a commission's action or recommendation, the operator of the airport shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to overrule the commission's action or recommendation.

21679. Court Review

(a) In any county in which there is no airport land use commission or other body designated to assume the responsibilities of an airport land use commission, or in which the commission or other designated body has not adopted an airport land use compatibility plan, an interested party may initiate proceedings in a court of competent jurisdiction to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, that directly affects the use of land within one mile of the boundary of a public airport within the county.

(b) The court may issue an injunction that postpones the effective date of the zoning change, zoning variance, permit, or regulation until the governing body of the local agency that took the action does one of the following:

  (1) In the case of an action that is a legislative act, adopts a resolution declaring that the proposed action is consistent with the purposes of this article stated in Section 21670.

  (2) In the case of an action that is not a legislative act, adopts a resolution making findings based on substantial evidence in the record that the proposed action is consistent with the purposes of this article stated in Section 21670.

  (3) Rescinds the action.

  (4) Amends its action to make it consistent with the purposes of this article stated in Section 21670, and complies with either paragraph (1) or (2), whichever is applicable.

(c) The court shall not issue an injunction pursuant to subdivision (b) if the local agency that took the action demonstrates that the general plan and any applicable specific plan of the agency accomplishes the purposes of an airport land use compatibility plan as provided in Section 21675.

(d) An action brought pursuant to subdivision (a) shall be commenced within 30 days of the decision or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever is longer.

(e) If the governing body of the local agency adopts a resolution pursuant to subdivision (b) with respect to a publicly owned airport that the local agency does not operate, the operator of the airport shall be immune from liability for damages to property or personal injury from the local agency's decision to proceed with the zoning change, zoning variance, permit, or regulation.

(f) As used in this section, "interested party" means any owner of land within two miles of the boundary of the airport or any organization with a demonstrated interest in airport safety and efficiency.

21679.5. Deferral of Court Review

(a) Until June 30, 1991, no action pursuant to Section 21679 to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency,

directly affecting the use of land within one mile of the boundary of a public airport, shall be commenced in any county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan.

(b) If a commission has been prevented from adopting the airport land use compatibility plan by June 30, 1991, or if the adopted airport land use compatibility plan could not become effective, because of a lawsuit involving the adoption of the airport land use compatibility plan, the June 30, 1991 date in subdivision (a) shall be extended by the period of time during which the lawsuit was pending in a court of competent jurisdiction.

(c) Any action pursuant to Section 21679 commenced prior to January 1, 1990, in a county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan, which has not proceeded to final judgment, shall be held in abeyance until June 30, 1991. If the commission or other designated body adopts an airport land use compatibility plan on or before June 30, 1991, the action shall be dismissed. If the commission or other designated body does not adopt an airport land use compatibility plan on or before June 30, 1991, the plaintiff or plaintiffs may proceed with the action.

(d) An action to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, directly affecting the use of land within one mile of the boundary of a public airport for which an airport land use compatibility plan has not been adopted by June 30, 1991, shall be commenced within 30 days of June 30, 1991, or within 30 days of the decision by the local agency, or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever date is later.

AERONAUTICS LAW

PUBLIC UTILITIES CODE
Division 9, Part 1
Chapter 3—Regulation of Aeronautics
(excerpts)

21402. Ownership; Prohibited Use of Airspace

The ownership of the space above the land and waters of this State is vested in the several owners of the surface beneath, subject to the right of flight described in Section 21403. No use shall be made of such airspace which would interfere with such right of flight; provided that any use of property in conformity with an original zone of approach of an airport shall not be rendered unlawful by reason of a change in such zone of approach.

21403. Lawful Flight; Flight Within Airport Approach Zone

(a) Flight in aircraft over the land and waters of this state is lawful, unless at altitudes below those prescribed by federal authority, or unless conducted so as to be imminently dangerous to persons or property lawfully on the land or water beneath. The landing of an aircraft on the land or waters of another, without his or her consent, is unlawful except in the case of a forced landing or pursuant to Section 21662.1. The owner, lessee, or operator of the aircraft is liable, as provided by law, for damages caused by a forced landing.

(b) The landing, takeoff, or taxiing of an aircraft on a public freeway, highway, road, or street is unlawful except in the following cases:

(1) A forced landing.

(2) A landing during a natural disaster or other public emergency if the landing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road, or street.

(3) When the landing, takeoff, or taxiing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road or street.

The prosecution bears the burden of proving that none of the exceptions apply to the act which is alleged to be unlawful.

(c) The right of flight in aircraft includes the right of safe access to public airports, which includes the right of flight within the zone of approach of any public airport without restriction or hazard. The zone of approach of an airport shall conform to the specifications of Part 77 of the Federal Aviation Regulations of the Federal Aviation Administration, Department of Transportation.

AERONAUTICS LAW

PUBLIC UTILITIES CODE
Division 9, Part 1
Chapter 4—Airports and Air Navigation Facilities
Article 2.7—Regulation of Obstructions
(excerpts)

21655. Proposed Site for Construction of State Building Within Two Miles of Airport Boundary

Notwithstanding any other provision of law, if the proposed site of any state building or other enclosure is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site, the state agency or office which proposes to construct the building or other enclosure shall, before acquiring title to property for the new state building or other enclosure site or for an addition to a present site, notify the Department of Transportation, in writing, of the proposed acquisition. The department shall investigate the proposed site and, within 30 working days after receipt of the notice, shall submit to the state agency or office which proposes to construct the building or other enclosure a written report of the investigation and its recommendations concerning acquisition of the site.

If the report of the department does not favor acquisition of the site, no state funds shall be expended for the acquisition of the new state building or other enclosure site, or the expansion of the present site, or for the construction of the state building or other enclosure, provided that the provisions of this section shall not affect title to real property once it is acquired.

21658. Construction of Utility Pole or Line in Vicinity of Aircraft Landing Area

No public utility shall construct any pole, pole line, distribution or transmission tower, or tower line, or substation structure in the vicinity of the exterior boundary of an aircraft landing area of any airport open to public use, in a location with respect to the airport and at a height so as to constitute an obstruction to air navigation, as an obstruction is defined in accordance with Part 77 of the Federal Aviation Regulations, Federal Aviation Administration, or any corresponding rules or regulations of the Federal Aviation Administration, unless the Federal Aviation Administration has determined that the pole, line, tower, or structure does not constitute a hazard to air navigation. This section shall not apply to existing poles, lines, towers, or structures or to the repair, replacement, or reconstruction thereof if the original height is not materially exceeded and this section shall not apply unless just compensation shall have first been paid to the public utility by the owner of any airport for any property or property rights which would be taken or damaged hereby.

21659. Hazards Near Airports Prohibited

(a) No person shall construct or alter any structure or permit any natural growth to grow at a height which exceeds the obstruction standards set forth in the regulations of the Federal Aviation Administration relating to objects affecting navigable airspace contained in Title 14 of the Code of Federal Regulations, Part 77, Subpart C, unless a permit allowing the construction, alteration, or growth is issued by the department.

(b) The permit is not required if the Federal Aviation Administration has determined that the construction, alteration, or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Subdivision (a) does not apply to a pole, pole line, distribution or transmission tower, or tower line or substation of a public utility.

(c) Section 21658 is applicable to subdivision (b).

AERONAUTICS LAW

PUBLIC UTILITIES CODE
Division 9, Part 1, Chapter 4
Article 3—Regulation of Airports
(excerpts)

21661.5. City Council or Board of Supervisors and ALUC Approvals

(a) No political subdivision, any of its officers or employees, or any person may submit any application for the construction of a new airport to any local, regional, state, or federal agency unless the plan for construction is first approved by the board of supervisors of the county, or the city council of the city, in which the airport is to be located and unless the plan is submitted to the appropriate commission exercising powers pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9, and acted upon by that commission in accordance with the provisions of that article.

(b) A county board of supervisors or a city council may, pursuant to Section 65100 of the Government Code, delegate its responsibility under this section for the approval of a plan for construction of new helicopter landing and takeoff areas, to the county or city planning agency.

21664.5. Amended Airport Permits; Airport Expansion Defined

(a) An amended airport permit shall be required for every expansion of an existing airport. An applicant for an amended airport permit shall comply with each requirement of this article pertaining to permits for new airports. The department may by regulation provide for exemptions from the operation of this section pursuant to Section 21661, except that no exemption shall be made limiting the applicability of subdivision (e) of Section 21666, pertaining to environmental considerations, including the requirement for public hearings in connection therewith.

(b) As used in this section, "airport expansion" includes any of the following:

(1) The acquisition of runway protection zones, as defined in Federal Aviation Administration Advisory Circular 150/1500-13, or of any interest in land for the purpose of any other expansion as set forth in this section.

(2) The construction of a new runway.

(3) The extension or realignment of an existing runway.

(4) Any other expansion of the airport's physical facilities for the purpose of accomplishing or which are related to the purpose of paragraph (1), (2), or (3).

(c) This section does not apply to any expansion of an existing airport if the expansion commenced on or prior to the effective date of this section and the expansion met the approval, on or prior to that effective date, of each governmental agency that required the approval by law.

PLANNING AND ZONING LAW

GOVERNMENT CODE
Title 7—Planning and Land Use
Division 1—Planning and Zoning
Chapter 3—Local Planning
Article 5—Authority for and Scope of General Plans
(excerpts)

65302.3. General and Applicable Specific Plans; Consistency with Airport Land Use Plans; Amendment; Nonconcurrence Findings

(a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the plan adopted or amended pursuant to Section 21675 of the Public Utilities Code.

(b) The general plan, and any applicable specific plan, shall be amended, as necessary, within 180 days of any amendment to the plan required under Section 21675 of the Public Utilities Code.

(c) If the legislative body does not concur with any provision of the plan required under Section 21675 of the Public Utilities Code, it may satisfy the provisions of this section by adopting findings pursuant to Section 21676 of the Public Utilities Code.

(d) In each county where an airport land use commission does not exist, but where there is a military airport, the general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport.

PLANNING AND ZONING LAW

GOVERNMENT CODE
Title 7, Division 1
Chapter 4.5—Review and Approval of Development Projects
Article 3—Application for Development Projects
(excerpts)

Note: The following government code sections are referenced in Section 21675.2(c) of the ALUC statutes.

65943. Completeness of Application; Determination; Time; Specification of Parts not Complete and Manner of Completion

(a) Not later than 30 calendar days after any public agency has received an application for a development project, the agency shall determine in writing whether the application is complete and shall immediately transmit the determination to the applicant for the development project. If the written determination is not made within 30 days after receipt of the application, and the application includes a statement that it is an application for a development permit, the application shall be deemed complete for purposes of this chapter. Upon receipt of any resubmittal of the application, a new 30-day period shall begin, during which the public agency shall determine the completeness of the application. If the application is determined not to be complete, the agency's determination shall specify those parts of the application which are incomplete and shall indicate the manner in which they can be made complete, including a list and thorough description of the specific information needed to complete the application. The applicant shall submit materials to the public agency in response to the list and description.

(b) Not later than 30 calendar days after receipt of the submitted materials, the public agency shall determine in writing whether they are complete and shall immediately transmit that determination to the applicant. If the written determination is not made within that 30-day period, the application together with the submitted materials shall be deemed complete for purposes of this chapter.

(c) If the application together with the submitted materials are determined not to be complete pursuant to subdivision (b), the public agency shall provide a process for the applicant to appeal that decision in writing to the governing body of the agency or, if there is no governing body, to the director of the agency, as provided by that agency. A city or county shall provide that the right of appeal is to the governing body or, at their option, the planning commission, or both.

There shall be a final written determination by the agency on the appeal not later than 60 calendar days after receipt of the applicant's written appeal. The fact that an appeal is permitted to both the planning commission and to the governing body does not extend the 60-day period. Notwithstanding a decision pursuant to subdivision (b) that the application and submitted materials are not complete, if the final written determination on the appeal is not made within that 60-day period, the application with the submitted materials shall be deemed complete for the purposes of this chapter.

(d) Nothing in this section precludes an applicant and a public agency from mutually agreeing to an extension of any time limit provided by this section.

(e) A public agency may charge applicants a fee not to exceed the amount reasonably necessary to provide the service required by this section. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

65943.5.

(a) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving a permit application to a board, office, or department within the California Environmental Protection Agency shall be made to the Secretary for Environmental Protection.

(b) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving an application for the issuance of an environmental permit from an environmental agency shall be made to the Secretary for Environmental Protection under either of the following circumstances:

(1) The environmental agency has not adopted an appeals process pursuant to subdivision (c) of Section 65943.

(2) The environmental agency declines to accept an appeal for a decision pursuant to subdivision (c) of Section 65943.

(c) For purposes of subdivision (b), "environmental permit" has the same meaning as defined in Section 72012 of the Public Resources Code, and "environmental agency" has the same meaning as defined in Section 71011 of the Public Resources Code, except that "environmental agency" does not include the agencies described in subdivisions (c) and (h) of Section 71011 of the Public Resources Code.

65944. Acceptance of Application as Complete; Requests for Additional Information; Restrictions; Clarification, Amplification, Correction, etc; Prior to Notice of Necessary Information

(a) After a public agency accepts an application as complete, the agency shall not subsequently request of an applicant any new or additional information which was not specified in the list prepared pursuant to Section 65940. The agency may, in the course of processing the application, request the applicant to clarify, amplify, correct, or otherwise supplement the information required for the application.

(b) The provisions of subdivision (a) shall not be construed as requiring an applicant to submit with his or her initial application the entirety of the information which a public agency may require in order to take final action on the application. Prior to accepting an application, each public agency shall inform the applicant of any information included in the list prepared pursuant to Section 65940 which will subsequently be required from the applicant in order to complete final action on the application.

(c) This section shall not be construed as limiting the ability of a public agency to request and obtain information which may be needed in order to comply with the provisions of Division 13 (commencing with Section 21000) of the Public Resources Code.

(d) (1) After a public agency accepts an application as complete, and if the project applicant has identified that the proposed project is located within 1,000 feet of a military installation or within special use airspace or beneath a low-level flight path in accordance with Section 65940, the public agency shall provide a copy of the complete application to any branch of the United States Armed Forces that has provided the Office of Planning and Research with a single California mailing address within the state for the delivery of a copy of these applications. This

subdivision shall apply only to development applications submitted to a public agency 30 days after the Office of Planning and Research has notified cities, counties, and cities and counties of the availability of Department of Defense information on the Internet pursuant to subdivision (d) of Section 65940.

(2) Except for a project within 1,000 feet of a military installation, the public agency is not required to provide a copy of the application if the project is located entirely in an "urbanized area." An urbanized area is any urban location that meets the definition used by the United State Department of Commerce's Bureau of Census for "urban" and includes locations with core census block groups containing at least 1,000 people per square mile and surrounding census block groups containing at least 500 people per square mile.

(e) Upon receipt of a copy of the application as required in subdivision (d), any branch of the United States Armed Forces may request consultation with the public agency and the project applicant to discuss the effects of the proposed project on military installations, low-level flight paths, or special use airspace, and potential alternatives and mitigation measures.

(f) (1) Subdivisions (d), (e), and (f) as these relate to low-level flight paths, special use airspace, and urbanized areas shall not be operative until the United States Department of Defense provides electronic maps of low-level flight paths, special use airspace, and military installations, at a scale and in an electronic format that is acceptable to the Office of Planning and Research.

(2) Within 30 days of a determination by the Office of Planning and Research that the information provided by the Department of Defense is sufficient and in an acceptable scale and format, the office shall notify cities, counties, and cities and counties of the availability of the information on the Internet. Cities, counties, and cities and counties shall comply with subdivision (d) within 30 days of receiving this notice from the office.

65945. Notice of Proposal to Adopt or Amend Certain Plans or Ordinances by City or County, Fee; Subscription to Periodically Updated Notice as Alternative, Fee

(a) At the time of filing an application for a development permit with a city or county, the city or county shall inform the applicant that he or she may make a written request to receive notice from the city or county of a proposal to adopt or amend any of the following plans or ordinances:

(1) A general plan.

(2) A specific plan.

(3) A zoning ordinance.

(4) An ordinance affecting building permits or grading permits.

The applicant shall specify, in the written request, the types of proposed action for which notice is requested. Prior to taking any of those actions, the city or county shall give notice to any applicant who has requested notice of the type of action proposed and whose development project is pending before the city or county if the city or county determines that the proposal is reasonably related to the applicant's request for the development permit. Notice shall be given only for those types of actions which the applicant specifies in the request for notification.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this subdivision, the fee shall be collected as part of the application fee charged for the development permit.

(b) As an alternative to the notification procedure prescribed by subdivision (a), a city or county may inform the applicant at the time of filing an application for a development permit that he or she may subscribe to a periodically updated notice or set of notices from the city or county which lists pending proposals to adopt or amend any of the plans or ordinances specified in subdivision (a), together with the status of the proposal and the date of any hearings thereon which have been set.

Only those proposals which are general, as opposed to parcel-specific in nature, and which the city or county determines are reasonably related to requests for development permits, need be listed in the notice. No proposals shall be required to be listed until such time as the first public hearing thereon has been set. The notice shall be updated and mailed at least once every six weeks; except that a notice need not be updated and mailed until a change in its contents is required.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice, including the costs of updating the notice, for the length of time the applicant requests to be sent the notice or notices.

65945.3. Notice of Proposal to Adopt or Amend Rules or Regulations Affecting Issuance of Permits by Local Agency other than City or County; Fee

At the time of filing an application for a development permit with a local agency, other than a city or county, the local agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a rule or regulation affecting the issuance of development permits.

Prior to adopting or amending any such rule or regulation, the local agency shall give notice to any applicant who has requested such notice and whose development project is pending before the agency if the local agency determines that the proposal is reasonably related to the applicant's request for the development permit.

The local agency may charge the applicant for a development permit, to whom notice is provided pursuant to this section, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

65945.5. Notice of Proposal to Adopt or Amend Regulation Affecting Issuance of Permits and Which Implements Statutory Provision by State Agency

At the time of filing an application for a development permit with a state agency, the state agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a regulation affecting the issuance of development permits and which implements a statutory provision.

Prior to adopting or amending any such regulation, the state agency shall give notice to any applicant who has requested such notice and whose development project is pending before the state agency if the state agency determines that the proposal is reasonably related to the applicant's request for the development permit.

65945.7. Actions, Inactions, or Recommendations Regarding Ordinances, Rules or Regulations; Invalidity or Setting Aside Ground of Error Only if Prejudicial

No action, inaction, or recommendation regarding any ordinance, rule, or regulation subject to this Section 65945, 65945.3, or 65945.5 by any legislative body, administrative body, or the officials of any state or local agency shall be held void or invalid or be set aside by any court on the ground of any error, irregularity, informality, neglect or omission (hereinafter called "error") as to any matter pertaining to notices, records, determinations, publications, or any matters of procedure whatever, unless after an examination of the entire case, including evidence, the court shall be of the opinion that the error complained of was prejudicial, and that by reason of such error the party complaining or appealing sustained and suffered substantial injury, and that a different result would have been probable if such error had not occurred or existed. There shall be no presumption that error is prejudicial or that injury was done if error is shown.

65946. [Replaced by AB2351 Statutes of 1993]

PLANNING AND ZONING LAW

GOVERNMENT CODE

Title 7, Division 1

Chapter 9.3—Mediation and Resolution of Land Use Disputes

(excerpts)

66030.

(a) The Legislature finds and declares all of the following:

(1) Current law provides that aggrieved agencies, project proponents, and affected residents may bring suit against the land use decisions of state and local governmental agencies. In practical terms, nearly anyone can sue once a project has been approved.

(2) Contention often arises over projects involving local general plans and zoning, redevelopment plans, the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code), development impact fees, annexations and incorporations, and the Permit Streamlining Act (Chapter 4.5 (commencing with Section 65920)).

(3) When a public agency approves a development project that is not in accordance with the law, or when the prerogative to bring suit is abused, lawsuits can delay development, add uncertainty and cost to the development process, make housing more expensive, and damage California's competitiveness. This litigation begins in the superior court, and often progresses on appeal to the Court of Appeal and the Supreme Court, adding to the workload of the state's already overburdened judicial system.

(b) It is, therefore, the intent of the Legislature to help litigants resolve their differences by establishing formal mediation processes for land use disputes. In establishing these mediation processes, it is not the intent of the Legislature to interfere with the ability of litigants to pursue remedies through the courts.

66031.

(a) Notwithstanding any other provision of law, any action brought in the superior court relating to any of the following subjects may be subject to a mediation proceeding conducted pursuant to this chapter:

(1) The approval or denial by a public agency of any development project.

(2) Any act or decision of a public agency made pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).

(3) The failure of a public agency to meet the time limits specified in Chapter 4.5 (commencing with Section 65920), commonly known as the Permit Streamlining Act, or in the Subdivision Map Act (Division 2 (commencing with Section 66410)).

(4) Fees determined pursuant to Chapter 6 (commencing with Section 17620) of Division 1 of Part 10.5 of the Education Code or Chapter 4.9 (commencing with Section 65995).

(5) Fees determined pursuant to the Mitigation Fee Act (Chapter 5 (commencing with Section 66000)), Chapter 6 (commencing with Section 66010), Chapter 7 (commencing with Section

66012), Chapter 8 (commencing with Section 66016), and Chapter 9 (commencing with Section 66020)).

(6) The adequacy of a general plan or specific plan adopted pursuant to Chapter 3 (commencing with Section 65100).

(7) The validity of any sphere of influence, urban service area, change of organization or reorganization, or any other decision made pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Division 3 (commencing with Section 56000) of Title 5).

(8) The adoption or amendment of a redevelopment plan pursuant to the Community Redevelopment Law (Part 1 (commencing with Section 33000) of Division 24 of the Health and Safety Code).

(9) The validity of any zoning decision made pursuant to Chapter 4 (commencing with Section 65800).

(10) The validity of any decision made pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9 of the Public Utilities Code.

(b) Within five days after the deadline for the respondent or defendant to file its reply to an action, the court may invite the parties to consider resolving their dispute by selecting a mutually acceptable person to serve as a mediator, or an organization or agency to provide a mediator.

(c) In selecting a person to serve as a mediator, or an organization or agency to provide a mediator, the parties shall consider the following:

(1) The council of governments having jurisdiction in the county where the dispute arose.

(2) Any subregional or countywide council of governments in the county where the dispute arose.

(3) Any other person with experience or training in mediation including those with experience in land use issues, or any other organization or agency which can provide a person with experience or training in mediation, including those with experience in land use issues.

(d) If the court invites the parties to consider mediation, the parties shall notify the court within 30 days if they have selected a mutually acceptable person to serve as a mediator. If the parties have not selected a mediator within 30 days, the action shall proceed. The court shall not draw any implication, favorable or otherwise, from the refusal by a party to accept the invitation by the court to consider mediation. Nothing in this section shall preclude the parties from using mediation at any other time while the action is pending.

PLANNING AND ZONING LAW

GOVERNMENT CODE
Title 7—Planning and Land Use
Division 2—Subdivisions
Chapter 3—Procedure
Article 3—Review of Tentative Map by Other Agencies
(excerpts)

66455.9.

Whenever there is consideration of an area within a development for a public school site, the advisory agency shall give the affected districts and the State Department of Education written notice of the proposed site. The written notice shall include the identification of any existing or proposed runways within the distance specified in Section 17215 of the Education Code. If the site is within the distance of an existing or proposed airport runway as described in Section 17215 of the Education Code, the department shall notify the State Department of Transportation as required by the section and the site shall be investigated by the State Department of Transportation required by Section 17215.

EDUCATION CODE
Title 1—General Education Code Provisions
Division 1—General Education Code Provisions
Part 10.5—School Facilities
Chapter 1—School Sites
Article 1—General Provisions
(excerpts)

17215.

(a) In order to promote the safety of pupils, comprehensive community planning, and greater educational usefulness of school sites, before acquiring title to or leasing property for a new school site, the governing board of each school district, including any district governed by a city board of education or a charter school, shall give the State Department of Education written notice of the proposed acquisition or lease and shall submit any information required by the State Department of Education if the site is within two miles, measured by air line, of that point on an airport runway or a potential runway included in an airport master plan that is nearest to the site.

(b) Upon receipt of the notice required pursuant to subdivision (a), the State Department of Education shall notify the Department of Transportation in writing of the proposed acquisition or lease. If the Department of Transportation is no longer in operation, the State Department of Education shall, in lieu of notifying the Department of Transportation, notify the United States Department of Transportation or any other appropriate agency, in writing, of the proposed acquisition or lease for the purpose of obtaining from the department or other agency any information or assistance that it may desire to give.

(c) The Department of Transportation shall investigate the site and, within 30 working days after receipt of the notice, shall submit to the State Department of Education a written report of its findings including recommendations concerning acquisition or lease of the site. As part of the investigation, the Department of Transportation shall give notice thereof to the owner and operator of the airport who shall be granted the opportunity to comment upon the site. The Department of Transportation shall adopt regulations setting forth the criteria by which a site will be evaluated pursuant to this section.

(d) The State Department of Education shall, within 10 days of receiving the Department of Transportation's report, forward the report to the governing board of the school district or charter school. The governing board or charter school may not acquire title to or lease the property until the report of the Department of Transportation has been received. If the report does not favor the acquisition or lease of the property for a school site or an addition to a present school site, the governing board or charter school may not acquire title to or lease the property. If the report does favor the acquisition or lease of the property for a school site or an addition to a present school site, the governing board or charter school shall hold a public hearing on the matter prior to acquiring or leasing the site.

(e) If the Department of Transportation's recommendation does not favor acquisition or lease of the proposed site, state funds or local funds may not be apportioned or expended for the acquisition or lease of that site, construction of any school building on that site, or for the expansion of any existing site to include that site.

(f) This section does not apply to sites acquired prior to January 1, 1966, nor to any additions or extensions to those sites.

EDUCATION CODE
Title 3—Postsecondary Education
Division 7—Community Colleges
Part 49—Community Colleges, Education Facilities
Chapter 1—School Sites
Article 2—School Sites
(excerpts)

81033. Investigation: Geologic and Soil Engineering Studies; Airport in Proximity

(c) To promote the safety of students, comprehensive community planning, and greater educational usefulness of community college sites, the governing board of each community college district, if the proposed site is within two miles, measured by air line, of that point on an airport runway, or a runway proposed by an airport master plan, which is nearest the site and excluding them if the property is not so located, before acquiring title to property for a new community college site or for an addition to a present site, shall give the board of governors notice in writing of the proposed acquisition and shall submit any information required by the board of governors.

Immediately after receiving notice of the proposed acquisition of property which is within two miles, measured by air line, of that point on an airport runway, or a runway proposed by an airport master plan, which is nearest the site, the board of governors shall notify the Division of Aeronautics of the Department of Transportation, in writing, of the proposed acquisition. The Division of Aeronautics shall make an investigation and report to the board of governors within 30 working days after receipt of the notice. If the Division of Aeronautics is no longer in operation, the board of governors, in lieu of notifying the Division of Aeronautics, shall notify the Federal Aviation Administration or any other appropriate agency, in writing, of the proposed acquisition for the purpose of obtaining from the authority or other agency any information or assistance it may desire to give.

The board of governors shall investigate the proposed site and, within 35 working days after receipt of the notice, shall submit to the governing board a written report and its recommendations concerning acquisition of the site. The governing board shall not acquire title to the property until the report of the board of governors has been received. If the report does not favor the acquisition of the property for a community college site or an addition to a present community college site, the governing board shall not acquire title to the property until 30 days after the department's report is received and until the board of governors' report has been read at a public hearing duly called after 10 days' notice published once in a newspaper of general circulation within the community college district, or if there is no such newspaper, then in a newspaper of general circulation within the county in which the property is located.

(d) If, with respect to a proposed site located within two miles of an operative airport runway, the report of the board of governors submitted to a community college district governing board under subdivision (c) does not favor the acquisition of the site on the sole or partial basis of the unfavorable recommendation of the Division of Aeronautics of the Department of Transportation, no state agency or officer shall grant, apportion, or allow to that community college district for expenditure in connection with that site, any state funds otherwise made available under any state law whatever for a community college site acquisition or college building construction, or for expansion of existing sites and buildings, and no funds of the community college district or of the county in which the

district lies shall be expended for those purposes; However, this section shall not be applicable to sites acquired prior to January 1, 1966, nor any additions or extensions to those sites.

If the recommendation of the Division of Aeronautics is unfavorable, the recommendation shall not be overruled without the express approval of the board of governors and the State Allocation Board.

CALIFORNIA ENVIRONMENTAL QUALITY ACT STATUTES

PUBLIC RESOURCES CODE
Division 13—Environmental Quality
Chapter 2.6—General
(excerpts)

21096. Airport Planning

(a) If a lead agency prepares an environmental impact report for a project situated within airport land use compatibility plan boundaries, or, if an airport land use compatibility plan has not been adopted, for a project within two nautical miles of a public airport or public use airport, the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation, in compliance with Section 21674.5 of the Public Utilities Code and other documents, shall be utilized as technical resources to assist in the preparation of the environmental impact report as the report relates to airport-related safety hazards and noise problems.

(b) A lead agency shall not adopt a negative declaration for a project described in subdivision (a) unless the lead agency considers whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area.

BUSINESS AND PROFESSIONS CODE
Division 4—Real Estate
Part 2—Regulation of Transactions
Chapter 1—Subdivided Lands
Article 2—Investigation, Regulation and Report
(excerpts)

11010.

(a) Except as otherwise provided pursuant to subdivision (c) or elsewhere in this chapter, any person who intends to offer subdivided lands within this state for sale or lease shall file with the Bureau of Real Estate an application for a public report consisting of a notice of intention and a completed questionnaire on a form prepared by the bureau.

(b) The notice of intention shall contain the following information about the subdivided lands and the proposed offering:

[Sub-Sections (1) through (12) omitted]

(13) (A) The location of all existing airports, and of all proposed airports shown on the general plan of any city or county, located within two statute miles of the subdivision. If the property is located within an airport influence area, the following statement shall be included in the notice of intention:

(B) For purposes of this section, an "airport influence area," also known as an "airport referral area," is the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission.

CIVIL CODE
Division 2—Property
Part 4—Acquisition of Property
Title 4—Transfer
Chapter 2—Transfer of Real Property
Article 1.7—Disclosure of Natural Hazards Upon Transfer of Residential Property
(excerpts)

1103.

(a) Except as provided in Section 1103.1, this article applies to the transfer by sale, exchange, installment land sale contract, as defined in Section 2985, lease with an option to purchase, any other option to purchase, or ground lease coupled with improvements, of any real property described in subdivision (c), or residential stock cooperative, improved with or consisting of not less than one nor more than four dwelling units.

(b) Except as provided in Section 1103.1, this article shall apply to a resale transaction entered into on or after January 1, 2000, for a manufactured home, as defined in Section 18007 of the Health and Safety Code, that is classified as personal property intended for use as a residence, or a mobilehome, as defined in Section 18008 of the Health and Safety Code, that is classified as personal property intended for use as a residence, if the real property on which the manufactured home or mobilehome is located is real property described in subdivision (c).

(c) This article shall apply to the transactions described in subdivisions (a) and (b) only if the transferor or his or her agent is required by one or more of the following to disclose the property's location within a hazard zone:

(1) A person who is acting as an agent for a transferor of real property that is located within a special flood hazard area (any type Zone "A" or "V") designated by the Federal Emergency Management Agency, or the transferor if he or she is acting without an agent, shall disclose to any prospective transferee the fact that the property is located within a special flood hazard area if either:

(A) The transferor, or the transferor's agent, has actual knowledge that the property is within a special flood hazard area.

(B) The local jurisdiction has compiled a list, by parcel, of properties that are within the special flood hazard area and a notice has been posted at the offices of the county recorder, county assessor, and county planning agency that identifies the location of the parcel list.

(2) … is located within an area of potential flooding … shall disclose to any prospective transferee the fact that the property is located within an area of potential flooding …

(3) … is located within a very high fire hazard severity zone, designated pursuant to Section 51178 of the Government Code … shall disclose to any prospective transferee the fact that the property is located within a very high fire hazard severity zone and is subject to the requirements of Section 51182 …

(4) … is located within an earthquake fault zone, designated pursuant to Section 2622 of the Public Resources Code … shall disclose to any prospective transferee the fact that the property is located within a delineated earthquake fault zone …

(5) … is located within a seismic hazard zone, designated pursuant to Section 2696 of the Public Resources Code … shall disclose to any prospective transferee the fact that the property is located within a seismic hazard zone …

(6) … is located within a state responsibility area determined by the board, pursuant to Section 4125 of the Public Resources Code, shall disclose to any prospective transferee the fact that the property is located within a wildland area that may contain substantial forest fire risks and hazards and is subject to the requirements of Section 4291 …

(d) Any waiver of the requirements of this article is void as against public policy.

1103.1.

(a) This article does not apply to the following transfers:

(1) Transfers pursuant to court order, including, but not limited to, transfers ordered by a probate court in administration of an estate, transfers pursuant to a writ of execution, transfers by any foreclosure sale, transfers by a trustee in bankruptcy, transfers by eminent domain, and transfers resulting from a decree for specific performance.

(2) Transfers to a mortgagee by a mortgagor or successor in interest who is in default, transfers to a beneficiary of a deed of trust by a trustor or successor in interest who is in default, transfers by any foreclosure sale after default, transfers by any foreclosure sale after default in an obligation secured by a mortgage, transfers by a sale under a power of sale or any foreclosure sale under a decree of foreclosure after default in an obligation secured by a deed of trust or secured by any other instrument containing a power of sale, or transfers by a mortgagee or a beneficiary under a deed of trust who has acquired the real property at a sale conducted pursuant to a power of sale under a mortgage or deed of trust or a sale pursuant to a decree of foreclosure or has acquired the real property by a deed in lieu of foreclosure.

(3) Transfers by a fiduciary in the course of the administration of a decedent's estate, guardianship, conservatorship, or trust.

(4) Transfers from one coowner to one or more other coowners.

(5) Transfers made to a spouse, or to a person or persons in the lineal line of consanguinity of one or more of the transferors.

(6) Transfers between spouses resulting from a judgment of dissolution of marriage or of legal separation of the parties or from a property settlement agreement incidental to that judgment.

(7) Transfers by the Controller in the course of administering Chapter 7 (commencing with Section 1500) of Title 10 of Part 3 of the Code of Civil Procedure.

(8) Transfers under Chapter 7 (commencing with Section 3691) or Chapter 8 (commencing with Section 3771) of Part 6 of Division 1 of the Revenue and Taxation Code.

(9) Transfers or exchanges to or from any governmental entity.

(b) Transfers not subject to this article may be subject to other disclosure requirements, including those under Sections 8589.3, 8589.4, and 51183.5 of the Government Code and Sections 2621.9, 2694, and 4136 of the Public Resources Code. In transfers not subject to this article, agents may make required disclosures in a separate writing.

1103.2.

(a) The disclosures required by this article are set forth in, and shall be made on a copy of, the following Natural Hazard Disclosure Statement: [content omitted].

(b) If an earthquake fault zone, seismic hazard zone, very high fire hazard severity zone, or wildland fire area map or accompanying information is not of sufficient accuracy or scale that a reasonable person can determine if the subject real property is included in a natural hazard area, the transferor or transferor's agent shall mark "Yes" on the Natural Hazard Disclosure Statement. The transferor or transferor's agent may mark "No" on the Natural Hazard Disclosure Statement if he or she attaches a report prepared pursuant to subdivision (c) of Section 1103.4 that verifies the property is not in the hazard zone. Nothing in this subdivision is intended to limit or abridge any existing duty of the transferor or the transferor's agents to exercise reasonable care in making a determination under this subdivision.

[Sub-Sections (c) through (h) omitted]

[Section 1103.3 omitted]

1103.4.

(a) Neither the transferor nor any listing or selling agent shall be liable for any error, inaccuracy, or omission of any information delivered pursuant to this article if the error, inaccuracy, or omission was not within the personal knowledge of the transferor or the listing or selling agent, and was based on information timely provided by public agencies or by other persons providing information as specified in subdivision (c) that is required to be disclosed pursuant to this article, and ordinary care was exercised in obtaining and transmitting the information.

(b) The delivery of any information required to be disclosed by this article to a prospective transferee by a public agency or other person providing information required to be disclosed pursuant to this article shall be deemed to comply with the requirements of this article and shall relieve the transferor or any listing or selling agent of any further duty under this article with respect to that item of information.

(c) The delivery of a report or opinion prepared by a licensed engineer, land surveyor, geologist, or expert in natural hazard discovery dealing with matters within the scope of the professional's license or expertise, shall be sufficient compliance for application of the exemption provided by subdivision (a) if the information is provided to the prospective transferee pursuant to a request therefor, whether written or oral. In responding to that request, an expert may indicate, in writing, an understanding that the information provided will be used in fulfilling the requirements of Section 1103.2 and, if so, shall indicate the required disclosures, or parts thereof, to which the information being furnished is applicable. Where that statement is furnished, the expert shall not be responsible for any items of information, or parts thereof, other than those expressly set forth in the statement.

(1) In responding to the request, the expert shall determine whether the property is within an airport influence area as defined in subdivision (b) of Section 11010 of the Business and Professions Code. If the property is within an airport influence area, the report shall contain the following statement:

> NOTICE OF AIRPORT IN VICINITY
>
> This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for

example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

[Remainder of Article 1.7 omitted]

CIVIL CODE
Division 4
Part 5—Common Interest Developments
Chapter 3—Governing Documents
Article 2—Declaration
(excerpts)

4250.

(a) A declaration, recorded on or after January 1, 1986, shall contain a legal description of the common interest development, and a statement that the common interest development is a community apartment project, condominium project, planned development, stock cooperative, or combination thereof. The declaration shall additionally set forth the name of the association and the restrictions on the use or enjoyment of any portion of the common interest development that are intended to be enforceable equitable servitudes.

(b) The declaration may contain any other matters the declarant or the members consider appropriate.

4250.

(a) If property common interest development is located within an airport influence area, a declaration, recorded after January 1, 2004, shall contain the following statement:

> NOTICE OF AIRPORT IN VICINITY
>
> This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

(b) For purposes of this section, an "airport influence area," also known as an "airport referral area," is the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission.

(c) [Omitted]

(d) The statement in a declaration acknowledging that a property is located in an airport influence area … does not constitute a title defect, lien, or encumbrance.

4260.

Except to the extent that a declaration provides by its express terms that it is not amendable, in whole or in part, a declaration that fails to include provisions permitting its amendment at all times during its existence may be amended at any time.

LEGISLATIVE HISTORY SUMMARY[1]

PUBLIC UTILITIES CODE
Sections 21670 et seq.
Airport Land Use Commission Statutes
And Related Statutes

1967 Original ALUC statute enacted.

- Establishment of ALUCs required in each county containing a public airport served by a certificated air carrier.
- The purpose of ALUCs is indicated as being to make recommendations regarding height restrictions on buildings and the use of land surrounding airports.

1970 Assembly Bill 1856 (Badham) Chapter 1182, Statutes of 1970—Adds provisions which:

- Require ALUCs to prepare comprehensive land use plans.
- Require such plans to include a long-range plan and to reflect the airport's forecast growth during the next 20 years.
- Require ALUC review of airport construction plans (Section 21661.5).
- Exempt Los Angeles County from the requirement of establishing an ALUC.

1971 The function of ALUCs is restated as being to require new construction to conform to Department of Aeronautics standards.

1973 ALUCs are permitted to establish compatibility plans for military airports.

1982 Assembly Bill 2920 (Rogers) Chapter 1041, Statutes of 1982—Adds major changes which:

- More clearly articulate the purpose of ALUCs.
- Eliminate reference to "achieve by zoning."
- Require consistency between local general and specific plans and airport land use commission plans; the requirements define the process for attaining consistency, they do not establish standards for consistency.
- Eliminate the requirement for proposed individual development projects to be referred to an ALUC for review once local general/specific plans are consistent with the ALUC's plan.
- Require that local agencies make findings of fact before overriding an ALUC decision.
- Change the vote required for an override from 4/5 to 2/3.

1984 Assembly Bill 3551 (Mountjoy) Chapter 1117, Statutes of 1984—Amends the law to:

- Require ALUCs in all counties having an airport which serves the general public unless a county and its cities determine an ALUC is not needed.
- Limit amendments to compatibility plans to once per year.
- Allow individual projects to continue to be referred to the ALUC by agreement.
- Extend immunity to airports if an ALUC action is overridden by a local agency not owning the airport.

[1] Source: California Airport Land Use Planning Handbook (October 2011)

- Provide state funding eligibility for preparation of compatibility plans through the Regional Transportation Improvement Program process.

1987 Senate Bill 633 (Rogers) Chapter 1018, Statutes of 1987—Makes revisions which:

- Require that a designated body serving as an ALUC include two members having "expertise in aviation."
- Allows an interested party to initiate court proceedings to postpone the effective date of a local land use action if a compatibility plan has not been adopted.
- Delete *sunset* provisions contained in certain clauses of the law. Allows reimbursement for ALUC costs in accordance with the Commission on State Mandates.

1989 Senate Bill 255 (Bergeson) Chapter 54, Statutes of 1989—

- Sets a requirement that comprehensive land use plans be completed by June 1991.
- Establishes a method for compelling ALUCs to act on matters submitted for review.
- Allows ALUCs to charge fees for review of projects.
- Suspends any lawsuits that would stop development until the ALUC adopts its plan or until June 1, 1991.

1989 Senate Bill 235 (Alquist) Chapter 788, Statutes of 1989—Appropriates $3,672,000 for the payment of claims to counties seeking reimbursement of costs incurred during fiscal years 1985-86 through 1989-90 pursuant to state-mandated requirement (Chapter 1117, Statutes of 1984) for creation of ALUCs in most counties. This statute was repealed in 1993.

1990 Assembly Bill 4164 (Mountjoy) Chapter 1008, Statutes of 1990—Adds section 21674.5 requiring the Division of Aeronautics to develop and implement a training program for ALUC staffs.

1990 Assembly Bill 4265 (Clute) Chapter 563, Statutes of 1990—With the concurrence of the Division of Aeronautics, allows ALUCs to use an airport layout plan, rather than a long-range airport master plan, as the basis for preparation of a compatibility plan.

1990 Senate Bill 1288 (Beverly) Chapter 54, Statutes of 1990—Amends Section 21670.2 to give Los Angeles County additional time to prepare compatibility plans and meet other provisions of the ALUC statutes.

1991 Senate Bill 532 (Bergeson) Chapter 140, Statutes of 1991—

- Allows counties having half of their compatibility plans completed or under preparation by June 30, 1991, an additional year to complete the remainder.
- Allows ALUCs to continue to charge fees under these circumstances.
- Fees may be charged only until June 30, 1992, if plans are not completed by then.

1993 Senate Bill 443 (Committee on Budget and Fiscal Review) Chapter 59, Statutes of 1993—Amends Section 21670(b) to make the formation of ALUCs permissive rather than mandatory as of June 30, 1993. (Note: Section 21670.2 which assigns responsibility for coordinating the airport planning of public agencies in Los Angeles County is not affected by this amendment.)

1994 Assembly Bill 2831 (Mountjoy) Chapter 644, Statutes of 1994 —Reinstates the language in Section 21670(b) mandating establishment of ALUCs, but also provides for an alternative airport land use planning process. Lists specific actions which a county and affected cities must take in order for such alternative process to receive Caltrans approval. Requires that ALUCs be guided by information in the Caltrans *Airport Land Use Planning Handbook* when formulating airport land use plans.

1994 Senate Bill 1453 (Rogers) Chapter 438, Statutes of 1994—Amends California Environmental Quality Act (CEQA) statutes as applied to preparation of environmental documents affecting projects in the vicinity of airports. Requires lead agencies to use the *Airport Land Use Planning Handbook* as a technical resource when assessing the airport-related noise and safety impacts of such projects.

1997 Assembly Bill 1130 (Oller) Chapter 81, Statutes of 1997—Added Section 21670.4 concerning airports whose planning boundary straddles a county line.

2000 Senate Bill 1350 (Rainey) Chapter 506, Statutes of 2000—Added Section 21670(f) clarifying that special districts are among the local agencies to which airport land use planning laws are intended to apply.

2001 Assembly Bill 93 (Wayne) Chapter 946, Statutes of 2001—Added Section 21670.3 regarding San Diego County Regional Airport Authority's responsibility for airport planning within San Diego County.

2002 Assembly Bill 3026 (Committee on Transportation) Chapter 438, Statutes of 2002—Changes the term "comprehensive land use plan" to "airport land use compatibility plan."

2002 Assembly Bill 2776 (Simitian) Chapter 496, Statutes of 2002—Requires information regarding the location of a property within an airport influence area be disclosed as part of certain real estate transactions effective January 1, 2004.

2002 Senate Bill 1468 (Knight) Chapter 971, Statutes of 2002—Changes ALUC preparation of airport land use compatibility plans for military airports from optional to required. Requires that the plans be consistent with the safety and noise standards in the Air Installation Compatible Use Zone for that airport. Requires that the general plan and any specific plans be consistent with these standards where there is military airport, but an airport land use commission does not exist.

2003 Assembly Bill 332 (Mullin) Chapter 351, Statutes of 2003—Clarifies that school districts and community college districts are subject to compatibility plans. Requires local public agencies to notify ALUC and Division of Aeronautics at least 45 days prior to deciding to overrule the ALUC.

Adds that prior to granting building construction permits, local agencies shall be guided by the criteria established in the Airport Land Use Planning Handbook and any related federal aviation regulations to the extent that the criteria has been incorporated into their airport land use compatibility plan.

2004 Senate Bill 1223 (Committee on Transportation) Chapter 615, Statutes of 2004—Technical revisions eliminating most remaining references to the term "comprehensive land use plan" and replacing it with "airport land use compatibility plan." Also replaces the terms "planning area" and "study area" with "airport influence area."

2005 Assembly Bill 1358 (Mullin) Chapter 29, Statutes of 2005—Requires a school district to notify the Department of Transportation before leasing property for a new school site within two miles of an airport. Also makes these provisions applicable to charter schools.

2007 Senate Bill 10 (Kehoe) Chapter 287, Statutes of 2007—The San Diego County Regional Airport Authority Reform Act of 2007. Restructures the airport authority established in 2001 by AB 93 (Wayne), with a set of goals related to governance, accountability, planning and operations at San Diego International Airport.

2009 Assembly Bill 45 (Blakeslee) Chapter 404, Statutes of 2009—Requires small wind energy systems installed near airports to comply with all applicable Federal Aviation Administration requirements, including Subpart B of Part 77. These systems are not allowed to locate in vicinity of an airport if they are prohibited by a comprehensive land use plan or any implementing regulations adopted by an Airport Land Use Commission.

2010 Senate Bill 1333 (Yee) Chapter 329, Statutes of 2010—If a local government requires dedication of an avigation easement to the owner or operator of the airport as a condition of approval of a noise-sensitive project, the avigation easement must be granted prior to the issuance of the building permit. Also requires that a termination clause be included in the avigation easement if the project is not built or the permit has expired or been revoked.

2012 Assembly Bill 805 (Torres) Chapter 180, Statutes of 2012—Recodifies the Common Interest Development Act which requires a recorded disclosure statement if a common interest development is located within an airport influence area.

2012 Assembly Bill 1486 (Lara) Chapter 690, Statutes of 2012—Exempts from CEQA the design, construction and maintenance of certain structures and equipment of the Los Angeles Regional Interoperable Communications System (LA-RICS). However, any new antenna would be required to comply with applicable state and federal height restrictions and any height limits established by an applicable airport land use compatibility plan.

2013 Assembly Bill 1058 (Chàvez) Chapter 83, Statutes of 2013—Modifies the process by which directors are appointed to the San Diego County Regional Airport Authority; the entity responsible for preparing, adopting and amending airport land use compatibility plans for each airport in San Diego County.

2013 Assembly Bill 758 (Block) Chapter 606, Statutes of 2013—Provides the City of Coronado with 540 days, instead of the standard 180 days, of any amendment to the airport land use compatibility plan to amend its general plan and any applicable specific plan.

APPENDIX B

Federal Aviation Regulations Part 77

Safe, Efficient Use and Preservation of the Navigable Airspace

Amdt. 77-13, Effective January 18, 2011

Subpart A

GENERAL

77.1 Purpose.

This part establishes:

(a) The requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures;

(b) The standards used to determine obstructions to air navigation, and navigational and communication facilities;

(c) The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and

(d) The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

77.3 Definitions.

For the purpose of this part:

"Non-precision instrument runway" means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document.

Planned or proposed airport is an airport that is the subject of at least one of the following documents received by the FAA:

(1) Airport proposals submitted under 14 CFR Part 157.

(2) Airport Improvement Program requests for aid.

(3) Notices of existing airports where prior notice of the airport construction or alteration was not provided as required by 14 CFR Part 157.

(4) Airport layout plans.

(5) DOD proposals for airports used only by the U.S. Armed Forces.

(6) DOD proposals on joint-use (civil-military) airports.

(7) Completed airport site selection feasibility study.

"Precision instrument runway" means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

"Public use airport" is an airport available for use by the general public without a requirement for prior approval of the airport owner or operator.

"Seaplane base" is considered to be an airport only if its sea lanes are outlined by visual markers.

"Utility runway" means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

"Visual runway" means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority.

Subpart B
NOTICE REQUIREMENTS

77.5 Applicability.

(a) If you propose any construction or alteration described in §77.9, you must provide adequate notice to the FAA of that construction or alteration.

(b) If requested by the FAA, you must also file supplemental notice before the start date and upon completion of certain construction or alterations that are described in §77.9.

(c) Notice received by the FAA under this subpart is used to:

(1) Evaluate the effect of the proposed construction or alteration on safety in air commerce and the efficient use and preservation of the navigable airspace and of airport traffic capacity at public use airports;

(2) Determine whether the effect of proposed construction or alteration is a hazard to air navigation;

(3) Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460–1, Obstruction Marking and Lighting;

(4) Determine other appropriate measures to be applied for continued safety of air navigation; and

(5) Notify the aviation community of the construction or alteration of objects that affect the navigable airspace, including the revision of charts, when necessary.

77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460–1, Notice of Proposed Construction or Alteration. FAA Form 7460–1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460–1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

77.11 Supplemental notice requirements.

(a) You must file supplemental notice with the FAA when:

(1) The construction or alteration is more than 200 feet in height AGL at its site; or

(2) Requested by the FAA.

(b) You must file supplemental notice on a prescribed FAA form to be received within the time limits specified in the FAA determination. If no time limit has been specified, you must submit supplemental notice of construction to the FAA within 5 days after the structure reaches its greatest height.

(c) If you abandon a construction or alteration proposal that requires supplemental notice, you must submit notice to the FAA within 5 days after the project is abandoned.

(d) If the construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Subpart C
STANDARDS FOR DETERMINING OBSTRUCTIONS TO AIR NAVIGATION OR NAVIGATIONAL AIDS OR FACILITIES

77.13 Applicability.

This subpart describes the standards used for determining obstructions to air navigation, navigational aids, or navigational facilities. These standards apply to the following:

(a) Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.

(b) The alteration of any permanent or temporary existing structure by a change in its height, including appurtenances, or lateral dimensions, including equipment or material used therein.

77.15 Scope.

(a) This subpart describes standards used to determine obstructions to air navigation that may affect the safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities. Such facilities include air navigation aids, communication equipment, airports, Federal airways, instrument approach or departure procedures, and approved off-airway routes.

(b) Objects that are considered obstructions under the standards described in this subpart are presumed hazards to air navigation unless further aeronautical study concludes that the object is not a hazard. Once further aeronautical study has been initiated, the FAA will use the standards in this subpart, along with FAA policy and guidance material, to determine if the object is a hazard to air navigation.

(c) The FAA will apply these standards with reference to an existing airport facility, and airport proposals received by the FAA, or the appropriate military service, before it issues a final determination.

(d) For airports having defined runways with specially prepared hard surfaces, the primary surface for each runway extends 200 feet beyond each end of the runway. For airports having defined strips or pathways used regularly for aircraft takeoffs and landings, and designated runways, without specially prepared hard surfaces, each end of the primary surface for each such runway shall coincide with the corresponding end of the runway. At airports, excluding seaplane bases, having a defined landing and takeoff area with no defined pathways for aircraft takeoffs and landings, a determination must be made as to which portions of the landing and takeoff area are regularly used as landing and takeoff pathways. Those determined pathways must be considered runways, and an appropriate primary surface as defined in §77.19 will be considered as longitudinally centered on each such runway. Each end of that primary surface must coincide with the corresponding end of that runway.

(e) The standards in this subpart apply to construction or alteration proposals on an airport (including heliports and seaplane bases with marked lanes) if that airport is one of the following before the issuance of the final determination:

(1) Available for public use and is listed in the Airport/Facility Directory, Supplement Alaska, or Supplement Pacific of the U.S. Government Flight Information Publications; or

(2) A planned or proposed airport or an airport under construction of which the FAA has received actual notice, except DOD airports, where there is a clear indication the airport will be available for public use; or,

(3) An airport operated by a Federal agency or the DOD; or,

(4) An airport that has at least one FAA-approved instrument approach.

77.17 Obstruction standards.

(a) An existing object, including a mobile object, is, and a future object would be an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

(1) A height of 499 feet AGL at the site of the object.

(2) A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile from the airport up to a maximum of 499 feet.

(3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under §77.19, 77.21, or 77.23. However, no part of the takeoff or landing area itself will be considered an obstruction.

(b) Except for traverse ways on or near an airport with an operative ground traffic control service furnished by an airport traffic control tower or by the airport management and coordinated with the air traffic control service, the standards of paragraph (a) of this section apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance.

(2) 15 feet for any other public roadway.

(3) 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.

(4) 23 feet for a railroad.

(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

77.19 Civil airport imaginary surfaces.

The following civil airport imaginary surfaces are established with relation to the airport and to each runway. The size of each such imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach procedure existing or planned for that runway end.

(a) Horizontal surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by Swinging arcs of a specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual;

(2) 10,000 feet for all other runways. The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

(b) Conical surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

(c) Primary surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having non-precision instrument approaches.

(3) For other than utility runways, the width is:

(i) 500 feet for visual runways having only visual approaches.

(ii) 500 feet for non-precision instrument runways having visibility minimums greater than three-fourths statue mile.

(iii) 1,000 feet for a non-precision instrument runway having a non-precision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.

(iv) The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

(d) Approach surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is

applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

(i) 1,250 feet for that end of a utility runway with only visual approaches;

(ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches;

(iii) 2,000 feet for that end of a utility runway with a non-precision instrument approach;

(iv) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater that three-fourths of a statute mile;

(v) 4,000 feet for that end of a non-precision instrument runway, other than utility, having a non-precision instrument approach with visibility minimums as low as three-fourths statute mile; and

(vi) 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:

(i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways;

(ii) 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility; and

(iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

(3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

(e) Transitional surface. These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

77.21 Department of Defense (DoD) airport imaginary surfaces.

(a) Related to airport reference points. These surfaces apply to all military airports. For the purposes of this section, a military airport is any airport operated by the DOD.

(1) Inner horizontal surface. A plane that is oval in shape at a height of 150 feet above the established airfield elevation. The plane is constructed by scribing an arc with a radius of 7,500 feet about the centerline at the end of each runway and interconnecting these arcs with tangents.

(2) Conical surface. A surface extending from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation.

(3) Outer horizontal surface. A plane, located 500 feet above the established airfield elevation, extending outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

(b) Related to runways. These surfaces apply to all military airports.

(1) Primary surface. A surface located on the ground or water longitudinally centered on each runway with the same length as the runway. The width of the primary surface for runways is 2,000 feet. However, at established bases where substantial construction has taken place in accordance with a previous lateral clearance criteria, the 2,000-foot width may be reduced to the former criteria.

(2) Clear zone surface. A surface located on the ground or water at each end of the primary surface, with a length of 1,000 feet and the same width as the primary surface.

(3) Approach clearance surface. An inclined plane, symmetrical about the runway centerline extended, beginning 200 feet beyond each end of the primary surface at the centerline elevation of the runway end and extending for 50,000 feet. The slope of the approach clearance surface is 50 to 1 along the runway centerline extended until it reaches an elevation of 500 feet above the established airport elevation. It then continues horizontally at this elevation to a point 50,000 feet from the point of beginning. The width of this surface at the runway end is the same as the primary surface, it flares uniformly, and the width at 50,000 is 16,000 feet.

(4) Transitional surfaces. These surfaces connect the primary surfaces, the first 200 feet of the clear zone surfaces, and the approach clearance surfaces to the inner horizontal surface, conical surface, outer horizontal surface or other transitional surfaces. The slope of the transitional surface is 7 to 1 outward and upward at right angles to the runway centerline.

77.23 Heliport imaginary surfaces.

(a) Primary surface. The area of the primary surface coincides in size and shape with the designated take-off and landing area. This surface is a horizontal plane at the elevation of the established heliport elevation.

(b) Approach surface. The approach surface begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.

(c) Transitional surfaces. These surfaces extend outward and upward from the lateral boundaries of the primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

Subpart D

AERONAUTICAL STUDIES AND DETERMINATIONS

77.25 Applicability.

(a) This subpart applies to any aeronautical study of a proposed construction or alteration for which notice to the FAA is required under 77.9.

(b) The purpose of an aeronautical study is to determine whether the aeronautical effects of the specific proposal and, where appropriate, the cumulative impact resulting from the proposed construction or alteration when combined with the effects of other existing or proposed structures, would constitute a hazard to air navigation.

(c) The obstruction standards in subpart C of this part are supplemented by other manuals and directives used in determining the effect on the navigable airspace of a proposed construction or alteration. When the FAA needs additional information, it may circulate a study to interested parties for comment.

77.27 Initiation of studies.

The FAA will conduct an aeronautical study when:

(a) Requested by the sponsor of any proposed construction or alteration for which a notice is submitted; or

(b) The FAA determines a study is necessary.

77.29 Evaluating aeronautical effect.

(a) The FAA conducts an aeronautical study to determine the impact of a proposed structure, an existing structure that has not yet been studied by the FAA, or an alteration of an existing structure on aeronautical operations, procedures, and the safety of flight. These studies include evaluating:

(1) The impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules;

(2) The impact on arrival, departure, and en route procedures for aircraft operating under instrument flight rules;

(3) The impact on existing and planned public use airports;

(4) Airport traffic capacity of existing public use airports and public use airport development plans received before the issuance of the final determination;

(5) Minimum obstacle clearance altitudes, minimum instrument flight rules altitudes, approved or planned instrument approach procedures, and departure procedures;

(6) The potential effect on ATC radar, direction finders, ATC tower line-of-sight visibility, and physical or electromagnetic effects on air navigation, communication facilities, and other surveillance systems;

(7) The aeronautical effects resulting from the cumulative impact of a proposed construction or alteration of a structure when combined with the effects of other existing or proposed structures.

(b) If you withdraw the proposed construction or alteration or revise it so that it is no longer identified as an obstruction, or if no further aeronautical study is necessary, the FAA may terminate the study.

77.31 Determinations.

(a) The FAA will issue a determination stating whether the proposed construction or alteration would be a hazard to air navigation, and will advise all known interested persons.

(b) The FAA will make determinations based on the aeronautical study findings and will identify the following:

(1) The effects on VFR/IFR aeronautical departure/arrival operations, air traffic procedures, minimum flight altitudes, and existing, planned, or proposed airports listed in §77.15(e) of which the FAA has received actual notice prior to issuance of a final determination.

(2) The extent of the physical and/or electromagnetic effect on the operation of existing or proposed air navigation facilities, communication aids, or surveillance systems.

(c) The FAA will issue a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact.

(d) A Determination of No Hazard to Air Navigation will be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation. A Determination of No Hazard to Air Navigation may include the following:

(1) Conditional provisions of a determination.

(2) Limitations necessary to minimize potential problems, such as the use of temporary construction equipment.

(3) Supplemental notice requirements, when required.

(4) Marking and lighting recommendations, as appropriate.

(e) The FAA will issue a Determination of No Hazard to Air Navigation when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation.

77.33 Effective period of determinations.

(a) A determination issued under this subpart is effective 40 days after the date of issuance, unless a petition for discretionary review is received by the FAA within 30 days after issuance. The determination will not become final pending disposition of a petition for discretionary review.

(b) Unless extended, revised, or terminated, each Determination of No Hazard to Air Navigation issued under this subpart expires 18 months after the effective date of the determination, or on the date the proposed construction or alteration is abandoned, whichever is earlier.

(c) A Determination of Hazard to Air Navigation has no expiration date.

77.35 Extensions, terminations, revisions and corrections.

(a) You may petition the FAA official that issued the Determination of No Hazard to Air Navigation to revise or reconsider the determination based on new facts or to extend the effective period of the determination, provided that:

(1) Actual structural work of the proposed construction or alteration, such as the laying of a foundation, but not including excavation, has not been started; and

(2) The petition is submitted at least 15 days before the expiration date of the Determination of No Hazard to Air Navigation.

(b) A Determination of No Hazard to Air Navigation issued for those construction or alteration proposals not requiring an FCC construction permit may be extended by the FAA one time for a period not to exceed 18 months.

(c) A Determination of No Hazard to Air Navigation issued for a proposal requiring an FCC construction permit may be granted extensions for up to 18 months, provided that:

(1) You submit evidence that an application for a construction permit/license was filed with the FCC for the associated site within 6 months of issuance of the determination; and

(2) You submit evidence that additional time is warranted because of FCC requirements; and

(3) Where the FCC issues a construction permit, a final Determination of No Hazard to Air Navigation is effective until the date prescribed by the FCC for completion of the construction. If an extension of the original FCC completion date is needed, an extension of the FAA determination must be requested from the Obstruction Evaluation Service (OES).

(4) If the Commission refuses to issue a construction permit, the final determination expires on the date of its refusal.

Subpart E
PETITIONS FOR DISCRETIONARY REVIEW

77.37 General.

(a) If you are the sponsor, provided a substantive aeronautical comment on a proposal in an aeronautical study, or have a substantive aeronautical comment on the proposal but were not given an opportunity to state it, you may petition the FAA for a discretionary review of a determination, revision, or extension of a determination issued by the FAA.

(b) You may not file a petition for discretionary review for a Determination of No Hazard that is issued for a temporary structure, marking and lighting recommendation, or when a proposed structure or alteration does not exceed obstruction standards contained in subpart C of this part.

77.39 Contents of a petition.

(a) You must file a petition for discretionary review in writing and it must be received by the FAA within 30 days after the issuance of a determination under 77.31, or a revision or extension of the determination under 77.35.

(b) The petition must contain a full statement of the aeronautical basis on which the petition is made, and must include new information or facts not previously considered or presented during the aeronautical study, including valid aeronautical reasons why the determination, revisions, or extension made by the FAA should be reviewed.

(c) In the event that the last day of the 30-day filing period falls on a weekend or a day the Federal government is closed, the last day of the filing period is the next day that the government is open.

(d) The FAA will inform the petitioner or sponsor (if other than the petitioner) and the FCC (whenever an FCC-related proposal is involved) of the filing of the petition and that the determination is not final pending disposition of the petition.

77.41 Discretionary review results.

(a) If discretionary review is granted, the FAA will inform the petitioner and the sponsor (if other than the petitioner) of the issues to be studied and reviewed. The review may include a request for comments and a review of all records from the initial aeronautical study.

(b) If discretionary review is denied, the FAA will notify the petitioner and the sponsor (if other than the petitioner), and the FCC, whenever a FCC-related proposal is involved, of the basis for the denial along with a statement that the determination is final.

(c) After concluding the discretionary review process, the FAA will revise, affirm, or reverse the determination.

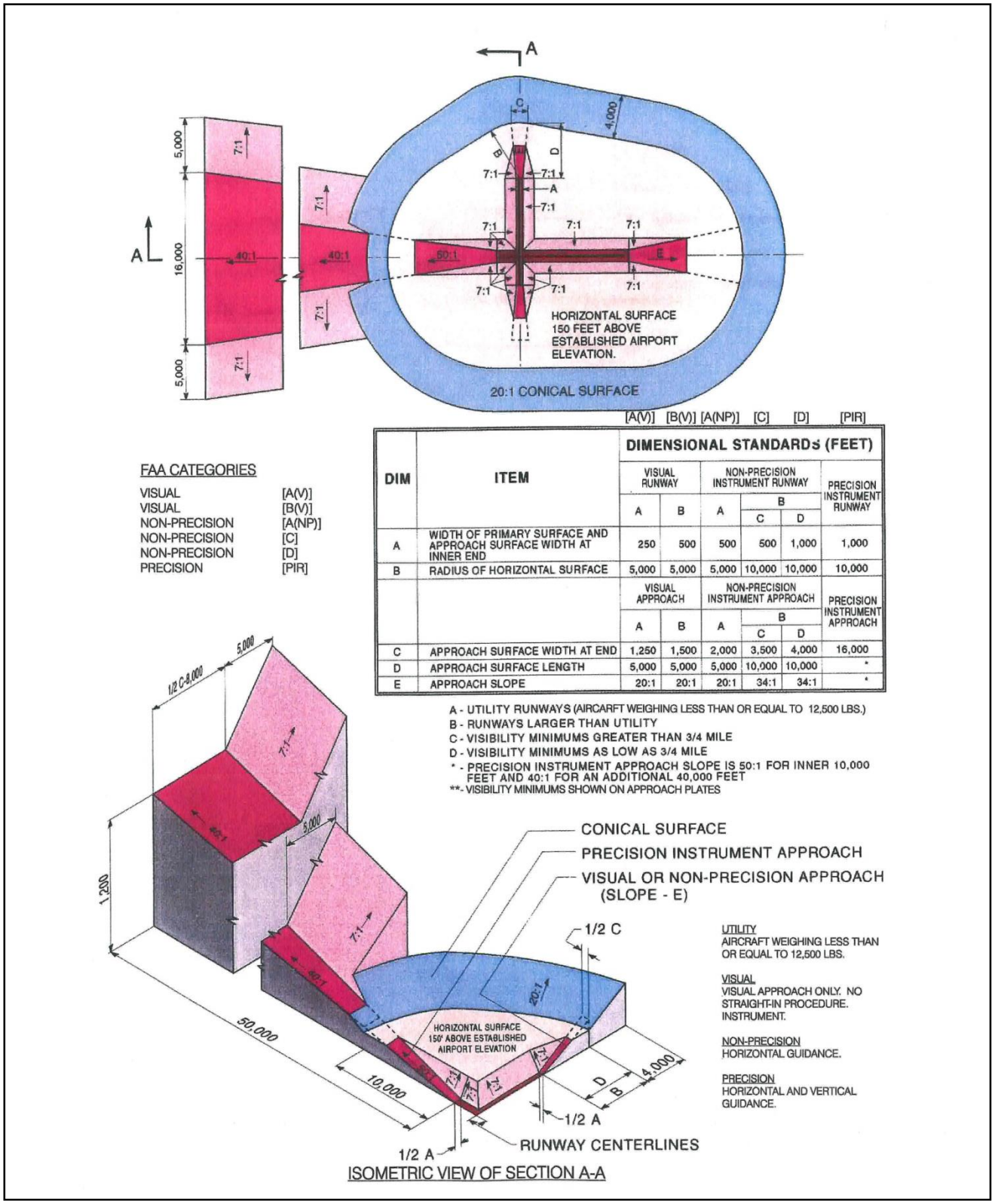


Figure B1

FAR Part 77 Imaginary Surfaces

Please Type or Print on This Form

Form Approved OMB No. 2120-0001

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY
Aeronautical Study Number
- - -

1. Sponsor *(person, company, etc. proposing this action) :*
Attn. of: _____
Name: _____
Address: _____
_____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____

2. Sponsor's Representative *(if other than #1) :*
Attn. of: _____
Name: _____
Address: _____
_____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____

3. Notice of: ☐ New Construction ☐ Alteration ☐ Existing

4. Duration: ☐ Permanent ☐ Temporary (months, days)

5. Work Schedule: Beginning _____ End _____

6. Type: ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☐ Other _____

7. Marking/Painting and/or Lighting Preferred:
☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity ☐ Dual - Red and High Intensity White
☐ White - High Intensity ☐ Other _____

8. FCC Antenna Structure Registration Number *(if applicable):*
_____

9. Latitude: ____° ____' ____. ____"

10. Longitude: ____° ____' ____. ____"

11. Datum: ☐ NAD 83 ☐ NAD 27 ☐ Other _____

12. Nearest: City: ____ State: _____

13. Nearest Public-use (not private-use) or Military Airport or Heliport:
_____

14. Distance from #13. to Structure: _____

15. Direction from #13. to Structure: _____

16. Site Elevation *(AMSL):* _____ **ft.**

17. Total Structure Height *(AGL):* _____ **ft.**

18. Overall height (#16. + #17.) *(AMSL):* _____ **ft.**

19. Previous FAA Aeronautical Study Number (if applicable):
_____ -

20. Description of Location: (Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey.)

21. Complete Description of Proposal:

Frequency/Power (kW)	

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

Date	Typed or Printed name and Title of Person Filing Notice	Signature

FAA Form 7460-1 (2-99) Supersedes Previous Edition

NSN: 0052-00-012-0008

Figure B2

FAR Part 77 Notification

FAA Form 7460-1

Figure B-3

Online Submittal of Form 7460-1: Notice of Proposed Construction or Alteration

Historically a paper form called a "7460-1" was required to be submitted to the FAA for any project proposed on airport property and certain projects near airports. Recently, the FAA has moved from paper forms to an on-line system of evaluating the effects of a proposed project on the national airspace system.

- The on-line system can be accessed at https://oeaaa.faa.gov.

This new system allows project proponents to submit and track their proposal as it progresses through the FAA evaluation process.
The purpose of this guidance is to supplement and clarify the FAA user guide for the 7460 website.

- available at: https://oeaaa.faa.gov/oeaaa/external/content/OEexternal_Guide_v3.1.pdf

We recommend that the user first read the entire guide provided by the FAA, and then use this document to clarify some of the more complicated aspects of the online 7460 system.

When a project must be submitted to the FAA

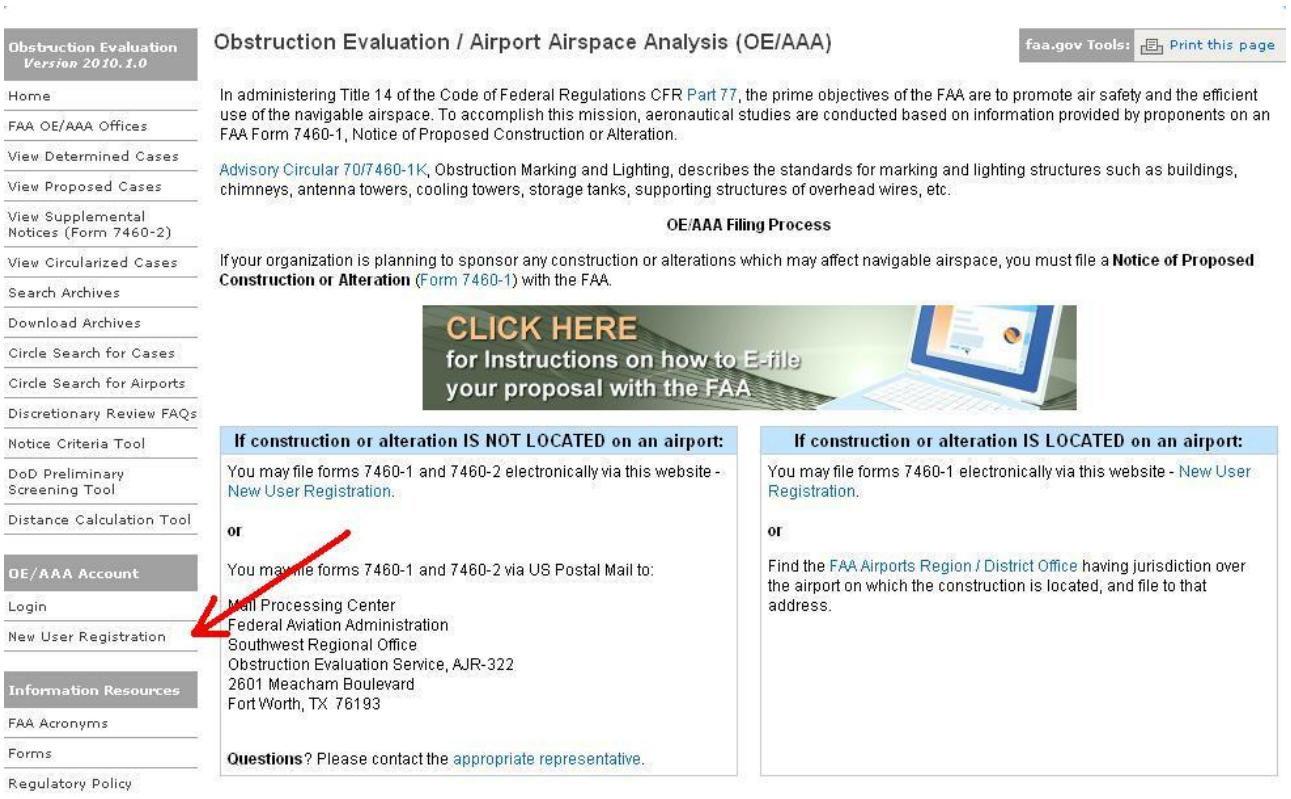
CFR Title 14 Part 77.13 states that any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

- Any construction or alteration exceeding 200 ft. above ground level
- Any construction or alteration:
  - within 20,000 ft. of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 ft.
  - within 10,000 ft. of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 ft.
  - within 5,000 ft. of a public use heliport which exceeds a 25:1 surface
- Any highway, railroad or other traverse way whose prescribed adjusted height would exceed the above noted standards
- When requested by the FAA
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

The FAA has been continuously improving the oe/aaa website to be more user friendly and increase the on-line functionality. The look and feel of the website may change in the future, but the majority of the content should remain as is.

Create an account

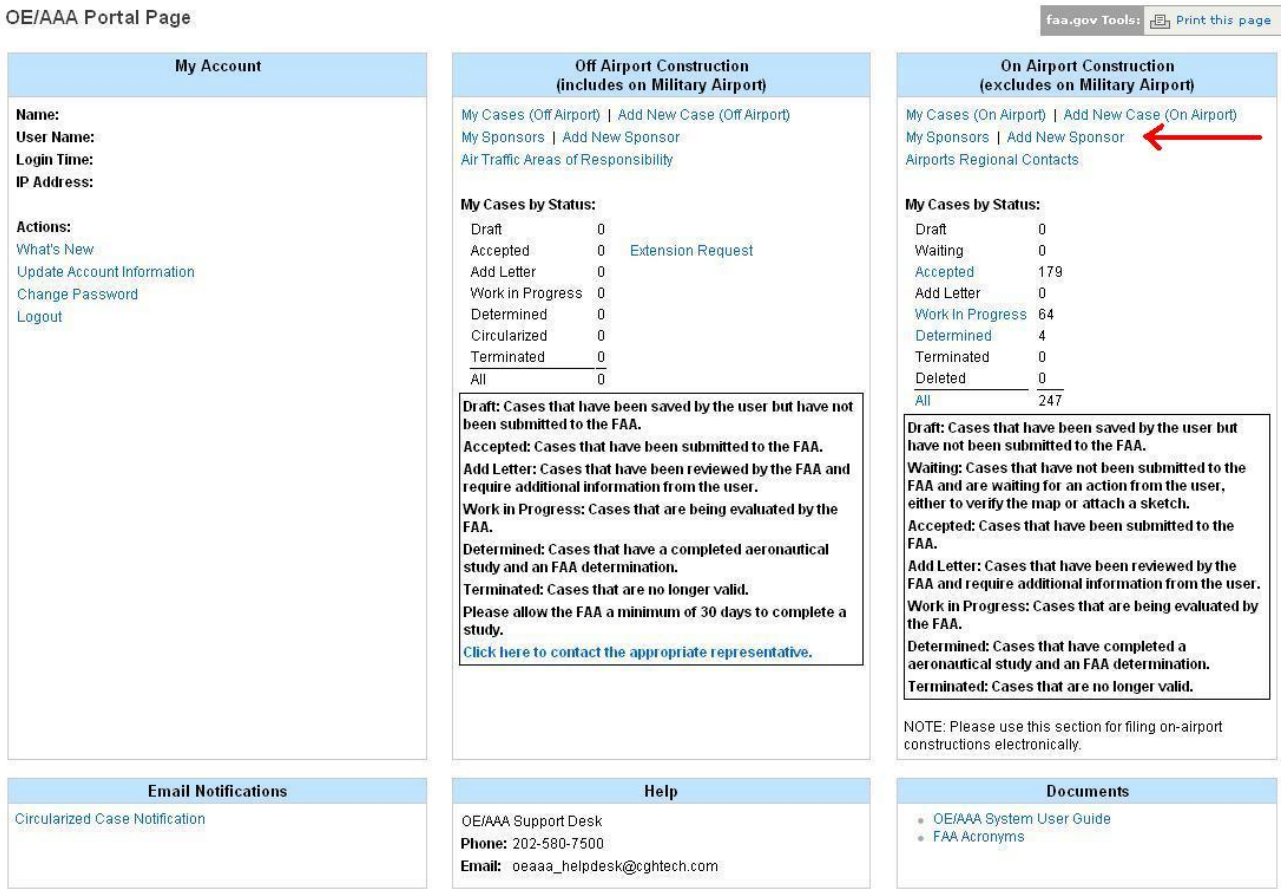
Before accessing the features of the website, the user will be required to create a username and password to access the website.



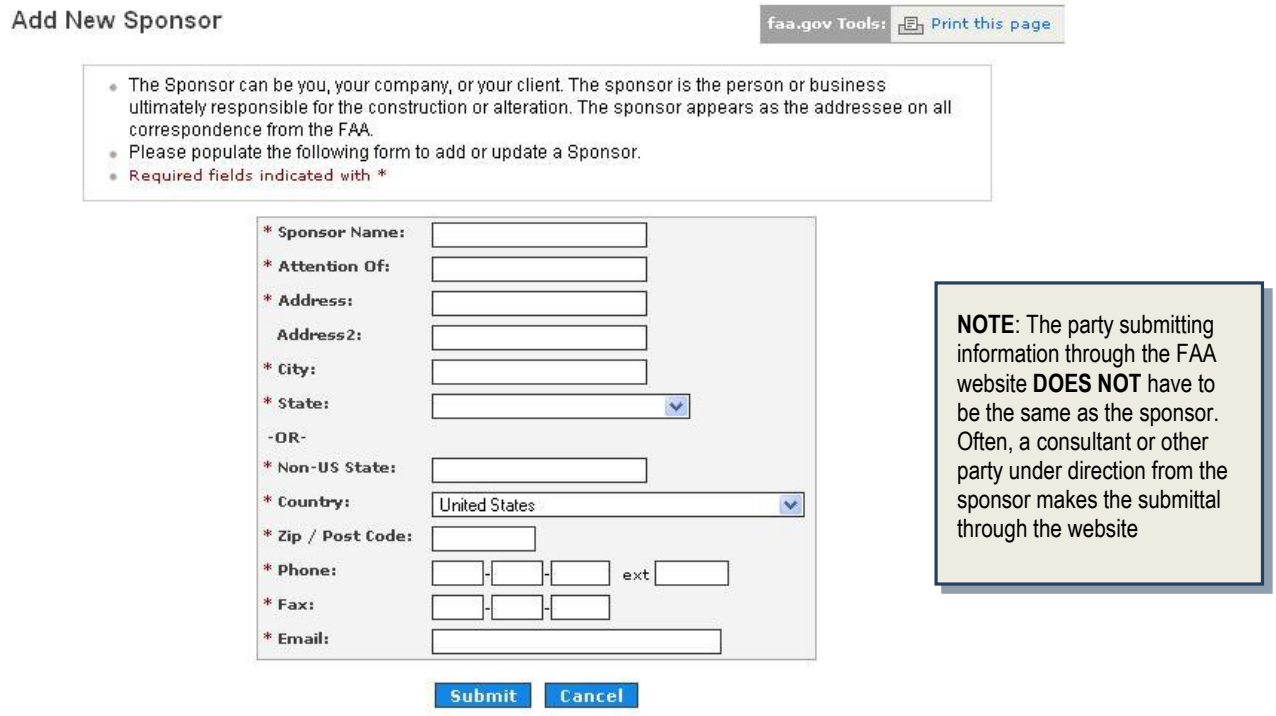
Once a user has created an account, they will be able to log in and will be directed to the OE/AAA Portal Page. This page displays a summary of any projects which have been entered into the website, categorized by off-airport and on-airport projects.

Adding a Sponsor

Before a user can enter project specific information, a project sponsor must be created. A sponsor is the person who is ultimately responsible for the construction or alteration. All FAA correspondence will be addressed to the sponsor. The sponsor could be the airport manager for projects proposed by the airport, or the developer proposing off airport construction. To create a sponsor contact, click "Add New Sponsor" on the "portal" page. From there the user can add sponsors for various projects.



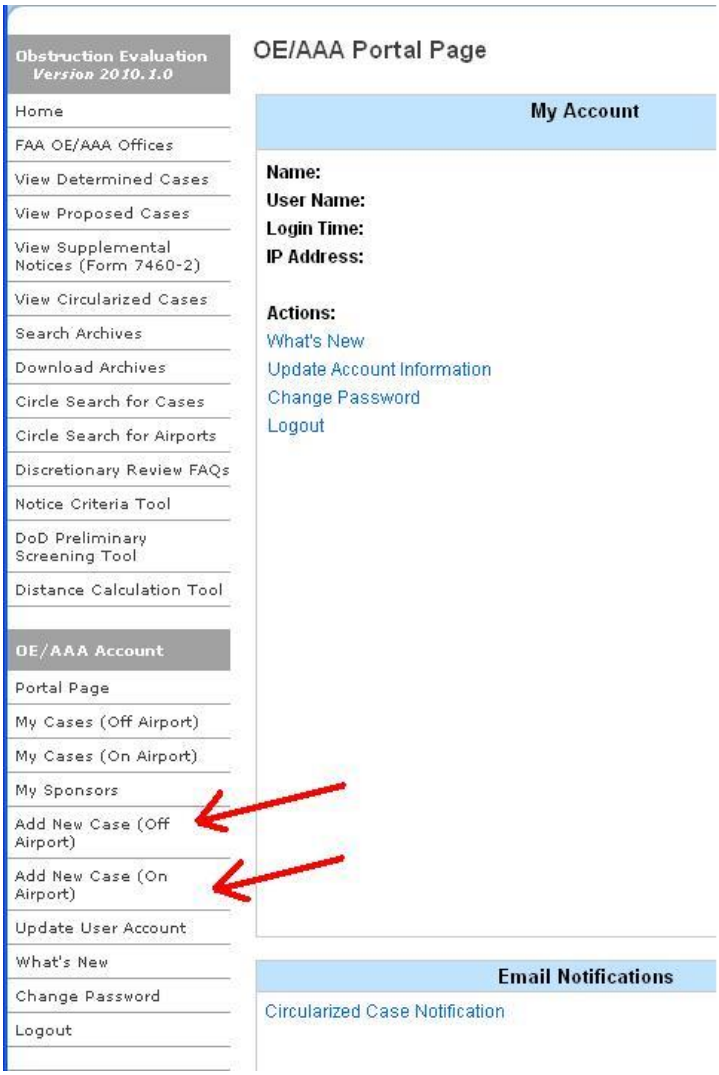
When the user selects "Add New Sponsor", they will be presented with the following screen:



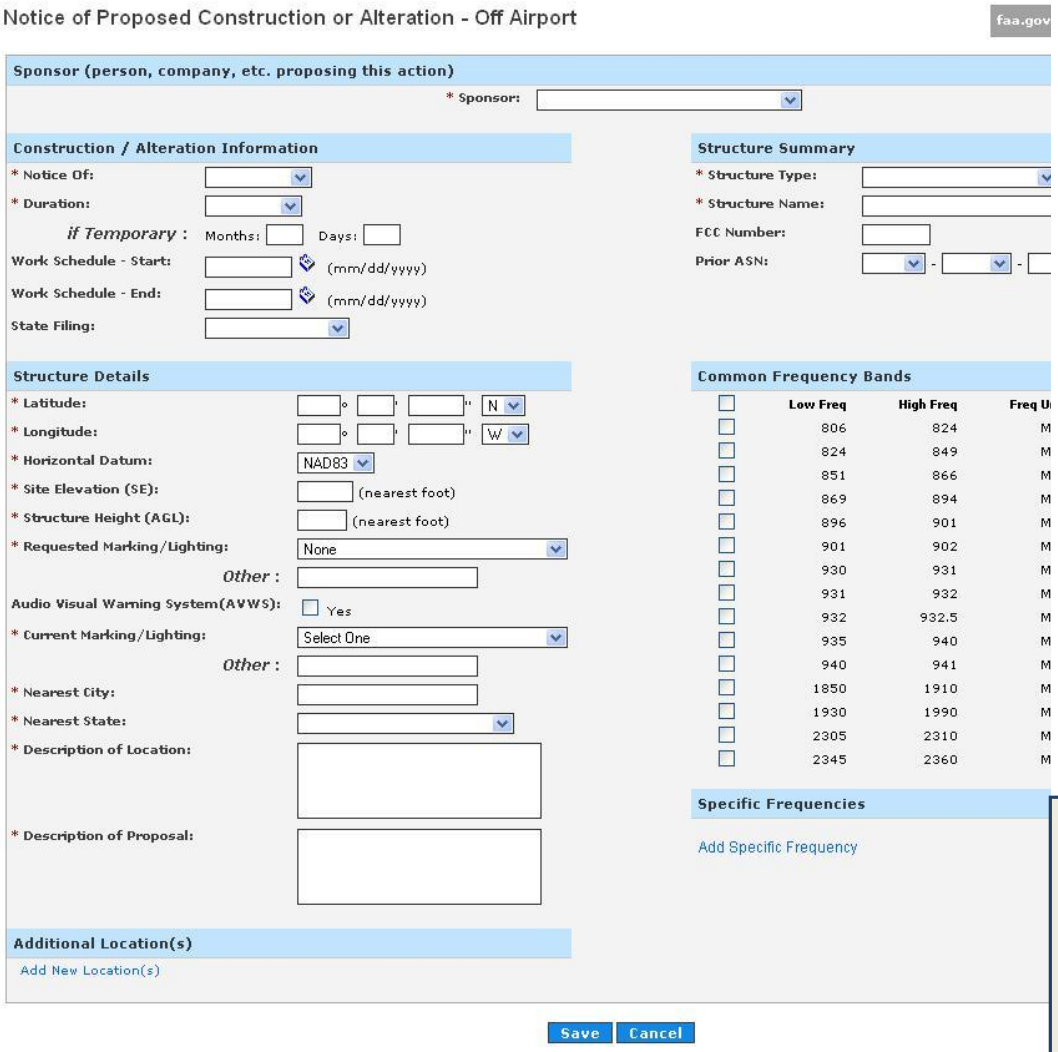
NOTE: The party submitting information through the FAA website **DOES NOT** have to be the same as the sponsor. Often, a consultant or other party under direction from the sponsor makes the submittal through the website

Creating a New Submittal

There are two options for creating a new 7460 submittal. Again on the left side, either click "Add New Case (off airport)" or "Add New Case (on airport)"



There are some differences in the required fields for "on airport" vs. "off airport" but the differences are minor and self-explanatory. One tip: for off airport submittals there is a field for "requested marking/lighting". If the user does not have a preference, select other from the pull down menu and in the "other field" state "no preference".

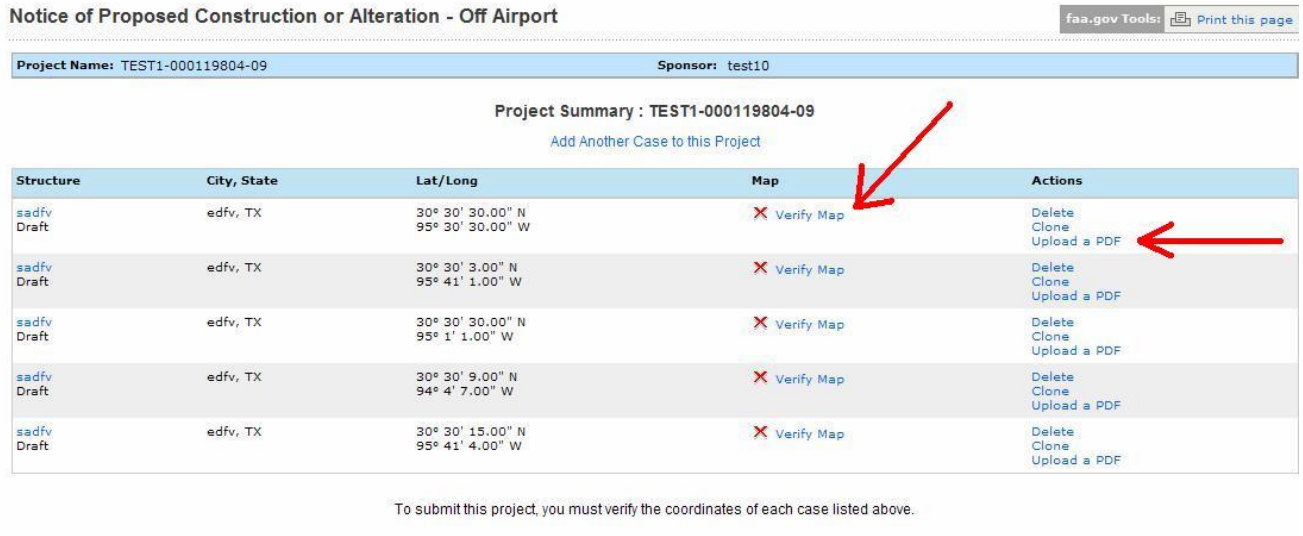


Accurate lat/long and site elevation is critical for an accurate airspace determination.

It is recommended that survey quality data be obtained from a recent survey, a GPS unit, or worst case, scaled from a topo quad.

- The most common "notice of" is construction. Select from pull down menu.
- Latitude and longitude must be entered for the structure/construction activity.
- Most 7460 submittals will require multiple points with lat/long unless the 7460 is for a pole/tower/ or other single point object. Buildings and construction areas all require points indicating the extents of the building or area. More information is provided below on how to add additional points to a submittal.
- There is a field to describe the activity taking place. In some complex activities the field does not provide enough room for the required text. An additional explanatory letter can be attached. Additional information is provided in this section on how to add a letter or document to the submittal.
- Red asterisks indicate the required fields.
- Unless there has been a previous aeronautical study for this submittal leave the "prior study" fields blank.
- Only select "common frequency bands" if the proposed structure will transmit a signal.

If the submittal is a building or construction area that is more than a single lat/long point the user must save the data first. Click save at the bottom of the page. This will bring up a summary screen of the case. To add more points click "clone" under the heading "actions".

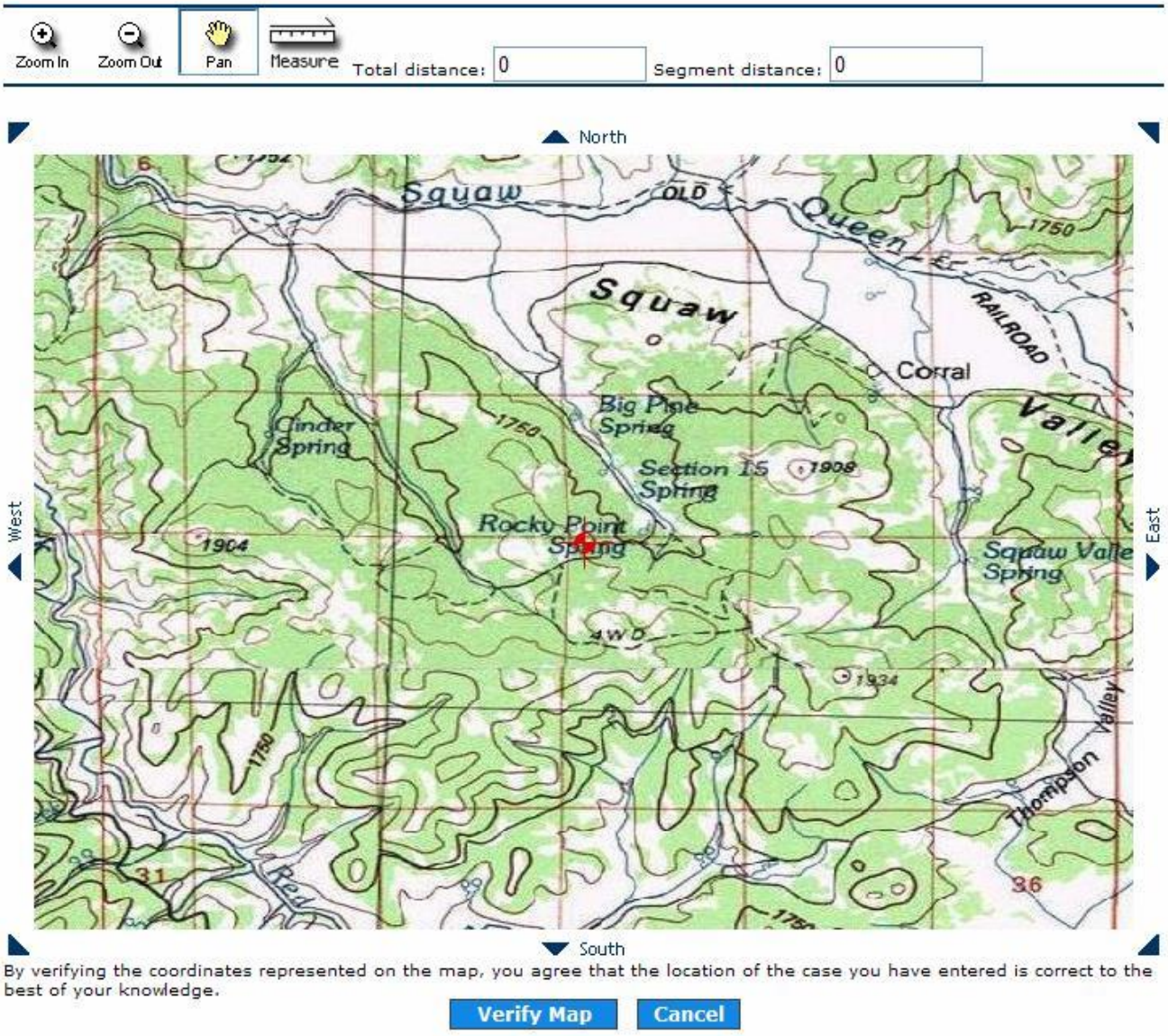


The clone tool copies all the relevant information to a new page where an additional lat/long and elevation can be entered. However, the clone process does not number the various points of a proposed project. When entering the details for a point (see Image 5) it is helpful if the user assigns a number to the point and references the total number of points for the project (e.g. point 2 of 20). The numbering can be included in the project "description/remarks" field for each point.

It should be noted that each individual point associated with a project (e.g. each corner of a building) is evaluated individually, thus the importance of including a numbering system (2 of 20) in the text/description box.

Once done, click "save" again. Now the user will see two records under the "project summary" heading. Continue this process of cloning for all the remaining points.

Once all the points have been entered, each point must be verified. There is a red X with the words "verify map" indicating the user has not verified the location. Click Verify Map, a popup will display the lat/long point on a topo map and the user must verify that it is in the correct location. After clicking "verify map" on the popup, the red X will become a blue checkmark. It seems to be more efficient to enter all of the points associated with a project and then return to verify each point on the map at one time.



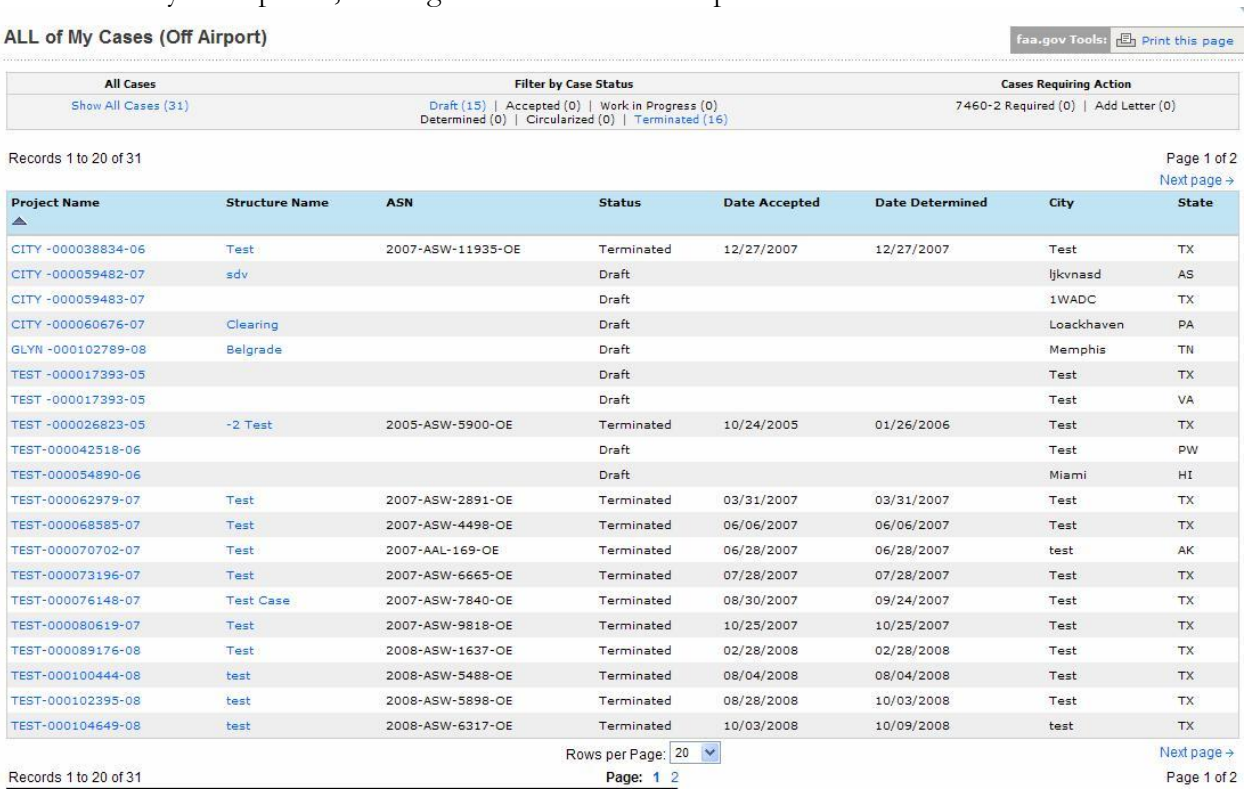
All on-airport project submittals must have a "project sketch" included. Under the "actions" column select "upload a PDF". Once you have uploaded a sketch for all the points associated with the project the red X under "sketch" will turn to a green check mark. Off-airport projects do not require a "project sketch", but the user can still upload one for informational purposes.

If the user needs to add any other information such as an explanatory letter, clicking on "upload a PDF" will allow the user to upload more documents, although only one at a time. Keep in mind that if additional PDFs or information are being provided, like the project sketch it must be uploaded to every point associated with the project.

Once the maps have been verified and sketches uploaded for all points associated with the case, the user will be able to submit the 7460 to the FAA for review.

Status of Submitted Projects

To check the status of a submittal, click on either "my cases (off airport)" or "my cases (on airport)" to see a list of what has been submitted. Each of the multiple points associated with one project will be listed as if they are separate, although still associated. The points will have a status:



ALL of My Cases (Off Airport)

faa.gov Tools: Print this page

All Cases	Filter by Case Status	Cases Requiring Action
Show All Cases (31)	Draft (15) | Accepted (0) | Work in Progress (0) Determined (0) | Circularized (0) | Terminated (16)	7460-2 Required (0) | Add Letter (0)

Records 1 to 20 of 31 — Page 1 of 2 — Next page →

Project Name	Structure Name	ASN	Status	Date Accepted	Date Determined	City	State
CITY -000038834-06	Test	2007-ASW-11935-OE	Terminated	12/27/2007	12/27/2007	Test	TX
CITY -000059482-07	sdv		Draft			ljkvnasd	AS
CITY -000059483-07			Draft			1WADC	TX
CITY -000060676-07	Clearing		Draft			Loackhaven	PA
GLYN -000102789-08	Belgrade		Draft			Memphis	TN
TEST -000017393-05			Draft			Test	TX
TEST -000017393-05			Draft			Test	VA
TEST -000026823-05	-2 Test	2005-ASW-5900-OE	Terminated	10/24/2005	01/26/2006	Test	TX
TEST-000042518-06			Draft			Test	PW
TEST-000054890-06			Draft			Miami	HI
TEST-000062979-07	Test	2007-ASW-2891-OE	Terminated	03/31/2007	03/31/2007	Test	TX
TEST-000068585-07	Test	2007-ASW-4498-OE	Terminated	06/06/2007	06/06/2007	Test	TX
TEST-000070702-07	Test	2007-AAL-169-OE	Terminated	06/28/2007	06/28/2007	test	AK
TEST-000073196-07	Test	2007-ASW-6665-OE	Terminated	07/28/2007	07/28/2007	Test	TX
TEST-000076148-07	Test Case	2007-ASW-7840-OE	Terminated	08/30/2007	09/24/2007	Test	TX
TEST-000080619-07	Test	2007-ASW-9818-OE	Terminated	10/25/2007	10/25/2007	Test	TX
TEST-000089176-08	Test	2008-ASW-1637-OE	Terminated	02/28/2008	02/28/2008	Test	TX
TEST-000100444-08	test	2008-ASW-5488-OE	Terminated	08/04/2008	08/04/2008	Test	TX
TEST-000102395-08	test	2008-ASW-5898-OE	Terminated	08/28/2008	10/03/2008	Test	TX
TEST-000104649-08	test	2008-ASW-6317-OE	Terminated	10/03/2008	10/09/2008	test	TX

Rows per Page: 20 — Next page →

Records 1 to 20 of 31 — Page: 1 2 — Page 1 of 2

Project Status Definitions:

Draft: Cases that have been saved by the user but have not been submitted to the FAA.

Waiting: Cases that have not been submitted to the FAA and are waiting for an action from the user, either to verify the map or attach a sketch.

Accepted: Cases that have been submitted to the FAA.

Add Letter: Cases that have been reviewed by the FAA and require additional information from the user.

Work in Progress: Cases that are being evaluated by the FAA.

Determined: Cases that have a completed aeronautical study and an FAA determination.

Terminated: Cases that are no longer valid.

These definitions are also shown at the bottom of the summary screen.

APPENDIX C

Methods for Determining Concentrations of People

INTRODUCTION

The underlying safety compatibility criterion employed in this *Compatibility Plan* is "usage intensity"—the maximum number of people per acre that can be present in a given area at any one time. If a proposed use exceeds the maximum intensity, it is considered incompatible and thus inconsistent with compatibility planning policies. The usage intensity concept is identified in the *California Airport Land Use Planning Handbook* as the measure best suited for assessment of land use safety compatibility with airports. The *Handbook* is published by the California Division of Aeronautics is required under state law to be used as a guide in preparation of airport land use compatibility plans.

It is recognized, though, that "people per acre" is not a common measure in other facets of land use planning. This *Compatibility Plan* therefore also utilizes the more common measure of floor area ratio (FAR) as a means of implementing the usage intensity criteria on the local level. This appendix both provides guidance on how the usage intensity determination can be made and defines the relationships between this measure, FAR, and other measures found in land use planning. For a discussion of the rationale for use of people per acre as a measure of risk exposure, see Supporting Data.

COUNTING PEOPLE

The most difficult part about calculating a use's intensity is estimating the number of people expected to use a particular facility under normal circumstances. For compatibility planning purposes, "normal circumstances" means a typical, very busy usage, but not necessarily the maximum number of people that could physically occupy the facility. However, all people—not just employees, but also customers and visitors—who may be on the property at a single point in time, whether indoors or outside, must be counted. The only exceptions are for rare special events, such as an air show at an airport, for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

Ideally, the actual number of people for which the facility is designed would be known. For example, the number of seats in a proposed movie theater can be determined with high accuracy once the theater size is decided. Other buildings, though, may be built as a shell and the eventual number of occupants not known until a specific tenant is found. Furthermore, even then, the number of occupants can change in the future as tenants change. Even greater uncertainty is involved with relatively open uses not having fixed seating—retail stores or sports parks, for example.

Absent clearly measurable occupancy numbers, other sources must be relied upon to estimate the number of people in a proposed development.

Survey of Similar Uses

A survey of similar uses already in existence is one option. Gathering data in this manner can be time-consuming and costly, however. Also, unless the survey sample is sufficiently large and conducted at various times, inconsistent numbers may result. Except for uncommon uses for which occupancy levels cannot be estimated through other means, surveys are most appropriate as supplemental information.

Maximum Occupancy

A second option for estimating the number of people who will be on a site is to rely upon data indicating the maximum occupancy of a building measured in terms of occupancy load factor—the number of square feet per occupant. The number of people on the site, assuming limited outdoor or peripheral uses, can be calculated by dividing the total floor area of a proposed use by the occupancy load factor. The challenge of this methodology lies in establishing realistic figures for square feet per occupant. The number varies greatly from one use to another and, for some uses, has changed over time as well.

A commonly used source of maximum occupancy data is the standards set in the California Building Code (CBC). The chart reproduced as Table C1 indicates the occupancy load factors for various types of uses. The CBC, though, is intended primarily for purposes of structural design and fire safety and represents a legal maximum occupancy in most jurisdictions. A CBC-based methodology consequently results in occupancy numbers that are higher than normal maximum usage in most instances. The numbers also are based upon usable floor area and do not take into account corridors, stairs, building equipment rooms, and other functions that are part of a building's gross square footage. Surveys of actual occupancy load factors conducted by various agencies have indicated that many retail and office uses are generally occupied at no more than 50% of their maximum occupancy levels, even at the busiest times of day. Therefore, the *Handbook* indicates that the number of people calculated for office and retail uses can usually be divided in half to reflect the actual occupancy levels before making the final people-per-acre determination. Even with this adjustment, the CBC-based methodology typically produces intensities at the high end of the likely range.

Another source of data on square footage per occupant comes from the facility management industry. The data is used to help businesses determine how much building space they need to build or lease and thus tends to be more generous than the CBC standards. The numbers vary not only by the type of facility, as with the CBC, but also by type of industry. The following are selected examples of square footage per *employee* gathered from a variety of sources.

- Call centers 150 – 175
- Typical offices 180 – 250
- Law, finance, real estate offices 300 – 325
- Research & development, light industry 300 – 500
- Health services 500

The numbers above do not take into account the customers who may also be present for certain uses. For retail business, dining establishments, theaters, and other uses where customers outnumber employees, either direct measures of occupancy—the number of seats, for example—or other methodologies must be used to estimate the potential number of people on the site.

Parking Space Requirements

For many jurisdictions and a wide variety of uses, the number of people present on a site can be calculated based upon the number of automobile parking spaces that are required. Certain limitations and assumptions must be considered when applying this methodology, however. An obvious limitation is that parking space requirements can be correlated with occupancy numbers only where nearly all users arrive by private vehicle rather than by public transportation, walking, or other method. Secondly, the jurisdiction needs to have a well-defined parking ordinance that lists parking space requirements for a wide range of land uses. For most uses, these requirements are typically stated in terms of the number of parking spaces that must be provided per 1,000 square feet of gross building size or a similar ratio. Lastly, assumptions must be made with regard to the average number of people who will arrive in each car.

Both of the critical ratios associated with this methodology—parking spaces to building size and occupants to vehicles—vary from one jurisdiction to another even for the same types of uses. Research of local ordinances and other sources, though, indicates that the following ratios are typical.

▸**Parking Space Ratios**—These examples of required parking space requirements are typical of those found in ordinances adopted by urban and suburban jurisdictions. The numbers are ratios of spaces required per 1,000 square feet of gross floor area. Gross floor area is normally measured to the outside surfaces of a building and includes all floor levels as well as stairways, elevators, storage, and mechanical rooms.

› Small Restaurants	10.0
› Medical Offices	4.0 – 5.7
› Shopping Centers	4.0 – 5.0
› Health Clubs	3.3 – 5.0
› Business Professional Offices	3.3 – 4.0
› Retail Stores	3.0 – 3.5
› Research & Development	2.5 – 4.0
› Manufacturing	2.0 – 2.5
› Furniture, Building Supply Stores	0.7 – 1.0

▸**Vehicle Occupancy**—Data indicating the average number of people occupying each vehicle parking at a particular business or other land use can be found in various transportation surveys. The numbers vary both from one community or region to another and over time, thus current local data is best if available. The following data represent typical vehicle occupancy for different trip purposes.

› Work	1.05 – 1.2
› Education	1.2 – 2.0
› Medical	1.5 – 1.7
› Shopping	1.5 – 1.8
› Dining, Social, Recreational	1.7 – 2.3

USAGE INTENSITY RELATIONSHIP TO OTHER DEVELOPMENT MEASURES

Calculating Usage Intensities

Once the number of people expected in a particular development—both over the entire site and within individual buildings—has been estimated, the usage intensity can be calculated. The criteria in Chapter 3 of this *Compatibility Plan* are measured in terms of the average intensity over the entire project site.

The average intensity is calculated by dividing the total number of people on the site by the site size. A 10-acre site expected to be occupied by as many as 1,000 people at a time, thus would have an average intensity of 100 people per acre. The site size equals the total size of the parcel or parcels to be developed.

Having calculated the usage intensities of a proposed development, a comparison can be made with the criteria set forth in the *Compatibility Plan* to determine whether the proposal is consistent or inconsistent with the policies.

Comparison with Floor Area Ratio

As noted earlier, usage intensity or people per acre is not a common metric in land use planning. Floor area ratio or FAR—the gross square footage of the buildings on a site divided by the site size—is a more common measure in land use planning. Some counties and cities adopt explicit FAR limits in their zoning ordinance or other policies. Those that do not set FAR limits often have other requirements such as, a maximum number of floors a building can have, minimum setback distances from the property line, and minimum number of parking spaces. These requirements effectively limit the floor area ratio as well.

To utilize FAR as the means of determining concentrations of people, a critical additional piece of information is necessary to overcome the major shortcoming of FAR. The problem with FAR is that it does not directly correlate with risks to people because different types of buildings with the same FAR can have vastly different numbers of people inside—a low-intensity warehouse versus a high-intensity restaurant, for example. For FAR to be applied as a factor in setting development limitations, assumptions must be made as to how much space each person (employees and others) in the building will occupy. The Safety Compatibility Criteria table therefore indicates the assumed occupancy load factor for various land uses. Mathematically, the relationship between usage intensity and FAR is:

$$\text{FAR} = \frac{\text{(allowable usage intensity) x (occupancy load factor)}}{43{,}560}$$

where *usage intensity* is measured in terms of people per acre and *occupancy load factor* as square feet per person.

Comparison with Parking Space Requirements

As discussed above, many jurisdictions have adopted parking space requirements that vary from one land use type to another. Factoring in an estimated vehicle occupancy rate for various land uses as described earlier, the occupancy load factor can be calculated. For example, a typical parking space requirement for office uses is 4.0 spaces per 1,000 square feet or 1 space per 250 square feet. If each vehicle is assumed to be occupied by 1.1 persons, the equivalent occupancy load factor would be 1 person

per 227 square feet. This number falls squarely within the range noted above that was found through separate research of norms used by the facility management industry.

As an added note, the occupancy load factor of 215 square feet per person indicated in the Safety Compatibility Criteria table for office uses is slightly more conservative than the above calculation produces. This means that, for a given usage intensity standard, the FAR limit in the table is slightly more restrictive than would result from a higher occupancy load factor.

	Use	*Minimum Square Feet per Occupant*
1.	Aircraft Hangars (no repair)	500
2.	Auction Rooms	7
3.	Assembly Areas, Concentrated Use (without fixed seats)	7
	Auditoriums	
	Churches and Chapels	
	Dance Floors	
	Lobby Accessory to Assembly Occupancy	
	Lodge Rooms	
	Reviewing Stands	
	Stadiums	
	Waiting Areas	3
4.	Assembly Areas, Less Concentrated Use	15
	Conference Rooms	
	Dining Rooms	
	Drinking Establishments	
	Exhibit Rooms	
	Gymnasiums	
	Lounges	
	Stages	
	Gaming	11
5.	Bowling Alley (assume no occupant load for bowling lanes)	4
6.	Children's Homes and Homes for the Aged	80
7.	Classrooms	20
8.	Congregate Residences	200
9.	Courtrooms	40
10.	Dormitories	50
11.	Dwellings	300
12.	Exercising Rooms	50
13.	Garage, Parking	200
14.	Health-Care Facilities	80
	Sleeping Rooms	120
	Treatment Rooms	240
15.	Hotels and Apartments	200
16.	Kitchen – Commercial	200
17.	Library Reading Room	50
	Stack Areas	100
18.	Locker Rooms	50
19.	Malls	Varies
20.	Manufacturing Areas	200
21.	Mechanical Equipment Room	300
22.	Nurseries for Children (Daycare)	35
23.	Offices	100
24.	School Shops and Vocational Rooms	50
25.	Skating Rinks	50 on the skating area; 15 on the deck
26.	Storage and Stock Rooms	300
27.	Stores – Retail Sales Rooms	
	Basements and Ground Floors	30
	Upper Floors	60
28.	Swimming Pools	50 for the pool area; 15 on the deck
29.	Warehouses	500
30.	All Others	100

Source: California Building Code (2001), Table 10-A

Table C1

Occupant Load Factors

California Building Code

APPENDIX D

General Plan Consistency Checklist

This checklist is intended to assist local agencies with modifications necessary to make their local plans and other local policies consistent with the ALUCP. It is also designed to facilitate ALUC reviews of these local plans and policies. The list will need to be modified to reflect the policies of each individual ALUC and is not intended as a state requirement.

COMPATIBILITY CRITERIA

General Plan Document

The following items typically appear directly in a general plan document. Amendment of the general plan will be required if there are any conflicts with the ALUCP.

- **Land Use Map**—No direct conflicts should exist between proposed new land uses indicated on a general plan land use map and the ALUC land use compatibility criteria.
  - Residential densities (dwelling units per acre) should not exceed the set limits.
  - Proposed nonresidential development needs to be assessed with respect to applicable intensity limits (see below).
  - No new land uses of a type listed as specifically prohibited should be shown within affected areas.
- **Noise Element**—General plan noise elements typically include criteria indicating the maximum noise exposure for which residential development is normally acceptable. This limit must be made consistent with the equivalent ALUCP criteria. Note, however, that a general plan may establish a different limit with respect to aviation-related noise than for noise from other sources (this may be appropriate in that aviation-related noise is sometimes judged to be more objectionable than other types of equally loud noises).

Zoning or Other Policy Documents

The following items need to be reflected either in the general plan or in a separate policy document such as a combining zone ordinance. If a separate policy document is adopted, modification of the general plan to achieve consistency with the ALUCP may not be required. Modifications would normally be needed only to eliminate any conflicting language which may be present and to make reference to the separate policy document

- **Intensity Limitations on Nonresidential Uses**—ALUCPs may establish limits on the usage intensities of commercial, industrial, and other nonresidential land uses. This can be done by duplication of the performance-oriented criteria—specifically, the number of people per acre—indicated in the ALUCP. Alternatively, ALUCs may create a detailed list of land uses which are allowable and/or not allowable within each compatibility zone. For certain land uses, such a list may need to include limits on building sizes, floor area ratios, habitable floors, and/or other design parameters which are equivalent to the usage intensity criteria.
- **Identification of Prohibited Uses**—ALUCPs may prohibit schools, day care centers, assisted living centers, hospitals, and other uses within a majority of an airport's influence area. The facilities often are permitted or conditionally permitted uses within many commercial or industrial land use designations.
- **Open Land Requirements**—ALUCP requirements, if any, for assuring that a minimum amount of open land is preserved in the airport vicinity must be reflected in local policies. Normally, the locations which are intended to be maintained as open land would be identified on a map with the total acreage within each compatibility zone indicated. If some of the area included as open land is private property, then policies must be established which assure that the open land will continue to exist as the property develops. Policies specifying the required characteristics of eligible open land should also be established
- **Infill Development**—If an ALUCP contains infill policies and a jurisdiction wishes to take advantage of them, the lands that meet the qualifications must be shown on a map.

Zoning or Other Policy Documents, Continued

- **Height Limitations and Other Hazards to Flight**—To protect the airport airspace, limitations must be set on the height of structures and other objects near airports. These limitations are to be based upon FAR Part 77. Restrictions also must be established on other land use characteristics which can cause hazards to flight (specifically, visual or electronic interference with navigation and uses which attract birds). Note that many jurisdictions have already adopted an airport-related hazard and height limit zoning ordinance which, if up to date, will satisfy this consistency requirement.
- **Buyer Awareness Measures**—Besides disclosure rules already required by state law, as a condition for approval of development within certain compatibility zones, some ALUCPs require either dedication of an avigation easement to the airport proprietor or placement on deeds of a notice regarding airport impacts. If so, local agency policies must contain similar requirements.
- **Nonconforming Uses and Reconstruction**—Local agency policies regarding nonconforming uses and reconstruction must be equivalent to or more restrictive than those in the ALUCP, if any.

REVIEW PROCEDURES

In addition to incorporation of ALUC compatibility criteria, local agency implementing documents must specify the manner in which development proposals will be reviewed for consistency with the compatibility criteria.

- **Actions Always Required to be Submitted for ALUC Review**—PUC Section 21676 identifies the types of actions that must be submitted for airport land use commission review. Local policies should either list these actions or, at a minimum, note the local agency's intent to comply with the state statute.
- **Other Land Use Actions Potentially Subject to ALUC Review**—In addition to the above actions, ALUCPs may identify certain major land use actions for which referral to the ALUC is dependent upon agreement between the local agency and ALUC. If the local agency fully complies with all of the items in this general plan consistency check list or has taken the necessary steps to overrule the ALUC, then referral of the additional actions is voluntary. On the other hand, a local agency may elect not to incorporate all of the necessary compatibility criteria and review procedures into its own policies. In this case, referral of major land use actions to the ALUC is mandatory. Local policies should indicate the local agency's intentions in this regard.
- **Process for Compatibility Reviews by Local Jurisdictions**—If a local agency chooses to submit only the mandatory actions for ALUC review, then it must establish a policy indicating the procedures which will be used to assure that airport compatibility criteria are addressed during review of other projects. Possibilities include: a standard review procedure checklist which includes reference to compatibility criteria; use of a geographic information system to identify all parcels within the airport influence area; etc.
- **Variance Procedures**—Local procedures for granting of variances to the zoning ordinance must make certain that any such variances do not result in a conflict with the compatibility criteria. Any variance that involves issues of noise, safety, airspace protection, or overflight compatibility as addressed in the ALUCP must be referred to the ALUC for review.
- **Enforcement**—Policies must be established to assure compliance with compatibility criteria during the lifetime of the development. Enforcement procedures are especially necessary with regard to limitations on usage intensities and the heights of trees. An airport combining district zoning ordinance is one means of implementing enforcement requirements.

Source: California Airport Land Use Planning Handbook (October 2011)

APPENDIX E

Sample Implementation Documents

The responsibility for implementation of the compatibility criteria set forth in the *Cable Airport Land Use Compatibility Plan* rests largely with the City of Upland, acting in its lead role for compatibility planning around the airport. As described in Appendix D, modification of general plans and specific plans for consistency with applicable compatibility plans is the major step in this process. However, not all of the measures necessary for achievement of airport land use compatibility are necessarily included in general plans and specific plans. Other types of documents also serve to implement the *Compatibility Plan* policies. Samples of such implementation documents are included in this appendix.

Airport Combining Zone Ordinance

As noted in Chapter 1 of this document, one option that the affected local jurisdictions can utilize to implement airport land use compatibility criteria and associated policies is adoption of an airport combining zone ordinance. An airport combining zone ordinance is a way of collecting various airport-related development conditions into one local policy document. Adoption of a combining zone is not required, but is suggested as an option. Table E1 describes some of the potential components of an airport combining zone ordinance.

Buyer Awareness Measures

Buyer awareness is an umbrella category for several types of implementation documents all of which have the objective of ensuring that prospective buyers of airport area property, particularly residential property, are informed about the airport's impact on the property. The *Cable Airport Land Use Compatibility Plan* policies include each of these measures.

- **Avigation Easement**—Avigation easements transfer certain property rights from the owner of the underlying property to the owner of an airport or, in the case of military airports, to a local government agency on behalf of the federal government (the U.S. Department of Defense is not authorized to accept avigation easements). This *Compatibility Plan* requires avigation easement dedication as a condition for approval of development on property subject to high noise levels or a need to restrict heights of structures and trees to less than might ordinarily occur on the property. Specific easement dedication requirements are set forth in Chapter 2. Also, airports may require avigation easements in conjunction with programs for noise insulation of existing structures in the airport vicinity. A sample of a standard avigation easement is included in Table E2.
- **Recorded Overflight Notification**— A recorded overflight notification informs property owners that the property is subject to aircraft overflight and generation of noise and other impacts. No restrictions on the heights of objects, requirements for marking or lighting of objects, or access to the property for these purposes are included. An overflight notification serves only as buyer acceptance of overflight conditions. Suggested wording of an overflight notification is included in Table E3. Unlike an avigation easement, overflight easement, or other type of easement, an overflight notification is not a conveyance of property rights. However, like an easement, an overflight notification is recorded on the property deed and therefore remains in effect with sale of the property to subsequent owners. Overflight notifications are generally appropriate in areas outside the 60 dB CNEL noise contour, outside Safety Zones, and within areas where the height of structures and other objects would not pose a significant potential of being airspace obstruction hazards.

- **Airport Proximity Disclosure**—A less definitive, but more all-encompassing, form of buyer awareness measure is for an ALUC and local jurisdictions to establish a policy indicating that information about and airport's influence area should be disclosed to prospective buyers of all airport-vicinity properties prior to transfer of title. The advantage of this type of program is that it applies to previously existing land uses as well as to new development. The requirement for disclosure of information about the proximity of an airport has been present in state law for some time, but legislation adopted in 2002 and effective in January 2004 explicitly ties the requirement to the airport influence areas established by airport land use commissions (see Appendix A for excerpts from sections of the Business and Professions Code and Civil Code that define these requirements). With certain exceptions, these statutes require disclosure of a property's location within an airport influence area under any of the following three circumstances: (1) sale or lease of subdivided lands; (2) sale of common interest developments; and (3) sale of residential real property. In each case, the disclosure statement to be used is defined by state law as follows:

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

An airport compatibility combining zoning ordinance might include some or all of the following components:

- **Airspace Protection**—A combining district can establish restrictions on the height of buildings, antennas, trees, and other objects as necessary to protect the airspace needed for operation of the airport. These restrictions should be based upon the current version of the Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, Subpart C. Additions or adjustment to take into account instrument approach (TERPS) surfaces should be made as necessary. Provisions prohibiting smoke, glare, bird attractions, and other hazards to flight should also be included.
- **FAA Notification Requirements**—Combining districts also can be used to ensure that project developers are informed about the need for compliance with the notification requirements of FAR Part 77. Subpart B of the regulations requires that the proponent of any project which exceeds a specified set of height criteria submit a Notice of Proposed Construction or Alteration (Form 7460-1) to the Federal Aviation Administration prior to commencement of construction. The height criteria associated with this notification requirement are lower than those spelled out in Part 77, Subpart C, which define airspace obstructions. The purpose of the notification is to determine if the proposed construction would constitute a potential hazard or obstruction to flight. Notification is not required for proposed structures that would be shielded by existing structures or by natural terrain of equal or greater height, where it is obvious that the proposal would not adversely affect air safety.
- **State Regulation of Obstructions**—State law prohibits anyone from constructing or altering a structure or altering a structure or permitting an object of natural growth to exceed the heights established by FAR Part 77, Subpart C, unless the FAA has determined the object would or does not constitute a hazard to air navigation (Public Utilities Code, Section 21659). Additionally, a permit from the Department of Transportation is required for any structure taller than 500 feet above the ground unless the height is reviewed and approved by the Federal Communications Commission or the FAA (Section 21656).
- **Designation of High Noise-Impact Areas**—California state statutes require that multi-family residential structures in high-noise exposure areas be constructed so as to limit the interior noise to a Community Noise Equivalent Level of no more than 45 dB. A combining district could be used to indicate the locations where special construction techniques may be necessary in order to ensure compliance with this requirement. The combining district also could extend this criterion to single-family dwellings.
- **Maximum Densities/Intensities**—Airport noise and safety compatibility criteria are frequently expressed in terms of dwelling units per acre for residential uses and people per acre for other land uses. These standards can either be directly included in a combining zone or used to modify the underlying land use designations. For residential land uses, the correlation between the compatibility criteria and land use designations is direct. For other land uses, the method of calculating the intensity limitations needs to be defined. Alternatively, a matrix can be established indicating whether each specific type of land use is compatible with each compatibility zone. To be useful, the land use categories need to be more detailed than typically provided by general plan or zoning ordinance land use designations.
- **Open Areas for Emergency Landing of Aircraft**—In most circumstances in which an accident involving a small aircraft occurs near an airport, the aircraft is under control as it descends. When forced to make an off-airport emergency landing, pilots will usually attempt to do so in the most open areas readily available. To enhance safety both for people on the ground and the occupants of the aircraft, airport compatibility plans often contain criteria requiring a certain amount of open land near airports. These criteria are most effectively carried out by planning at the general or specific plan level, but may also need to be included in a combining district so that they will be applied to development of large parcels. Adequate open areas can often be provided by clustering of development on adjacent land.
- **Areas of Special Compatibility Concern**—A significant drawback of standard general plan and zoning ordinance land use designations is that they can be changed. Uses that are currently compatible are not assured of staying that way in the future. Designation of areas of special compatibility concern would serve as a reminder that airport impacts should be carefully considered in any decision to change the existing land use designation. [A legal consideration which supports the value of this concept is that down-zoning of a property to a less intensive use is becoming more difficult. It is much better not to have inappropriately up-zoned the property in the first place.]
- **Real Estate Disclosure Policies**—The geographic extent and specific language of recommended real estate disclosure statements can be described in an airport combining zone ordinance.

Source: California Airport Land Use Planning Handbook (January 2002)

Table E1

Sample Airport Combining Zone Components

Typical Avigation Easement

This indenture made this _____ day of _____, 20__, between _____ hereinafter referred to as Grantor, and Cable Land Company, a privately held company that owns and operates Cable Airport in the City of Upland, State of California, hereinafter referred to as Grantee.

The Grantor, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant to the Grantee, its successors and assigns, a perpetual and assignable easement over the following described parcel of land in which the Grantor holds a fee simple estate. The property which is subject to this easement is depicted as _____ on "Exhibit A" attached and is more particularly described as follows:

[Insert legal description of real property]

The easement applies to the Airspace above an imaginary plane over the real property. The plane is described as follows:

The imaginary plane above the hereinbefore described real property, as such plane is defined by Part 77 of the Federal Aviation Regulations, and consists of a plane [describe approach, transition, or horizontal surface]; the elevation of said plane being based upon the Cable Airport official runway end elevation of _____ feet Above Mean Sea Level (AMSL), as determined by [Insert Name and Date of Survey or Airport Layout Plan that determines the elevation] the approximate dimensions of which said plane are described and shown on Exhibit A attached hereto and incorporated herein by reference.

The aforesaid easement and right-of-way includes, but is not limited to:

(1) For the use and benefit of the public, the easement and continuing right to fly, or cause or permit the flight by any and all persons, or any aircraft, of any and all kinds now or hereafter known, in, through, across, or about any portion of the Airspace hereinabove described; and
(2) The easement and right to cause or create, or permit or allow to be caused and created within all space above the existing surface of the hereinabove described real property and any and all Airspace laterally adjacent to said real property, such noise, vibration, currents and other effects of air illumination and fuel consumption as may be inherent in, or may arise or occur from or during the operation of aircraft of any and all kinds, now or hereafter known or used, for navigation of or flight in air; and
(3) A continuing right to clear and keep clear from the Airspace any portions of buildings, structures or improvements of any kinds, and of trees or other objects, including the right to remove or demolish those portions of such buildings, structures, improvements, trees, or other things which extend into or above said Airspace, and the right to cut to the ground level and remove, any trees which extend into or above the Airspace; and
(4) The right to mark and light, or cause or require to be marked and lighted, as obstructions to air navigation, any and all buildings, structures or other improvements, and trees or other objects, which extend into or above the Airspace; and
(5) The right of ingress to, passage within, and egress from the hereinabove described real property, for the purposes described in subparagraphs (3) and (4) above at reasonable times and after reasonable notice.

Table E2

Typical Avigation Easement

For and on behalf of itself, its successors and assigns, the Grantor hereby covenants with the City of Upland, for the direct benefit of the real property constituting the Cable Airport hereinafter described, that neither the Grantor, nor its successors in interest or assigns will construct, install, erect, place or grow, in or upon the hereinabove described real property, nor will they permit or allow any building structure, improvement, tree, or other object to extend into or above the Airspace so as to constitute an obstruction to air navigation or to obstruct or interfere with the use of the easement and rights-of-way herein granted.

The easements and rights-of-way herein granted shall be deemed both appurtenant to and for the direct benefit of that real property which constitutes the Cable Airport, in the City of Upland, State of California; and shall further be deemed in gross, being conveyed to the Grantee for the benefit of [*for public-use airports:* the Grantee and any and all members of the general public] [*for military airports:* the United States Government] who may use said easement or right-of-way, in landing at, taking off from or operating such aircraft in or about the Cable Airport, or in otherwise flying through said Airspace.

Grantor, together with its successors in interest and assigns, hereby waives its right to legal action against Grantee, its successors or assigns for monetary damages or other redress due to impacts, as described in paragraph (2) of the granted rights of easement, associated with aircraft operations in the air or on the ground at the airport, including future increases in the volume or changes in location of said operations. Furthermore, Grantee, its successors, and assigns shall have no duty to avoid or mitigate such damages through physical modification of airport facilities or establishment or modification of aircraft operational procedures or restrictions. However, this waiver shall not apply if the airport role or character of its usage (as identified in an adopted airport master plan, for example) changes in a fundamental manner which could not reasonably have been anticipated at the time of the granting of this easement and which results in a substantial increase in the in the impacts associated with aircraft operations. Also, this grant of easement shall not operate to deprive the Grantor, its successors or assigns of any rights which may from time to time have against any air carrier or private operator for negligent or unlawful operation of aircraft.

These covenants and agreements run with the land and are binding upon the heirs, administrators, executors, successors and assigns of the Grantor, and, for the purpose of this instrument, the real property firstly hereinabove described is the servient tenement and said Cable Land Company is the dominant tenement.

DATED: _____ _____

_____

STATE OF }

ss

COUNTY OF }

On _____, before me, the undersigned, a Notary Public in and for said County and State personally appeared _____, and _____ known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

_____

Notary Public

Source: California Airport Land Use Planning Handbook (January 2002)

Table E2, continued

OVERFLIGHT NOTIFICATION

This *Overflight Notification* concerns the real property situated in the City of _____, State of California, described as _____ [APN No.: _____].

This *Overflight Notification* provides notification of the condition of the above described property in recognition of, and in compliance with, CALIFORNIA BUSINESS & PROFESSIONS CODE Section 11010 and CALIFORNIA CIVIL CODE Sections 1102.6, 1103.4 and 1353, effective January 1, 2004, and related state and local regulations and consistent with policies of the Alternative Process for the City of Upland for overflight notification provided in the Cable Airport Land Use Compatibility Plan.

NOTICE OF AIRPORT IN VICINITY

> This property is located in the vicinity of an airport and within the airport influence area. The property may be subject to some of the annoyances or inconveniences associated with proximity to an airport and aircraft operations (for example: noise, vibration, overflights or odors). Individual sensitivities to those annoyances can vary from person to person. You should consider what airport annoyances, if any, affect the Property before you complete your purchase and whether they are acceptable to you.

The Federal Aviation Administration (FAA) has regulatory authority over the operation of aircraft in flight and on the runway and taxiway surfaces at Cable Airport. The FAA is, therefore, exclusively responsible for airspace and air traffic management, including ensuring the safe and efficient use of navigable airspace, developing air traffic rules, assigning the use of airspace and controlling air traffic. Please contact the FAA for more detailed information regarding overflight and airspace protection issues associated with the operation of military aircraft.

Cable Airport maintains information regarding hours of operation and other relevant information regarding airport operations. Please contact your local airport operator for more detailed information regarding airport specific operational issues including hours of operation.

This *Overflight Notification* shall run with the Property and shall be binding upon all parties having or acquiring any right, title or interest in the Property.

Effective Date:_____, 20__

Table E3

Sample Overflight Notification

APPENDIX F

Cable Airport Documents

RESOLUTION NO. 1776

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF UPLAND RECOMMENDING TO THE CITY COUNCIL OF THE AFORESAID CITY THAT MODIFICATION NO. 1 TO CONDITIONAL USE PERMIT NO. CUP-131 BE APPROVED.

WHEREAS, Cable Airport, 13th Street and Benson Avenue and the City of Upland, 460 N. Euclid Avenue, Upland, California 91786, jointly filed with the City of Upland a request for Modification of existing Conditional Use Permit No. CUP-131, to consider the adoption of a "Master Plan for development of Cable Airport" formalizing the classification of said Airport as a "Basic Utility - Stage II" Airport, in the "AVR" (Aviation Runway), "MAV" (Airport Industrial), "CA" (Commercial Aviation) and "OS" (Open Space) Zones, on the following described property:

All those portions of the Southeast one quarter of Section 2 and the Southwest one quarter of Section 2, all in Township 1 South, Range 8 West, San Bernardino Meridian, in the County of San Bernardino, State of California, according to the official plat thereof described as follows:

Beginning at the Northwest corner of said Southeast one quarter of Section 2; thence South 150 ft. along the West line of said Southeast one quarter; thence East 150 ft. parallel with the North line of said Southeast one quarter; thence Course A Southwesterly 532 ft. more or less to the Southeast corner of the North one half of the Northeast one quarter of said Southwest one quarter; thence Southwesterly 535 ft. more or less to a point which is 1,140 ft. southerly and 200 ft. westerly of said Northwest corner of the Southeast one quarter of Section 2; thence Southwesterly 1,190 ft. more or less to a point on the West line of the East one half of said Southwest one quarter which is 1,556 ft. southerly of the North line of said Southwest one quarter; thence southerly along said West line of the East one-half of the Southwest one quarter to a line which is parallel with and 700 ft. North of the South line of said Section 2; thence East along the last-mentioned parallel line to the Southwest corner of the land described in the deed to John V. Meyers recorded Oct. 22, 1952, in Book 3041, Page 342 of Official Records in the Office of the County Recorder of said County; thence North along the West line of said Meyers land and the West line of the land described in the deed to Robley C. Brown et ux., recorded Oct. 22, 1952, in Book 3041, Page 349 of Official Records in the Office of the County Recorder of said County to an angle point therein; thence Northeasterly along the Northwest line of said Meyers land and the Northwesterly line of the land described in the deed to Ray J. Gaudey, et ux., recorded Oct. 22, 1952, in Book 3041, Page 346 of Official Records in the Office of the County Recorder of said County to the Northwesterly corner of said Gaudey land; thence East along the North line of said Gaudey land to the East line of the Southwest one quarter of said Section 2; thence North along said East line to the Northwest corner of the South one hlaf of the Southeast one quarter of said Section; thence East along the North line of said South one-half of the Southeast one quarter of Section 2 to a point which is 633 ft. westerly of the Northeast corner thereof; thence North to the westerly prolongation of the South line of the land described in the deed to the City of Upland recorded Dec. 13, 1950 in Book 2687, Page 373 of Official Records in the office of the County Recorder of said County; thence East along the last-mentioned westerly prolongation to the Southwest corner of said City of Upland land; thence North along the West line thereof to the Northwest corner of the land described in the deed to the City of Upland recorded March 21, 1955 in Book 3596, Page 203 of Official Records in the Office of the County Recorder of said County; thence East along

The North line of the last-mentioned City of Upland land to a line which is parallel with and 33 ft. West of the East line of said Section; thence North along said line which is parallel with the 33 ft. westerly, measured at right angles to the East line of said Section to a line which is 253 ft. southerly measured at right angles to the North line of said Southeast one quarter; thence West 792 ft. parallel with said North line of the Southeast one quarter of Section 2; thence North 253 ft. parallel with the East line of said Section to the North line of said Southeast one quarter; thence West 1,812.4 ft. more or less to the Point of Beginning.

Except that portion thereof lying westerly of the northerly prolongation of the above-described Course "A" as extended to the North line of said Southeast one quarter of Section 2.

More generally described as "Cable Airport": an irregularly-shaped area of about 105 acres, located at the Northwest corner of 13th Street and Benson Avenue, having a frontage of about 1,200 ft. on the West side of Benson Avenue, extending between 13th and 14th Streets, and having a maximum depth of about 3,920 ft. extending westerly therefrom; the South property line of said area being located about 350 ft. North of the Centerline of Foothill Blvd.; and

WHEREAS, notice of public hearing on said petition was given in the manner and for time required by law; and

WHEREAS, at the time set, to wit: at 6:00 p.m., on the 27th day of August 1981, in the Council Chambers of the City of Upland, said petition and oral and written testimony pertaining thereto were heard by the Planning Commission of the City of Upland; and

WHEREAS hearing of said petition was continued by said Commission to their regula meeting of 24 September 1981 in order to coincide determination with the expiratic date for receipt of comments from responsible agencies pertaining to potential environmental effects of the proposal; and

WHEREAS, said hearing was subsequently conducted at the prescribed time and place and, said Commission, after due consideration of oral and written testimony, did determine to continue said hearing to their next regular meeting of 22 October 1981, for purposes of providing staff with time to conduct additional research pertaining to certain legal aspects of the proposal and/or suggested conditions for approval pertaining thereto; and

WHEREAS, at the time and place set, to wit: at 6:00 p.m., on the 22nd day of October 1981, in the Council Chambers of the City of Upland, said petition and oral and written testimony pertaining thereto were considered by said Commission.

NOW, THEREFORE, the Planning Commission of the City of Upland does hereby make the following FINDINGS and RECOMMENDATION:

I. FINDINGS:

It was determined that:

1. A private general aviation airport at the location set forth in the application is properly one for which a Conditional Use Permit is authorized by the Upland Municipal Code.

2. That the development of a Master Plan for such airport is necessary or desirable for the development of the community, is not contrary to the objectives of the General Plan, and is not detrimental to existing uses or to uses specifically permitted in the zone in which the proposed use is to be located.

I. FINDINGS (continued):

3. That the site for the intended use is adequate in size and shape to accommodate a Stage II - Basic Utility Airport having a primary runway length not to exceed 3600 ft., and all of the yards, setbacks, walls or fences, landscaping and other features required in order to adjust said use to those existing or possible future uses on adjoining land in the neighborhood subject to purchase, lease or easement of lands westerly of the primary runway for Clear Zone purposes.

4. That the site for the proposed use relates to streets and highways properly designed and improved so as to carry the type and quantity of traffic generated or to be generated by the proposed use.

II. RECOMMENDATION: That Modification No. 1 of Conditional Use Permit No. CUP-131 be approved subject to all applicable requirements of Part IV Zoning of Article IX of the Upland Municipal Code, including, but not limited to, the following:

1. Any new construction of buildings and/or structures or substantial modification of existing facilities, shall be subject to review and approval by the City of Upland Administrative Committee and Architectural Commission, in conformance with all procedures and requirements for Site Plan review prior to the issuance of Building Permits for any such improvement.

2. All proposed development shall be in substantial compliance with the adopted Master Plan. Any substantial deviation from the adopted Master Plan shall be subject to review and approval of the Planning Commission in accordance with all procedures and requirements for modifications to Conditional Use Permits.

3. Appropriate dedication and improvement of 13th Street West of Benson Avenue to intersect with Foothill Blvd. in accordance with Precise Plans then pertaining for same, shall be required at such time as area development warrants the provision of such improvement.

4. Public sewer services shall be provided to appropriate airport facilities at such time as the necessity and feasibility for such services may require (i.e., new construction of major generators of commercial and/or industrial sewage).

5. The airport operator shall continue to implement and enforce the Cable Airport noise abatement plan designed to mitigate adverse expansion of the 1978 annual 65 dBA CNEL contours as depicted in the Master Plan.

The City shall require any new construction within the 1990 annual 65 dBA CNEL contours, as depicted in said Master Plan, to conform to the then stated criteria for acceptable sound levels as set forth in the Uniform Building Code then pertaining to the class of building occupancy intended.

The airport operator shall at all times do all things within its power and reasonably necessary on its part to be performed to keep the noise generated by airplanes using the airport within the 1978 annual 65 dBA CNEL contour. The City shall refer any infraction of said noise levels to the airport operator and said operator shall make a full written report of the reason for said infraction or infractions and the actions taken by the airport operator in limiting these infractions in the future. Failure of the airport operator to reasonably comply with the terms of this condition shall be considered a violation of the conditions of this conditional use permit.

II. RECOMMENDATION (continued):

6. No building or structure shall be constructed in violation of the provisions of FAA Part 77 or in violation of Federal or State regulations pertaining to design standards for Basic Utility - Stage II airports. Notice of Construction of any proposed building or structure shall be completed in compliance with FAA procedures and requirements.

7. To the extent permitted by law, Cable Airport shall attempt, in good faith, to secure in perpetuity the avigation rights to the lands identified as the projected "Clear Zones" extending West of the West end of the primary runway. If Cable Airport cannot secure such avigation rights by December 30, 1982, Cable Airport and the City of Upland will cooperate to secure said avigation rights.

   All reasonable financial costs incurred by the City in the acquisition of said avigation rights shall be reimbursed to the City by Cable Airport, including reasonable attorney fees.

   The airport operator shall secure an amended airport permit from the Division of Aeronautics, State Department of Transportation reflecting the approval by said Division to the acquisition of such property for airport expansion purposes (Ref.: P.U.C. Section 21664).

8. The airport operator and/or the Federal Aviation Administration is responsible for the installation, maintenance and enhancement of airport instruments and/or systems required for the safety of the airport.

9. At such times as operational levels are estimated to exceed 200,000 annual operations, or, other such time as the FAA may determine to be appropriate, consideration shall be given to the installation of a Control Tower in order to enhance the safety of the airport and it's environs.

I HEREBY CERTIFY that the foregoing Resolution was duly and regularly passed and adopted by the Planning Commission of the City of Upland at a regular meeting thereof held on the 22nd day of October 1981, by the following roll call vote:

AYES: Commissioners Harris, Houston, Kamansky, Meyer, Sloman, Zinda

NOES: None ABSENT: Commissioner Bert

John Zinda, CHAIRMAN

ATTEST:

G. W. Young, SECRETARY

RESOLUTION NO. 4697

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF UPLAND, CALIFORNIA IDENTIFYING AND TRANSMITTING THE PROPOSED AIRPORT LAND USE PROCEDURES FOR THE CITY OF UPLAND TO THE CALIFORNIA DEPARTMENT OF TRANSPORTATION.

A. Recitals.

(i) The City Council of the City of Upland, California has previously determined that suitable land use planning for local airports within the County of San Bernardino is available at the local agency level. In furtherance of the determination and so as to conform to the requirements set forth in Section 21670.1 of the California Public Utilities Code, this City Council has identified the following processes for submittal to the Department of Transportation, Division of Aeronautics for its approval. Upon approval, the same will be adopted and thereafter applied within the City

(ii) All legal prerequisites to the adoption of this Resolution have occurred.

B. Resolution.

NOW, THEREFORE, be it found, determined and resolved as follows:

1. In all respects as set forth in the Recitals, Part A, of this Resolution, which sections are hereby incorporated by reference

2. The Comprehensive Airport Land Use Plan (PLAN) previously prepared by the County of San Bernardino, as applicable to Cable Airport located within the jurisdiction of the City of Upland, is hereby adopted as the Comprehensive Airport Land Use Plan for the City of Upland. The PLAN is specifically identified as Cable Airport Comprehensive Land Use Plan as adopted by San Bernardino County West Valley Airport Land Use Commission on December 9, 1981 and is hereby incorporated by reference. The City Clerk is directed to maintain a true and correct copy of such PLAN in the official records of the City of Upland

3. The Planning Commission of the City of Upland, California, is hereby designated as the agency responsible for the further preparation, adoption and amendment of the City of Upland's PLAN, subject to appeal of the Planning Commission decision to the City Council in a manner consistent with the procedures established in Section 9403.205 of the Municipal Code, which is hereby incorporated by reference

4. The Planning Commission shall apply the procedures and findings set forth in Sections 9403.200.020 and 9403.203.020 of the Upland Municipal Code in regards to all processes relating to a request for an implementation/land use compatibility decision, preparation, adoption and amendment to the PLAN of the City of Upland.

5. Section 9403.202 of the Upland Municipal Code shall apply to, and shall regulate the notifications of the general public, landowners, interested groups and other public agencies regarding a request for an implementation/land use compatibility decision, further and future preparation, adoption or amendment of the PLAN.

6. Sections 9403.202.020.021 and 9403.203 of the Upland Municipal Code shall continue to regulate the amendment of the General Plan and specific plans adopted by the City of Upland.

7. The Director of Community Development is hereby directed to transmit this Resolution to the California Department of Transportation, Division of Aeronautics and to undertake all necessary actions to obtain approval of the above-discussed processes, all as required by Section 21670.1 of the California Public Utilities Code.

8. The City Clerk is hereby directed to attest to the adoption of this Resolution.

ADOPTED AND APPROVED this 8th day of April, 1996.

Robert R. Nolan
Mayor

I, SHERYL SCHROEDER, City Clerk of the City Council of the City of Upland, to do hereby certify that the foregoing Resolution was introduced at a regular meeting of the City Council of the City of Upland held on the 8th day of April, 1996, and was finally passed at a regular meeting of the City Council of the City of Upland held on the 8th day of April, 1996, by the following vote:

AYES: Mayor Nolan, Councilmembers Horton, McDonough, Stevens and Thomas

NOES: None

ABSENT: None

ABSTAINED: None

ATTEST: Deborah A. Tucker
Deputy City Clerk of the City of Upland

APPROVED AS TO FORM:

By: James T. Markman
Jim Markman, City Attorney

STATE OF CALIFORNIA--BUSINESS, TRANSPORTATON AND HOUSING AGENCY PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
AERONAUTICS PROGRAM M.S. #40
1130 K STREET - 4TH FLOOR
P.O. BOX 942873
SACRAMENTO, CA 94273-0001
(916) 322-3090
TDD (916) 654-4014
FAX (916) 327-9093

San Bernardino County ALUC
Alternative Process

September 6, 1996

Mr. John Atwater, Senior Planner
City of Upland
Community Development Department
P.O. Box 460
Upland, CA 91786

Dear Mr. Atwater:

Establishment of Airport Land Use Review Procedure for the City of Upland in Accordance with the Alternative Process

The California Department of Transportation, Aeronautics Program, has reviewed the adopted Resolution No. 4697 which establishes an airport land use review procedure for the City of Upland in accordance with Public Utilities Code (PUC) Section 21670.1 (c)(1) and (2). We have also reviewed the Cable Airport Comprehensive Land Use Plan (CLUP) since it will be the City's guide for the issues pertaining to land use compatibility with airport operations. In accordance with PUC Section 21670.1 (c)(3), the Aeronautics Program of the Department approves the basic process outlined with some reservations regarding the Cable CLUP. We suggest that the Cable CLUP be updated to better reflect the criteria and designations contained within the 1993 Airport Land Use Planning Handbook and as required by PUC Section 21674.7. We also note that the 1977 forecasts reflected in the Cable CLUP are out-of-date. The numbers contained in the CLUP should project a twenty-year forecast based upon a master plan or an Airport Layout Plan approved by the Aeronautics Program [refer to PUC Section 21675(a)]. Thus, our approval is "conditional" on the City of Upland's commitment to update the Cable CLUP at such time as is possible. The Aeronautics Program offers grants through its Capital Improvement Program to Airport Land Use Commissions (ALUCs) for the preparation and/or update of CLUPs. We have recently submitted a proposal to amend the statutes in order to allow the ALUC "alternative process" counties to also be eligible for the funds.

Should you have any questions regarding these matters, please contact Christa-Maria Engle at (916) 322-9961.

Sincerely,

MARLIN BECKWITH, Program Manager
Aeronautics Program

bcc: CMEngle
CME:tc C:\Engle\Atwater.Sep

APPENDIX G

Glossary of Terms

Above Ground Level (AGL): An elevation datum given in feet above ground level.

Accident Potential Zones (APZs): A set of safety-related zones defined by AICUZ studies for areas beyond the ends of military airport runways. Typically, three types of zones are established: a clear zone closest to the runway end, then APZ I and APZ II. The potential for aircraft accidents and the corresponding need for land use restrictions is greatest with the clear zone and diminishes with increased distance from the runway.

Air Carriers: The commercial system of air transportation, consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Air Installation Compatible Use Zones (AICUZ): A land use compatible plan prepared by the U.S. Department of Defense for military airfields. AICUZ plans serve as recommendations to local governments bodies having jurisdiction over land uses surrounding these facilities.

Aircraft Accident: An occurrence incident to flight in which, as a result of the operation of an aircraft, a person (occupant or nonoccupant) receives fatal or serious injury or an aircraft receives substantial damage.

- Except as provided below, *substantial damage* means damage or structural failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and that would normally require major repair or replacement of the affected component.
- Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered substantial damage.

Aircraft Incident: A mishap associated with the operation of an aircraft in which neither fatal or serious injuries nor substantial damage to the aircraft occur.

Aircraft Mishap: The collective term for an aircraft accident or an incident.

Aircraft Operation: The airborne movement of aircraft at an airport or about an en route fix or at other point where counts can be made. There are two types of operations: local and itinerant. An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations. (FAA Stats)

Airport: An area of land or water that is used or intended to be used for the landing and taking off of aircraft, and includes its buildings and facilities if any. (FAR 1)

Airport Elevation: The highest point of an airport's useable runways, measured in feet above mean sea level. (AIM)

Airport Land Use Commission (ALUC): A commission authorized under the provisions of California Public Utilities Code, Section 21670 et seq. and established (in any county within which a public-use airport is located) for the purpose of promoting compatibility between airports and the land uses surrounding them.

Airport Layout Plan (ALP): A scale drawing of existing and proposed airport facilities, their location on an airport, and the pertinent clearance and dimensional information required to demonstrate conformance with applicable standards.

Airport Master Plan (AMP): A long-range plan for development of an airport, including descriptions of the data and analyses on which the plan is based.

Airport Reference Code (ARC): A coding system used to relate airport design criteria to the operation and physical characteristics of the airplanes intended to operate at an airport. (Airport Design AC)

Airports, Classes of: For the purposes of issuing a Site Approval Permit, The California Department of Transportation, Division of Aeronautics classifies airports into the following categories: (CCR)

- *Agricultural Airport or Heliport:* An airport restricted to use only be agricultural aerial applicator aircraft (FAR Part 137 operators).
- *Emergency Medical Services (EMS) Landing Site:* A site used for the landing and taking off of EMS helicopters that is located at or as near as practical to a medical emergency or at or near an medical facility and
  - (1) has been designated an EMS landing site by an officer authorized by a public safety agency, as defined in PUC Section 21662.1, using criteria that the public safety agency has determined is reasonable and prudent for the safe operation of EMS helicopters and
  - (2) is used, over any twelve month period, for no more than an average of six landings per month with a patient or patients on the helicopter, except to allow for adequate medical response to a mass casualty event even if that response causes the site to be used beyond these limits, and
  - (3) is not marked as a permitted heliport as described in Section 3554 of these regulations and
  - (4) is used only for emergency medical purposes.
- *Heliport on Offshore Oil Platform:* A heliport located on a structure in the ocean, not connected to the shore by pier, bridge, wharf, dock or breakwater, used in the support of petroleum exploration or production.
- *Personal-Use Airport:* An airport limited to the non-commercial use of an individual owner or family and occasional invited guests.
- *Public-Use Airport:* An airport that is open for aircraft operations to the general public and is listed in the current edition of the *Airport/Facility Directory* that is published by the National Ocean Service of the U.S. Department of Commerce.
- *Seaplane Landing Site:* An area of water used, or intended for use, for landing and takeoff of seaplanes.
- *Special-Use Airport or Heliport:* An airport not open to the general public, access to which is controlled by the owner in support of commercial activities, public service operations, and/or personal use.
- *Temporary Helicopter Landing Site:* A site, other than an emergency medical service landing site at or near a medical facility, which is used for landing and taking off of helicopters and

(1) is used or intended to be used for less than one year, except for recurrent annual events and

(2) is not marked or lighted to be distinguishable as a heliport and

(3) is not used exclusively for helicopter operations.

Ambient Noise Level: The level of noise that is all encompassing within a given environment for which a single source cannot be determined. It is usually a composite of sounds from many and varied sources near to and far from the receiver.

Approach Protection Easement: A form of easement that both conveys all of the rights of an avigation easement and sets specified limitations on the type of land uses allowed to be developed on the property.

Approach Speed: The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration. (AIM)

Aviation-Related Use: Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. Such uses specifically include runways, taxiways, and their associated protected areas defined by the Federal Aviation Administration, together with aircraft aprons, hangars, fixed base operations, terminal buildings, etc.

Avigation Easement: A type of easement that typically conveys the following rights:

- A right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above a surface specified in the easement (usually set in accordance with FAR Part 77 criteria).
- A right to subject the property to noise, vibrations, fumes, dust, and fuel particle emissions associated with normal airport activity.
- A right to prohibit the erection or growth of any structure, tree, or other object that would enter the acquired airspace.
- A right-of-entry onto the property, with proper advance notice, for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace.
- A right to prohibit electrical interference, glare, misleading lights, visual impairments, and other hazards to aircraft flight from being created on the property.

Based Aircraft: Aircraft stationed at an airport on a long-term basis.

California Environmental Quality Act (CEQA): Statutes adopted by the state legislature for the purpose of maintaining a quality environment for the people of the state now and in the future. The Act establishes a process for state and local agency review of projects, as defined in the implementing guidelines, that may adversely affect the environment.

Ceiling: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena. (AIM)

Circling Approach/Circle-to-Land Maneuver: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or not desirable. (AIM)

Clear Zone: The military airport equivalent of runway protection zones at civilian airports.

Combining District: A zoning district that establishes development standards in areas of special concern over and above the standards applicable to basic underlying zoning districts.

Commercial Activities: Airport-related activities that may offer a facility, service or commodity for sale, hire or profit. Examples of commodities for sale are: food, lodging, entertainment, real estate, petroleum products, parts and equipment. Examples of services are: flight training, charter flights, maintenance, aircraft storage, and tiedown. (CCR)

Commercial Operator: A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1)

Community Noise Equivalent Level (CNEL): The noise metric adopted by the State of California for evaluating airport noise. It represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods relative to the daytime period. (State Airport Noise Standards)

Compatibility Plan: As used herein, a plan, usually adopted by an Airport Land Use Commission that sets forth policies for promoting compatibility between airports and the land uses that surround them. Often referred to as a *Comprehensive Land Use Plan (CLUP)*.

Controlled Airspace: Any of several types of airspace within which some or all aircraft may be subject to air traffic control. (FAR 1)

Day-Night Average Sound Level (DNL): The noise metric adopted by the U.S. Environmental Protection Agency for measurement of environmental noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and adjusted to account for the lower tolerance of people to noise during nighttime periods. The mathematical symbol is L_{dn}.

Decibel (dB): A unit measuring the magnitude of a sound, equal to the logarithm of the ratio of the intensity of the sound to the intensity of an arbitrarily chosen standard sound, specifically a sound just barely audible to an unimpaired human ear. For environmental noise from aircraft and other transportation sources, an *A-weighted sound level* (abbreviated dBA) is normally used. The A-weighting scale adjusts the values of different sound frequencies to approximate the auditory sensitivity of the human ear.

Deed Notice: A formal statement added to the legal description of a deed to a property and on any subdivision map. As used in airport land use planning, a deed notice would state that the property is subject to aircraft overflights. Deed notices are used as a form of buyer notification as a means of ensuring that those who are particularly sensitive to aircraft overflights can avoid moving to the affected areas.

Designated Body: A local government entity, such as a regional planning agency or a county planning commission, chosen by the county board of supervisors and the selection committee of city mayors to act in the capacity of an airport land use commission.

Displaced Threshold: A landing threshold that is located at a point on the runway other than the designated beginning of the runway (see *Threshold*). (AIM)

Easement: A less-than-fee-title transfer of real property rights from the property owner to the holder of the easement.

Equivalent Sound Level (L_{eq}): The level of constant sound that, in the given situation and time period, has the same average sound energy as does a time-varying sound.

FAR Part 77: The part of the Federal Aviation Regulations that deals with objects affecting navigable airspace.

FAR Part 77 Surfaces: Imaginary airspace surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

Federal Aviation Administration (FAA): The U.S. government agency that is responsible for ensuring the safe and efficient use of the nation's airports and airspace.

Federal Aviation Regulations (FAR): Regulations formally issued by the FAA to regulate air commerce.

Findings: Legally relevant subconclusions that expose a government agency's mode of analysis of facts, regulations, and policies, and that bridge the analytical gap between raw data and ultimate decision.

Fixed Base Operator (FBO): A business that operates at an airport and provides aircraft services to the general public including, but not limited to, sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tiedown or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol.

General Aviation: That portion of civil aviation that encompasses all facets of aviation except air carriers. (FAA Stats)

Glide Slope: An electronic signal radiated by a component of an ILS to provide vertical guidance for aircraft during approach and landing.

Global Positioning System (GPS): A navigational system that utilizes a network of satellites to determine a positional fix almost anywhere on or above the earth. Developed and operated by the U.S. Department of Defense, GPS has been made available to the civilian sector for surface, marine, and aerial navigational use. For aviation purposes, the current form of GPS guidance provides en route aerial navigation and selected types of nonprecision instrument approaches. Eventual application of GPS as the principal system of navigational guidance throughout the world is anticipated.

Helipad: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM)

Heliport: A facility used for operating, basing, housing, and maintaining helicopters. (HAI)

Infill: Development that takes place on vacant property largely surrounded by existing development, especially development that is similar in character.

Instrument Approach Procedure: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority (refer to *Nonprecision Approach Procedure* and *Precision Approach Procedure*). (AIM)

Instrument Flight Rules (IFR): Rules governing the procedures for conducting instrument flight. Generally, IFR applies when meteorological conditions with a ceiling below 1,000 feet and visibility less than 3 miles prevail. (AIM)

Instrument Landing System (ILS): A precision instrument approach system that normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM)

Instrument Operation: An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA)

Instrument Runway: A runway equipped with electronic and visual navigation aids for which a precision or nonprecision approach procedure having straight-in landing minimums has been approved. (AIM)

Inverse Condemnation: An action brought by a property owner seeking just compensation for land taken for a public use against a government or private entity having the power of eminent domain. It is a remedy peculiar to the property owner and is exercisable by that party where it appears that the taker of the property does not intend to bring eminent domain proceedings.

Land Use Density: A measure of the concentration of land use development in an area. Mostly the term is used with respect to residential development and refers to the number of dwelling units per acre. Unless otherwise noted, policies in this compatibility plan refer to *gross* rather than *net* acreage.

Land Use Intensity: A measure of the concentration of nonresidential land use development in an area. For the purposes of airport land use planning, the term indicates the number of people per acre attracted by the land use. Unless otherwise noted, policies in this compatibility plan refer to *gross* rather than *net* acreage.

Large Airplane: An airplane of more than 12,500 pounds maximum certificated takeoff weight. (Airport Design AC)

Localizer (LOC): The component of an ILS that provides course guidance to the runway. (AIM)

Mean Sea Level (MSL): An elevation datum given in feet from mean sea level.

Minimum Descent Altitude (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1)

Missed Approach: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. (AIM)

National Transportation Safety Board (NTSB): The U.S. government agency responsible for investigating transportation accidents and incidents.

Navigational Aid (Navaid): Any visual or electronic device airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight. (AIM)

Noise Contours: Continuous lines of equal noise level usually drawn around a noise source, such as an airport or highway. The lines are generally drawn in 5-decibel increments so that they resemble elevation contours in topographic maps.

Noise Level Reduction (NLR): A measure used to describe the reduction in sound level from environmental noise sources occurring between the outside and the inside of a structure.

Nonconforming Use: An existing land use that does not conform to subsequently adopted or amended zoning or other land use development standards.

Nonprecision Approach Procedure: A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1)

Nonprecision Instrument Runway: A runway with an approved or planned straight-in instrument approach procedure that has no existing or planned precision instrument approach procedure. (Airport Design AC)

Obstruction: Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, the height of which exceeds the standards established in Subpart C of Federal Aviation Regulations Part 77, *Objects Affecting Navigable Airspace*.

Overflight: Any distinctly visible and/or audible passage of an aircraft in flight, not necessarily directly overhead.

Overflight Easement: An easement that describes the right to overfly the property above a specified surface and includes the right to subject the property to noise, vibrations, fumes, and emissions. An overflight easement is used primarily as a form of buyer notification.

Overflight Zone: The area(s) where aircraft maneuver to enter or leave the traffic pattern, typically defined by the FAR Part 77 horizontal surface.

Overlay Zone: See *Combining District*.

Planning Area Boundary: An area surrounding an airport designated by an ALUC for the purpose of airport land use compatibility planning conducted in accordance with provisions of the State Aeronautics Act.

Precision Approach Procedure: A standard instrument approach procedure where an electronic glide slope is provided. (FAR 1)

Precision Instrument Runway: A runway with an existing or planned precision instrument approach procedure. (Airport Design AC)

Referral Area: The area around an airport defined by the planning area boundary adopted by an airport land use commission within which certain land use proposals are to be referred to the commission for review.

Runway Protection Zone (RPZ): An area (formerly called a *clear zone*) off the end of a runway used to enhance the protection of people and property on the ground. (Airport Design AC)

Safety Zone: For the purpose of airport land use planning, an area near an airport in which land use restrictions are established to protect the safety of the public from potential aircraft accidents.

Single-Event Noise: As used in herein, the noise from an individual aircraft operation or overflight.

Single Event Noise Exposure Level (SENEL): A measure, in decibels, of the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of the event exceeds a threshold noise level and normalized to a reference duration of one second. SENEL is a noise metric established for use in California by the state Airport Noise Standards and is essentially identical to *Sound Exposure Level (SEL)*.

Site Approval Permit: A written approval issued by the California Department of Transportation authorizing construction of an airport in accordance with approved plans, specifications, and conditions. Both public-use and special-use airports require a site approval permit. (CCR)

Small Airplane: An airplane of 12,500 pounds or less maximum certificated takeoff weight. (Airport Design AC)

Sound Exposure Level (SEL): A time-integrated metric (i.e., continuously summed over a time period) that quantifies the total energy in the A-weighted sound level measured during a transient noise event. The time period for this measurement is generally taken to be that between the moments when the A-weighted sound level is 10 dB below the maximum.

Straight-In Instrument Approach: An instrument approach wherein a final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM)

Taking: Government appropriation of private land for which compensation must be paid as required by the Fifth Amendment of the U.S. Constitution. It is not essential that there be physical seizure or appropriation for a *taking* to occur, only that the government action directly interferes with or substantially disturbs the owner's right to use and enjoyment of the property.

Terminal Instrument Procedures (TERPS): Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: precision approach, nonprecision approach, circling, and departure.

Threshold: The beginning of that portion of the runway usable for landing (also see *Displaced Threshold*). (AIM)

Touch-and-Go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. (AIM)

Traffic Pattern: The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM)

Visual Approach: An approach where the pilot must use visual reference to the runway for landing under VFR conditions.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions. VFR applies when meteorological conditions are equal to or greater than the specified minimum-generally, a 1,000-foot ceiling and 3-mile visibility.

Visual Runway: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan. (Airport Design AC)

Zoning: A police power measure, enacted primarily by units of local government, in which the community is divided into districts or zones within which permitted and special uses are established, as are regulations governing lot size, building bulk, placement, and other development standards. Requirements vary from district to district, but they must be uniform within districts. A zoning ordinance consists of two parts: the text and a map.

Glossary Sources

FAR 1: Federal Aviation Regulations Part 1, Definitions and Abbreviations

AIM: Aeronautical Information Manual

Airport Design AC: Federal Aviation Administration, *Airport Design* Advisory Circular 150/5300-13

CCR: California Code of Regulations, Title 21, Section 3525 et seq., *Division of Aeronautics*

FAA ATA: Federal Aviation Administration, *Air Traffic Activity*

FAA Stats: Federal Aviation Administration, *Statistical Handbook of Aviation*

HAI: Helicopter Association International

NTSB: National Transportation and Safety Board

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Supporting Data

Supporting Data

INTRODUCTION

Two types of information that serve to support and describe the foundations for the compatibility policies and criteria in Chapters 2 and 3 are included in this Supporting Data section. First is a summarization of background data regarding Cable Airport and the land uses around it. Second is a discussion of the compatibility factors—noise, overflight, safety, and airspace protection—that are the concern of this *Compatibility Plan*. This discussion highlights the airport impacts, identifies land use compatibility concerns in the surrounding area, and outlines the strategies available for addressing those concerns.

BACKGROUND DATA

Cable Airport

Built by Dewey Cable in 1945 following the end of World War II, Cable Airport has been under the private ownership of the Cable family throughout its history. It is one of only a few privately owned, public-use airports in Southern California and is said to be the busiest airport of this type in the U.S. The airport is home to approximately 350 aircraft, most of them small, single-engine airplanes. An estimated 60,000 takeoffs and landings took place annually as of the 2008 base year of this *Compatibility Plan*.

As initially constructed on the rocky floodplain of San Antonio Wash, Cable Airport consisted of two runways, one oriented east-northeast/west-southwest and the second almost north/south. Numbered 6-24, the east-northeast/west-southwest runway has been incrementally extended from its original 2,000-foot length to the present 3,864 feet. Meanwhile, the secondary runway was closed in 1973. The original 80-acre property eventually expanded to 140 acres, but some areas have since been converted to nonaviation uses, leaving the airport at approximately 105 acres.

In April 2011, Cable Airport management completed a *Cable Airport Master Plan* with financial assistance from a Federal Aviation Administration grant. As of mid 2013, the plan remains in "Draft Final" format subject to acceptance by the City of Upland in conjunction with an update to the airport's Conditional Use Permit. It indicates that the airport should focus on continuing to provide general aviation services for the surrounding communities. No changes in the role of the airport or its basic capabilities are planned. However, one change that would have some implications on off-airport land use compatibility is a proposal to shift the runway 50 feet northward and approximately 164 feet westward, with the length remaining the same. This future runway shift will allow for full compliance with FAA Runway Safety Area standards. The limited land area precludes further extension of the runway. Also indicated in the *Airport Master Plan* is construction of additional aircraft hangars. Potentially, as many as about 470 aircraft can be accommodated versus the present capacity of 380. A corresponding increase in aircraft operations can be anticipated.

A summary of information regarding Cable Airport and its aircraft activity is presented in Exhibits 1 through 4. **Exhibits 1** and **2** describe the airport features and illustrate the airport layout, respectively. Airport activity data, both current and projected, is tabulated in **Exhibit 3**. **Exhibit 4** is a radar image of aircraft flight tracks for a week-long period in November 2008. All flights during this period were landing from the east and taking off toward the west. This is the predominant (96% of the time) direction of operations, but aircraft also overfly areas to the north when wind conditions dictate an eastward flow of air traffic.

Airport Environs

In 1945, the Cable Airport site was in an unincorporated area midway between the towns of Upland and Claremont, each nearly two miles distant. Initially, the airport was known as Cable-Claremont Airport because of its proximity to that town. Even through 1966 when the property was annexed to the City of Upland, surrounding land uses consisted mostly of scrub land, gravel quarries, and orchards.

Today, the gravel quarries remain, but almost everything else is has been developed with houses, offices, and light industrial uses. The Claremont Colleges, which existed at the airport's inception but have grown since then, are situated less than a mile to the southwest. When departing to the west, most aircraft turn southward along the wash so as to avoid overflying the colleges. To the east, though, overflight of residential areas near the runway end cannot be avoided.

Exhibit 5 provides a summary description of the land uses around the airport. The map in **Exhibit 6** shows existing land use development as of 2008. Planned land uses as represented in the 1996 *Upland General Plan* are mapped in **Exhibit 7**.

LAND USE COMPATIBILITY FACTORS

California state law requires airport land use compatibility planning for all public-use and military airports in the state. Normally, this planning is done by the airport land use commission (ALUC) established in most counties in the state. Once the ALUC adopts an airport land use compatibility plan (ALUCP), the affected land use jurisdictions are required to modify their general plans and applicable specific plans to be consistent with the ALUC's plan or to take certain steps spelled out in the law to overrule the ALUC action.

San Bernardino County operates without an ALUC. Instead, it utilizes what is referred to as the "alternative process" provided for by the statutes. In San Bernardino County, compatibility planning is done by the county or an incorporated city having jurisdiction over lands around a particular airport. For Cable Airport, the City of Upland has taken on the compatibility planning responsibility as it is the jurisdiction in the county most impacted by the airport (see documentation in **Appendix F**). The City of Montclair is also affected, but only to a minor extent.

The only other city within the airport's influence area is the City of Claremont in Los Angeles County. Los Angeles County, though, has a countywide ALUC—the Regional Planning Commission functions in this capacity—which is responsible for compatibility planning around all airports in the county, as well as for the portion of an airport influence area that extends into the county from an adjacent county such as San Bernardino. The Los Angeles County ALUC thus has the responsibility for defining the limits of the portion of the Cable Airport influence area that affects the City of Claremont and for compatibility planning within that area.

In 2008, the City of Upland began the process of updating its general plan. The current *Upland General Plan* was adopted in 1982, although selected elements have been amended since then. Preparation of this *Cable Airport Land Use Compatibility Plan* is being done concurrently with the general plan update so that compatibility concerns can be appropriately considered in the broader planning process.

The emphasis in this section of the *Compatibility Plan* is on describing the impacts generated by airport activity, identifying potential compatibility concerns, and outlining strategies for addressing those concerns. Four types of impacts are discussed with respect to each of those topics: noise, overflight, safety, and airspace protection.

Airport Impacts

This section describes the noise, overflight, safety, and airspace protection impacts of Cable Airport and provides maps showing the geographic extent of each of these concerns.

Noise

In simplest terms, noise can be defined as unwanted sound. As such, noise is perhaps the most basic airport land use compatibility concern. Certainly, it is the most noticeable form of airport impact, especially when aircraft noise is disruptive to human activities.

Noise can be measured in many different ways. For compatibility planning purposes—particularly for setting compatibility policies to guide land use development—noise is usually measured in terms of cumulative noise level metrics. In California, the metric used is the Community Noise Equivalent Level (CNEL). For airports, CNEL describes the average aircraft-related sound level in decibels (dB) to which any point near an airport is exposed over the course of an average day of the year. CNEL values are typically depicted on a map as contours lines representing points of equal noise exposure.

An important fact to understand with regard to CNEL values is that, while the maximum noise levels produced by individual aircraft are major components of the calculated values, CNEL does not explicitly measure peak values. A CNEL of 65 dB does not mean that peak noise levels well above that value will not be experienced. Indeed, at CNEL 65 dB, individual aircraft noise events loud enough to be disruptive will be common.

For Cable Airport, new CNEL contours were calculated as part of the present study. **Exhibits 8** and **9** show the noise impacts of the current operational conditions and for long-term future activity levels, respectively. Calculation of the contours was based upon the activity data summarized in **Exhibit 3**. State law dictates that compatibility plans have a time horizon of at least 20 years in the future. The projected future noise contours for Cable Airport, as reflected in the 2011 *Airport Master Plan* therefore are used for the purposes of compatibility planning around the airport.

In looking at the noise contours, their inherent imprecision should be recognized. Many variables are inputs to the calculations and, especially for a non-towered general aviation airport like Cable Airport, most of the variables must be estimated or average values applied. Under these circumstances, ±3 dB is considered to be the level of precision that can be attained. The precision is best close to the runway ends, but drops farther away as the flight tracks of aircraft diverge and the number of flights along each route becomes less certain. An even greater degree of imprecision arises when looking far to the future as is essential for ALUCPs. Activity level forecasts are inherently uncertain.

Overflight

Experience at many airports has shown that noise-related concerns do not stop at the boundary of the mapped CNEL contours. As noted in the preceding discussion of noise impacts, individual noise events can be disruptive even where the cumulative noise levels are relatively low. Additionally, many people are sensitive to the frequent presence of aircraft overhead even when the events are not loud enough to be highly disruptive. The latter reactions are often described as annoyance.

No methodology exists with which to precisely define the extent of the area of overflight impacts at an airport. For general aviation airports, though, the boundary can usually be drawn by taking into account where aircraft normally fly as they approach and depart the airport or engage in closed-circuit flight training activity. Vertically, the focus is typically on where aircraft are flying roughly at the traffic pattern altitude or lower.

Exhibit 10 depicts the primary overflight area for Cable Airport. This map is derived from the radar-based flight track depiction in **Exhibit 4**. The shaded areas represent where the preponderance (at least 80%) of airplanes fly at altitudes ranging from the runway elevation up to slightly above the traffic pattern altitude as they operate at the airport. The traffic pattern altitude at Cable Airport is 800 feet above the airport elevation. A more typical traffic pattern altitude for general aviation airports is 1,000 feet. The lower altitude is necessary at Cable Airport because of conflicts with the controlled airspace at nearby Ontario International Airport. The result, though, is that when the north-side traffic pattern is in use because of winds from the east, aircraft entering the traffic pattern are flying as little as 650 feet above the ground over the rising terrain.

In addition to the airplane traffic, helicopters also operate at Cable Airport. They follow their own routes as they approach and depart and usually fly at about 500 feet above the ground except when taking off and landing. The primary helicopter routes are marked on **Exhibit 4**.

The overflight areas in **Exhibit 10** do not encompass where every airplane or helicopter flies when using the airport. Almost any location within 2 to 3 miles of the airport is potentially subject to occasional overflights at relatively low altitudes.

Finally, this assessment of aircraft overflights in the Cable Airport area would not be complete without recognizing that many aircraft not associated with the airport fly through the area. A corridor along the base of the San Gabriel Mountains is particularly popular with small aircraft as it enables them to bypass the Ontario International Airport controlled airspace. Furthermore, helicopters regularly use a low-altitude corridor along Interstate 10 on the south edge of Upland. Lastly, large aircraft departing from Ontario International Airport sometimes fly over Upland. Although at much higher altitudes than small aircraft, these planes can still be audible on the ground.

Safety

For most airports, safety is the most difficult compatibility impact to measure. The concern is primarily over the potential for damage to property and injury to people on the ground in the event of an aircraft accident, but also involves land use characteristics that can affect the chances of survival of the aircraft occupants. Clearly, locations in the vicinity of an airport are exposed to a greater risk of being the site of an aircraft accident than is the case for more distant places. The difficulty lies in measuring the magnitude of the risk and then in determining an appropriate response. Further compounding the difficulty is that perception plays as much of a role as measurement in determining the response to the risk.

From a land use compatibility planning perspective, the most important piece of information regarding aircraft accidents near airports is their spatial distribution. Where do accidents take place relative to the

runway used or intended to be used? For this type of analysis to be meaningful, a large data set is essential. However, because aircraft accidents are infrequent occurrences, the number of events at any given airport is too small to be statistically meaningful. Data gathered from many airports is needed. No attempt has been made as part of the present study to compile accident location data specifically for Cable Airport.

For general aviation airports, the broadest database of aircraft accident location information is contained in the 2011 edition of the *California Airport Land Use Planning Handbook* published by the California Division of Aeronautics. The *Handbook* database contains data on nearly 900 general aviation aircraft accidents at airports nationwide. The *Handbook* utilizes this data to define several sets of safety zones representing varying concentrations of accidents near runway ends. The zones also reflect the nature of the way aircraft typically fly—their flight path and altitude—as they approach and depart an airport.

For any given airport, the generic zones must be adjusted to take into account such factors as the runway length, types of approach procedures, actual flight paths, and volume and mix of aircraft activity. **Exhibit 11** shows the generic safety zones applicable to Cable Airport and the adjustments that should be made.

Airspace Protection

The airspace protection factor in airport land use compatibility planning is concerned with hazards to flight—that is, land use features that can cause or contribute to causing an aircraft accident. Most critical among such hazards are tall objects that penetrate the navigable airspace around an airport. However, other physical, visual, and electronic land use features can also create airspace hazards.

The navigable airspace around an airport is delineated in accordance with standards set forth in Federal Aviation Regulations (FAR) Part 77. The regulations define a set of imaginary surfaces in the air around an airport. Any object—including structures, trees, movable objects, and even the ground itself—that penetrates one of the airspace surfaces is considered to be an obstruction. California state law precludes creation of any airspace obstruction unless a permit is issued by the state or a review by the Federal Aviation Administration determines that the object would not be a hazard.

Map 3B Chapter 3 depicts the existing airspace protection surfaces for Cable Airport. Additionally, because the *Airport Master Plan* proposes a shift in the runway location, airspace protection must be provided for that configuration as well. **Map 3C** shows the airspace protection surfaces for the future runway. As indicated in Criterion 3.1.3 in Chapter 3, once the new runway is built, protection for the current configuration will no longer be necessary. Alternatively, if plans for the realignment are abandoned, then that configuration no longer needs to be considered in compatibility planning.

Among other physical hazards to flight, bird strikes represent the most widespread concern. The FAA recommends that uses known to attract birds—sanitary landfills and certain types of crops being primary examples—be kept at least 5,000 feet from runway used only by piston-powered aircraft. For runways used by turbine-powered aircraft the distance increases to 10,000 feet. The 5,000-foot distance applies to Cable Airport as it has very few operations by turbine-powered aircraft. [1]

[1] The FAA rules and regulations include, but are not limited to: Public Law 106-181 (Wendell H. Ford Aviation Investment and Reform Act for the 21st Century, known as AIR 21), Section 503; 40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, Airport Safety; Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*; Advisory Circular 150/5200-34A, *Construction or Establishment of Landfills near Public Airports*; and any subsequent applicable FAA guidance.

Additional, little recognized, physical hazards to aircraft flight are thermal plumes that generated by power plants. Invisible unless the heated air turns to steam, the plumes from large facilities can create unstable air at the altitude that airplanes or helicopters fly when near airports.

Criteria defining land use characteristics that can cause visual or electronic hazards to flight are more qualitative in nature—the FAA has not set any precise standards. In general, visual hazards to flight include sources of dust, steam, smoke, or glare that can impair pilot visibility, as well as distracting lights that can be confused for airport lights. Electronic hazards are ones that can cause interference with aircraft communications or navigation.

Land Use Compatibility Concerns at Cable Airport

The analysis in this section is primarily based upon a review of the previously described impacts relative to the existing and planned land uses around the airport. Insights obtained from the Cable Airport focus groups during the November 2008 *Upland General Plan* community workshop have also been taken into account. While these insights primarily involve existing compatibility conflicts or the lack thereof, they are helpful in identifying where issues could arise with future development.

Exhibit 12 shows areas around the airport where new development may occur. The map was created by overlaying the existing and planned land use maps (**Exhibits 6** and **7**) and graying out locations where no changes of use are indicated. The data reflects conditions in 2008. Exceptions were made for certain nonresidential land uses where the use may not change, but a potential for more intense development is apparent. The resulting map highlights locations of primary interest in preparation of the Cable ALUCP as well as in the broader general plan update process. As can be seen, much of the airport's environs are already fully developed with little potential for major changes.

Exhibit 13 simply points out the locations referred to in the remaining text of this discussion.

Noise

Cable Airport does not have a significant noise problem. This status is apparent both from review of the noise contours and from public comments made during the November 2008 community workshop for the *Upland General Plan* update. Less than a half dozen scattered residences lie within the existing CNEL 60 dB contour, but they are all within locations planned for industrial uses. Even the CNEL 55 dB contour contains relatively few residences—less than 100. All are within the runway approach corridor on the east. The airport receives few noise complaints. At the community workshop, the only negative comments were about helicopter noise. The extent to which Cable Airport noise is an issue in the City of Claremont to the west is not certain. The recommended departure route turns aircraft southward as they depart to the west, thus avoiding overflight of the Claremont Colleges and other noise-sensitive uses in Claremont (numbers 1 and 2 on **Exhibit 13**).

Looking to the future, the airport's noise contours will moderately expand to the extent that activity increases. The aircraft fleet mix is expected to stay largely the same as today, thus the noise of individual events will not get louder. The larger contours encompass only a few additional residences. Again, most of these are in the eastern approach corridor, although some multi-family residences to the south are also affected by the CNEL 55 dB impact area. Development of residential land uses within the airport's primary departure corridor to the southwest would result in noise conflicts. The northern portion of this site lies within the future CNEL 60 dB impact area. The noise level of individual aircraft operations also would sometimes be disruptive.

Overflight

Judging from information supplied by the airport owner and from comments at the community workshop, annoyance at Cable Airport aircraft overflights is limited. Nevertheless, there was consensus among those at the workshop, that some form of real estate transaction disclosure about the airport would be appropriate. Comments were made that people are sometimes unaware of the airport's proximity until after they move to the area. This situation particularly could occur if their initial visit was during a weekday or other period when aircraft activity was low or the north-side traffic pattern was not in use (number 3 on **Exhibit 13**).

The moderate increase in projected aircraft operations over the next 20 years will not appreciably affect overflight concerns. However, more residential development in the area, particularly single-family residential, could lead to increased annoyance and complaints.

Safety

Beyond the runway itself, the most critical parts of an airport's environs with respect to safety are the runway protection zones (RPZs) situated immediately beyond the runway ends. These areas are labeled as Safety Zone 1 on **Exhibit 11**. Cable Airport owns essentially none of either RPZ (number 4 on **Exhibit 13**) and the planned runway alignment shift will only slightly change this status. Fortunately, these areas have nevertheless been kept largely clear of structures. To the east, the City of Upland owns most the RPZ and maintains it as open space. On the west, the nearest property contains the San Antonio Channel and belongs to the adjacent quarry. Across the channel is an industrial park. Two of the buildings are partially in the existing RPZ, but the central strip consists of auto parking and landscaping.

Other areas having moderate risk are Safety Zones 2, 3, and 4. Dwellings should not be in Zone 2 (number 5 on **Exhibit 13**) and multi-family residential should be avoided in Zones 3 and 4. Numerous residences are in these zones on the east, although all are single-family. Non-residential uses should be low intensity in these areas, especially Zone 2. An inventory of existing building sizes and intensities has not been conducted as part of the present study. However, except perhaps within Zone 2, most of the existing uses appear to be within the intensity range typically considered compatible. The only highly risk-sensitive use within Zones 1 through 4 is the northeastern corner of the Claremont Colleges site which is slightly in Zone 4.

With regard to future land uses, so much of the area is already built out, that the potential for major new conflicts is limited. The largest vacant areas are southwest of the airport, including some properties within Safety Zones 2, 3, and 4 (number 6 on **Exhibit 13**). This area is critical as the primary route for departing aircraft. Also important to consider is that redevelopment is a possibility in some locations near the airport and should be done in a manner that recognizes safety concerns.

Airspace Protection

Nearly all of the structures in the vicinity of Cable Airport are low-rise buildings of three stories or less. No significant airspace obstructions are evident. However, none of the three cities having jurisdiction over lands beneath the airspace protection surfaces have adopted airport-related height limit zoning. This omission is a concern and especially so with respect to Upland and Claremont, the cities having jurisdiction over lands within the runway approach zones. Airport-related height limit zoning is important not just to guard against tall buildings, but also to ensure that other structures such as antennas or cell phone towers do not become airspace obstructions. Tree heights should be regulated as well.

Another airspace protection concern that could become a problem in the future is attraction of birds. Any water features that could become part of reuse plans for the quarries once gravel extraction is complete would be potential bird attractants (number 7 on **Exhibit 13**). This concern should be taken into account in future reuse planning for the quarries.

Compatibility Strategies

Airport land use compatibility plans need to address all four of the airport impacts discussed at the beginning of this paper—noise, overflight, safety, and airspace protection. The following discussion describes the basic strategies, reflected in the policies of Chapter 3, that can be employed by the City of Upland—and by the City of Montclair with regard to airspace protection and overflight—to minimize compatibility conflicts. These strategies are preventative in that they focus on avoiding new conflicts, as opposed to being remedial actions that could reduce or eliminate existing problems. Also, the strategies are all land use oriented. Most aviation-related measures are not within the city's authority to enact. The authority for regulation of aircraft in flight rests with the Federal Aviation Administration.

The chief source of the strategies described below is the previously mentioned *California Airport Land Use Planning Handbook*. ALUCs are required by state law to use the *Handbook* as a guide in their compatibility planning work. Even though San Bernardino County does not have an ALUC, preparation of the *Cable Airport Land Use Compatibility Plan* still needs to take into account the *Handbook* guidance and has done so.

Noise

A wide variety of strategies can and have been used to limit noise-related compatibility conflicts between airports and surrounding land uses. Strategies that are land use-oriented and preventative in nature fall into three basic categories:

Prohibit the Use: Where the noise exposure is sufficiently high to prevent activities associated with the land use from taking place in a normal manner, new instances of that use should not be allowed. The threshold level above which the noise exposure should be regarded as unacceptable varies depending upon multiple factors. The type of land use activity affected is the primary consideration, but the background or ambient noise level in a particular location is also a significant determinant of the intrusiveness of the noise upon the activity. The CNEL 65 dB (or the federal equivalent, DNL) standard indicated in various federal and state regulations and policies is set with respect to busy airline airports in noisy urban areas. The *Handbook* suggests that CNEL 60 dB or even 55 dB is a more appropriate as the limit for compatibility of noise-sensitive uses around airports in quieter suburban and rural locations. For Cable Airport, a CNEL 60 dB standard is defined by this *Compatibility Plan* as the maximum acceptable noise level for new residential development, schools, and other similarly noise-sensitive land uses. Setting the standard for airport-related noise lower than for highway noise is reasonable. At the same CNEL, the peak noise levels (Lmax) from aircraft operations are higher than for highway traffic and thus potentially are more disruptive.

Limit the Number of People Exposed: In some instances where the noise level is not highly disruptive to a particular land use, an alternative strategy is to limit the number of people exposed to the noise. This option is primarily relevant with regard to residential land uses because overflight annoyance can also be a factor as discussed previously.

Require Sound Attenuation: A third option is to require that structures be sufficiently insulated from the noise source to reduce the interior noise to an acceptable level. An obvious limitation of this approach

is that it is applicable only for uses that take place indoors. Where some or all of the activities associated with the use occur outside and the noise exposure would prevent or significantly disrupt that activity, then the use should be prohibited. Another consideration is that sound attenuation is most applicable in areas of moderate to high noise exposure (above CNEL 60 dB). Typical new construction provides at least 20 dB of noise level reduction (NLR). State noise standards require that multi-family residences be attenuated so at to limit the interior noise level to no more than CNEL 45 dB. At this exposure, however, individual noise events can still be loud enough to be disruptive, particularly when the events are intermittent as is the case with aircraft noise (as opposed to the more continual, but lower, sound level of road traffic). To reduce the disruptiveness, this *Compatibility Plan* sets an interior, airport-related, noise level standard of CNEL 40 dB for new residential development the Cable Airport environs.

Overflight

Ideally, new land uses should not be developed where activities could be disrupted or people annoyed by aircraft noise. Because of the wide area affected in these ways, however, this strategy is seldom practical. At best, the action that can be taken in this regard is to promote types of land uses that tend to mask or reduce the intrusiveness of aircraft noise and to discourage uses that would be adversely affected by the impacts. One of the functions of this *Compatibility Plan* is to provide information about aircraft overflight impacts so that these impacts can be considered in the on-going update of the *Upland General Plan*.

Land use planning actions, though, do not address the issues of overflight impacts on existing land uses except to the extent that redevelopment is under consideration. For existing land uses, the emphasis needs to be on improving people's awareness of the airport and its impacts so that they can take this information into account when deciding whether to buy property or to live or work nearby. Airports, ALUCs, and local land use jurisdictions have employed a variety of mechanisms by which to help ensure that the necessary information is made known.

Avigation Easement Dedication: As a condition for local approval of new development near the airport, the developer can be required to dedicate an avigation easement to the airport. (Alternatively, because Cable Airport is privately owned, the city of Upland could hold the easement. This is a legal issue which can be decided at a later time—which entity holds the easement is not a central concern in the concepts addressed here.) Avigation easements are the most certain means of ensuring buyer awareness in that they would involve a conveyance of certain property rights from the landowner to the airport or city. In addition to their buyer awareness component, avigation easements serve to provide airspace protection by limiting the heights of objects on the property. In general, avigation easements are best suited to locations where height limits are substantial or where significant constraints on the development or use of the property are necessary for noise or safety reasons. Where buyer awareness is the only objective, a recorded deed notice should be considered instead.

Recorded Overflight Notification: This type of device goes by various names including deed notice and overflight acknowledgement. The key point is that the information about airport proximity is recorded on the property deed, but a conveyance of property rights is not involved. County assessors sometimes have concerns over recording of information that does not involve the property description or property rights, but this is usually less of an issue when the notice is applied as a condition for new development approval rather than to existing development.

Airport Proximity Disclosure: Requirements for disclosure of airport proximity information as part of some residential real estate transactions are set in state law. Disclosure is required for all new subdivisions and common interest developments (such as condominiums). It also applies to transfer of existing residential property where disclosure of other hazards (flood, fire, and earthquake) is obligatory. The

disclosure language is included in the statutes. In counties with an airport land use commission, the ALUC establishes the boundary of the airport influence area within which the disclosure is to be made. Where the ALUC has not defined the airport influence area, the default is two miles from the airport boundary. For Cable Airport, the airport influence area is defined in Chapter 3 of this *Compatibility Plan*. This boundary also should be reflected in the new *Upland General Plan*. Furthermore, because state law does not require airport proximity disclosure during transfer of residential property in many locations—probably including at least part of the Cable Airport environs—disclosure provisions should be enacted as part of the general plan or in a subsequent update of the city zoning ordinance.

Safety

The relatively low numbers of deaths and injuries from aircraft accidents is sometimes cited as indicating that the risks are low. Clearly, though, the more people who occupy the critical areas around airports, the greater the risks are. Aircraft accidents may be rare occurrences, but when they occur, the consequences can be severe.

From a land use compatibility perspective, it is therefore essential to avoid conditions that can lead to catastrophic results. Basically, the question is: what land use planning measures can be taken to reduce the severity of an aircraft accident if one occurs in a particular location near an airport? Although there is a significant overlap, specific strategies must consider both components of the safety compatibility objective: protecting people and property on the ground; and, primarily for general aviation airports, enhancing safety for aircraft occupants.

In setting the safety criteria, consideration also must be given to the two different forms of aircraft accidents: those in which the aircraft is descending, but is flying and under directional control of the pilot (engine failure being the primary cause of such circumstances); and those in which the aircraft is out of control as it falls (such as would result from a stall-spin or mid-air collision). Available data documented in the *Handbook* indicates that a substantial percentage, if not the majority, of general aviation aircraft accidents fall into the former category. Moreover, these data do not include the mishaps in which the pilot made a successful emergency landing—the latter generally are categorized as "incidents" rather than as accidents and do not appear in the National Transportation Safety Board data from which the database in the *Handbook* is drawn.

Intensity and Density Limitations: The most direct method of limiting the potential severity of an aircraft accident is to limit the number of people placed in harm's way. For most land uses, this limit is measured in terms of *usage intensity*—the number of people on the site divided by the site size in acres. For residential development, the common density measure—dwelling units per acre—is used. Intensity and density limits need to take into account both the controlled and uncontrolled types of potential aircraft accidents. To the extent that accidents and incidents are of the controlled variety, then allowing high concentrations of people in a small area would be sensible, as long as intervening areas are little populated. However, concentrated populations present a greater risk for severe consequences in the event of an uncontrolled accident at that location. Limiting the average usage intensity over a site reduces the risks associated with either type of accident. In most types of land use development, though, people are not spread equally throughout the site, but tend to be concentrated in certain areas. To minimize the risks from an uncontrolled accident, policies also should limit the extent to which people can be concentrated and development can be clustered in any small area.

Avoidance of Highly Risk-Sensitive Uses: Certain critical types of land uses—particularly schools, hospitals, and other uses in which the mobility of occupants is effectively limited—should be avoided near the ends of runways regardless of the number of people involved. Critical community infrastructure also should be avoided near airports. These types of facilities include power plants, electrical substations,

public communications facilities and other facilities, the damage or destruction of which could cause significant adverse effects to public health and welfare beyond the immediate vicinity of the facility. Lastly, aboveground storage of large quantities of highly hazardous (flammable, explosive, corrosive, or toxic) materials may pose high risks if involved in an aircraft accident and therefore are generally incompatible close to runway ends.

Open Land Requirements: Creation of requirements for open land near an airport addresses the objective of enhancing safety for the occupants of an aircraft forced to make an emergency landing away from a runway. If sufficiently large and clear of obstacles, open land areas can be valuable for light aircraft emergency landings anywhere near an airport. For large and high-performance aircraft, however, open land has little value for emergency landing purposes and is useful primarily where it is an extension of the clear areas immediately adjoining a runway.

Airspace Protection

More so than with the other three compatibility factors, the strategies for addressing airspace protection concerns are largely dictated by Federal Aviation Administration standards and California state law. Buildings, antennas, other types of structures, and trees should be limited in height, in accordance with FAR Part 77 criteria, so as not to pose potential hazards to flight. Where required by Part 77, project applicant notification to the FAA should be a local permit process requirement.

With respect to other types of hazards to flight, measures based upon FAA guidance should be established to prevent creation of known types of conflicts and to enable mitigation of unanticipated problems. Particular attention should be paid to any proposed use that could create an increased attraction for birds and other wildlife. These uses include landfills and certain recreational or agricultural uses that attract large flocks of birds and may pose bird strike hazards to aircraft in flight. FAA rules and regulations concerning these hazards are found in FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports*, and Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*.

GENERAL INFORMATION

- *Airport Ownership:* Private (Cable Airport, Inc.)
- *Year Opened:* 1945
- *Airport Property*
  - Fee title: 89 acres
  - Avigation easements: None
- *Airport Classification:* General Aviation
- *Airport Elevation:* 1,444 feet MSL

AIRPORT PLANNING DOCUMENTS

- *Airport Master Plan*
  - April 2011 Draft Final Report
- *Airport Layout Plan Drawing*
  - FAA Approval May 2012

RUNWAY/TAXIWAY DESIGN

Runway 6-24

- *Critical Aircraft:* Twin-engine, piston
- *Airport Reference Code:* B-I (small airplanes)
- *Existing*
  - 3,864 ft. long, 75 ft. wide
  - Runway 6: Threshold displaced 106 ft.
  - Runway 24: Threshold displaced 158 ft.
- *Future*
  - Alignment shift 50 ft. north, 164 ft. west
  - Length & width unchanged
  - Runway 6: no displaced threshold
  - Runway 24: 163 ft. displaced threshold
- *Pavement Strength (main landing gear configuration)*
  - 12,500 lbs. (single-wheel)
- *Average Gradient:* 1.3% (rising to east)
- *Runway Lighting*
  - Medium-intensity edge lights (MIRL)
- *Primary Taxiways:* Full-length parallel on north and south
- *Helipad:* Helipads H1 (lighted) and H2 located south of Runway 24 threshold

TRAFFIC PATTERNS AND APPROACH PROCEDURES

- *Airplane Traffic Patterns*
  - Runways 6 & 24: Left traffic
  - Pattern altitude: 800 ft. AGL (2,244 ft. MSL)
- *Instrument Approach and Departure Procedures*
  - Runway 6 GPS/VOR: Straight-in (1 mile visibility)
- *Visual Approach Aids*
  - Runway 6: VASI 4.0°
  - Runway 24: VASI 4.0°
- *Operational Restrictions / Noise Abatement Procedures*
  - Runway 6 & 24: Flights to/from south controlled by Ontario Airport airspace
  - Runway 24: Left turn over wash to avoid colleges

APPROACH PROTECTION

- *Runway Protection Zones (RPZ)*
  - Runway 6: 1,000 ft. long (almost all off airport property)
  - Runway 24: 1,000 ft. long (mostly off airport property)
- *Approach Obstacles*
  - Runway 6: None
  - Runway 24: Road 9 ft. above runway end, 200 ft. from runway

BUILDING AREA

- *Location:* Both sides of runway
- *Aircraft Parking Capacity*
  - Hangar spaces: 380
  - Tiedowns: 25
- *Other Major Facilities*
  - Civil Air Patrol quarters, Ontario Police Department hangar
- *Services*
  - Fuel: 100LL/ jet A (self-serve 24-hours)
  - Other: Avionics, charter flights, flight instruction, maintenance, paint shop, instrument repair, aircraft rental and sales
  - Restaurant

PLANNED FACILITY IMPROVEMENTS

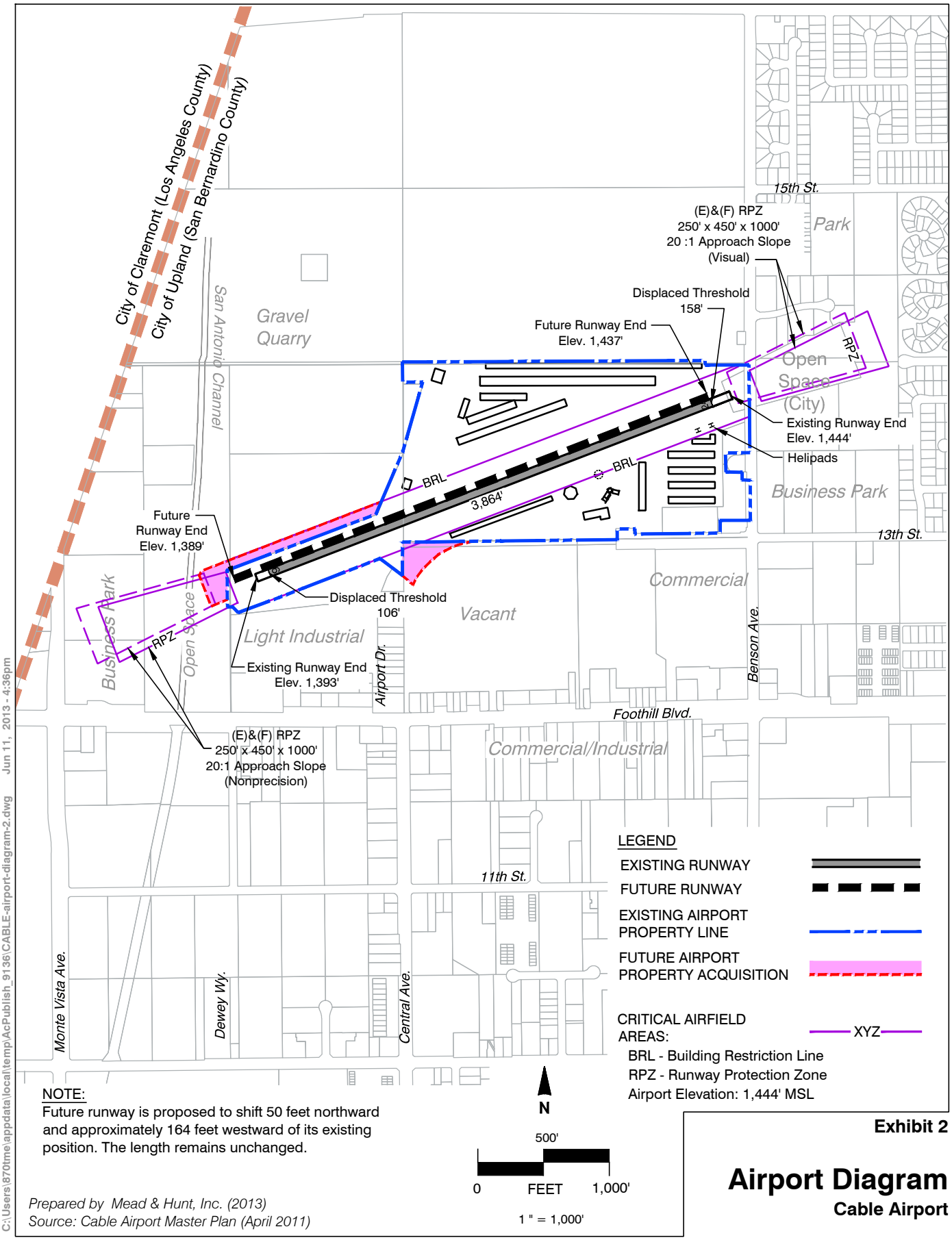
- *Airfield*
  - Runway alignment shift 50 ft. north and 164 ft. west
- *Building Area*
  - Increase aircraft hangar spaces by 100±

Prepared by Mead & Hunt, Inc. (2013)

Exhibit 1

Airport Features Summary

Cable Airport



NOTE:
Future runway is proposed to shift 50 feet northward and approximately 164 feet westward of its existing position. The length remains unchanged.

Prepared by Mead & Hunt, Inc. (2013)
Source: Cable Airport Master Plan (April 2011)

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Exhibit 2

Airport Diagram

Cable Airport

BASED AIRCRAFT

	Current [a] *2009 data*	*Future* [b] *2035*
Aircraft Type		
Single-Engine	330	363
Twin-Engine Piston & Turboprop	21	29
Business Jet	1	2
Helicopter	3	7
Sailplanes/Other	3	3
Total	*358*	*404*

AIRCRAFT OPERATIONS

	Current [a] *2009 data*	*Future* [b] *2033*
Total		
Annual	41,000	103,300
Average Day	112	283
Distribution by Aircraft Type		
Single-Engine	92%	90%
Twin-Engine Piston & Turboprop	6%	7%
Business Jet	<1%	<1%
Helicopter	1%	2%
Sailplanes/Other	1%	<1%
Distribution by Type of Operation		
Local (incl. approx 75% touch-and-goes)	80%	80%
Itinerant	20%	20%

TIME OF DAY DISTRIBUTION

	Current [c]	*Future* [d]
All Aircraft		
Day	90%	85%
Evening	7%	10%
Night	3%	5%
Single Engine		
Day		89%
Evening		10%
Night		1%
Multi Engine & Jet		
Day		89%
Evening		11%
Night		0%
Helicopter		
Day		27%
Evening		4%
Night		69%

RUNWAY USE DISTRIBUTION [d]

	Current	*Future*
All Aircraft – Day/Evening/Night		
Takeoffs & Landings		
Runway 6	15%	15%
Runway 24	85%	85%

FLIGHT TRACK USAGE [c]

Current and Future

- Approaches, Runway 6
  - Primarily left traffic
- Departures, Runway 6
  - Primarily left traffic
- Approaches, Runway 24
  - Most aircraft enter left-traffic pattern from north or south
  - Pattern 800'AGL
- Departures, Runway 24
  - Unless cleared through Ontario Airport airspace to southeast, aircraft make left turn to depart overhead
- Helicopters
  - Approaches from south parallel to Benson Ave.
  - Departures north from helipads and west along runway centerline

Notes

[a] Source: *Cable Airport Master Plan* (April 2011) base year data

[b] Source: *Cable Airport Master Plan* (April 2011) baseline forecast for 2030; for the purposes of this *Compatibility Plan*, the indicated forecast is judged to reflect potential airport activity at least 20 years in the future (2035 or beyond)

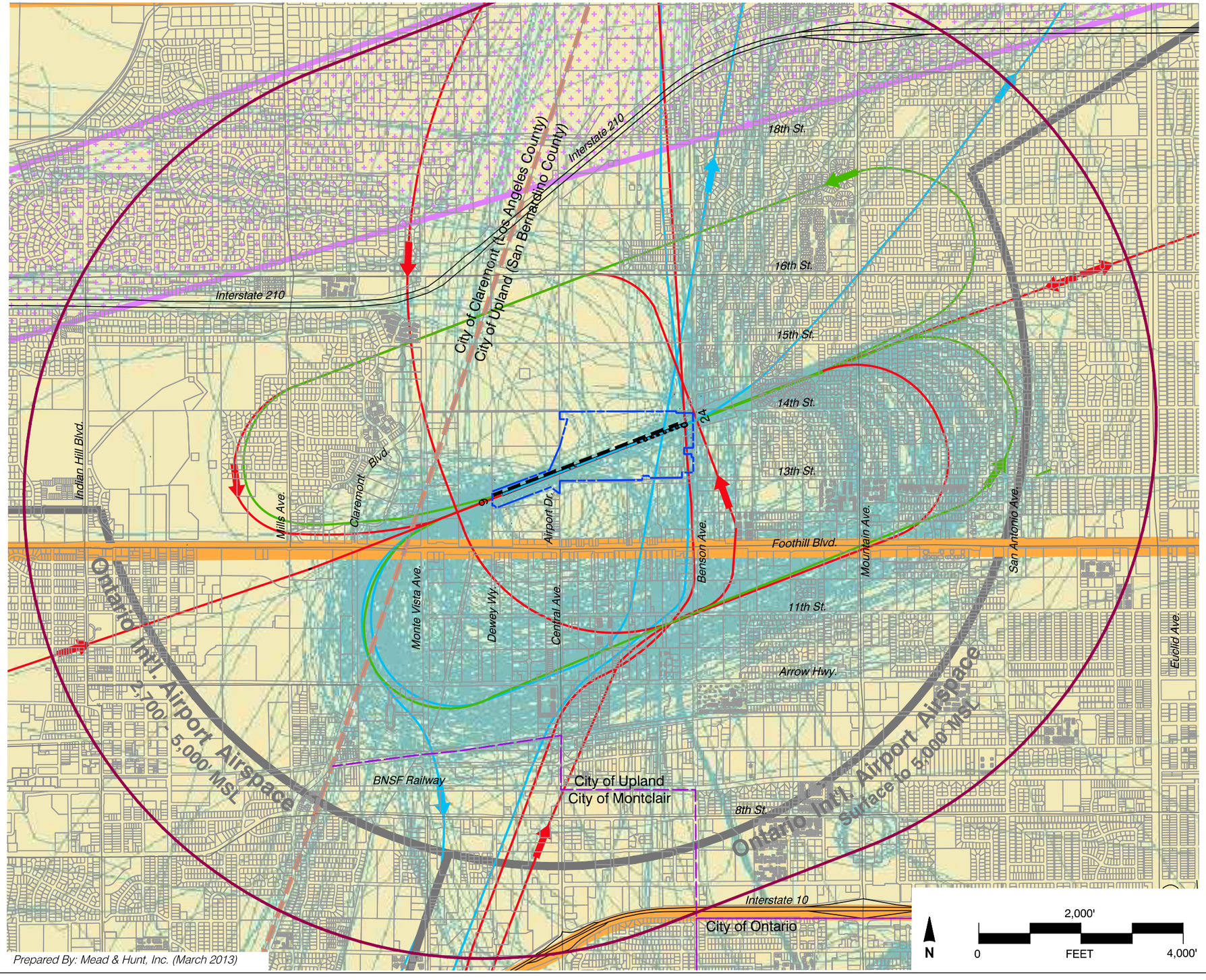
[c] Source: Airport staff (2008)

[d] Source: *Cable Airport Master Plan* (April 2011)

Exhibit 3

Airport Activity Data Summary

Cable Airport



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Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Flight Tracks

- Radar Flight Tracks
- Arrival Routes
- Departure Routes
- Touch & Go Pattern
- Fixed Wing VFR Route Corridor
- Helicopter Flight Corridor

Notes

1. Airport elevation is 1,444' MSL.
2. Radar flight track source: Los Angeles World Airports November 2nd - 8th, 2008.
3. Generalized flight tracks source: Mead & Hunt, Inc. (December 2008).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 4

Aircraft Flight Tracks

Cable Airport

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AIRPORT SITE

- *Location*
  - Southwestern San Bernardino County, adjacent to Los Angeles County boundary
  - Within City of Upland, 2 miles northwest of city center
- *Nearby Terrain*
  - Base of San Gabriel Mountains 3 miles north; highest peaks 10 miles north
  - Airport site in floodplain of San Antonio Wash; San Antonio Channel just beyond west end of runway
  - Site slopes upward to north at 3-4%

AIRPORT ENVIRONS LAND USE JURISDICTIONS

- *City of Upland (San Bernardino County)*
  - Airport and immediate environs fully within city limits
- *City of Claremont (Los Angeles County)*
  - City limits and county line 0.3 miles west of runway
- *City of Montclair (San Bernardino County)*
  - City limits 1.0 mile south of runway

STATUS OF COMMUNITY PLANS

- *City of Upland*
  - General Plan adopted 1982; Land Use element updated 1996
  - General Plan Update pending adoption for September 2015
- *City of Claremont*
  - General Plan adopted 2007
- *City of Montclair*
  - General Plan adopted 1999

EXISTING AIRPORT AREA LAND USES

- *General Character*
  - Predominantly urban except to north
- *Runway Approaches*
  - West (Runway 6): San Antonio Channel; industrial park (0.2 mi.); Claremont Colleges (0.7 mi.)
  - East (Runway 24): Road; open space with light industrial adjacent; single-family residential (0.3 mi.)
- *Traffic Patterns*
  - South: Light industrial and commercial with some vacant parcels; residential, mostly multi-family and mobile home parks (0.3 mi. southeast, 0.7 mi. south)
  - North: Gravel quarries; Interstate 210 (1 mi.); residential to northwest (0.9 mi.) and northeast (0.3 mi.)

PLANNED AIRPORT AREA LAND USES

- *City of Upland—General Plan Update Land Use Element*
  - Designated uses mostly reflect existing development
  - Continuation of open space in runway protection zone on east; light industrial adjacent to RPZ; residential east of RPZ
  - Commercial/industrial infill to south
  - "Public" use shown to southwest
  - Quarry areas to north designated open space
- *City of Claremont—2007 General Plan Land Use Map*
  - Commercial and business park closest to runway end north of Foothill Blvd.
  - Institutional uses south of Foothill Blvd.
  - Multi-family residential to southwest (1.0 mi.)
- *City of Montclair—1999 General Plan Land Use Map*
  - Planned development at north end of city; mostly parking and commercial adjacent to Metrolink line

ESTABLISHED AIRPORT COMPATIBILITY MEASURES

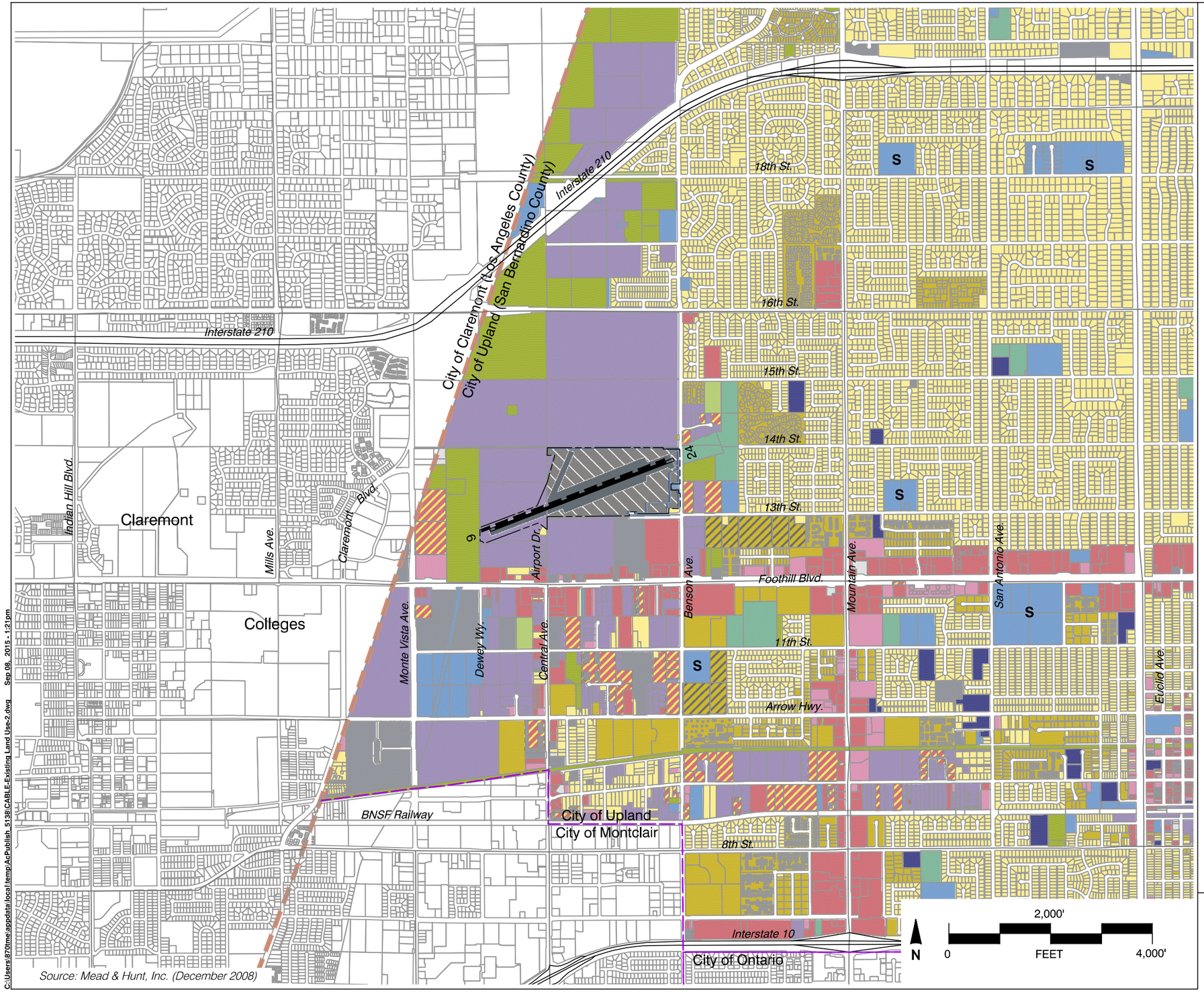
- *City of Upland—1982 General Plan as amended*
  - Limited reference to airport or airport compatibility
  - Noise Element deems residential uses compatible at exposures up CNEL 70 dB
- *City of Upland—Zoning Ordinance*
  - Airport Industrial and Airport Commercial zones established to provide compatible uses on and adjacent to airport
  - No airport-related height limit zoning
- *City of Claremont—2007 General Plan*
  - Public Safety Element policy to lower the risks of aircraft accidents by adhering to airport land use compatibility plans and FAA restrictions
  - Noise Element policy encourages Cable Airport to ensure that airport users "know and obey flight pattern requirements and altitude restrictions"
  - Maximum noise levels for new residential uses: CNEL 65 dB for single-family, 70 dB for multi-family
- *City of Claremont—Zoning Ordinance*
  - No airport-related height limit zoning
- *City of Montclair*
  - No airport compatibility references or height limits

Prepared by Mead & Hunt, Inc. (2015)

Exhibit 5

Airport Environs Information

Cable Airport



Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line

Existing Land Use (as of 2008)

- Residential Single-Family
- Residential Multi-Family
- Residential Mobile Home Park
- Mixed Use
- Commercial
- Office
- Industrial
- Public/Quasi Public
- Special/Institutional
- Airport
- Park
- Other Open Space
- Agriculture
- Parking
- Vacant
- S Children's School

Source: The Planning Center/DC&E (2008).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 6

Existing Land Use

Cable Airport Environs

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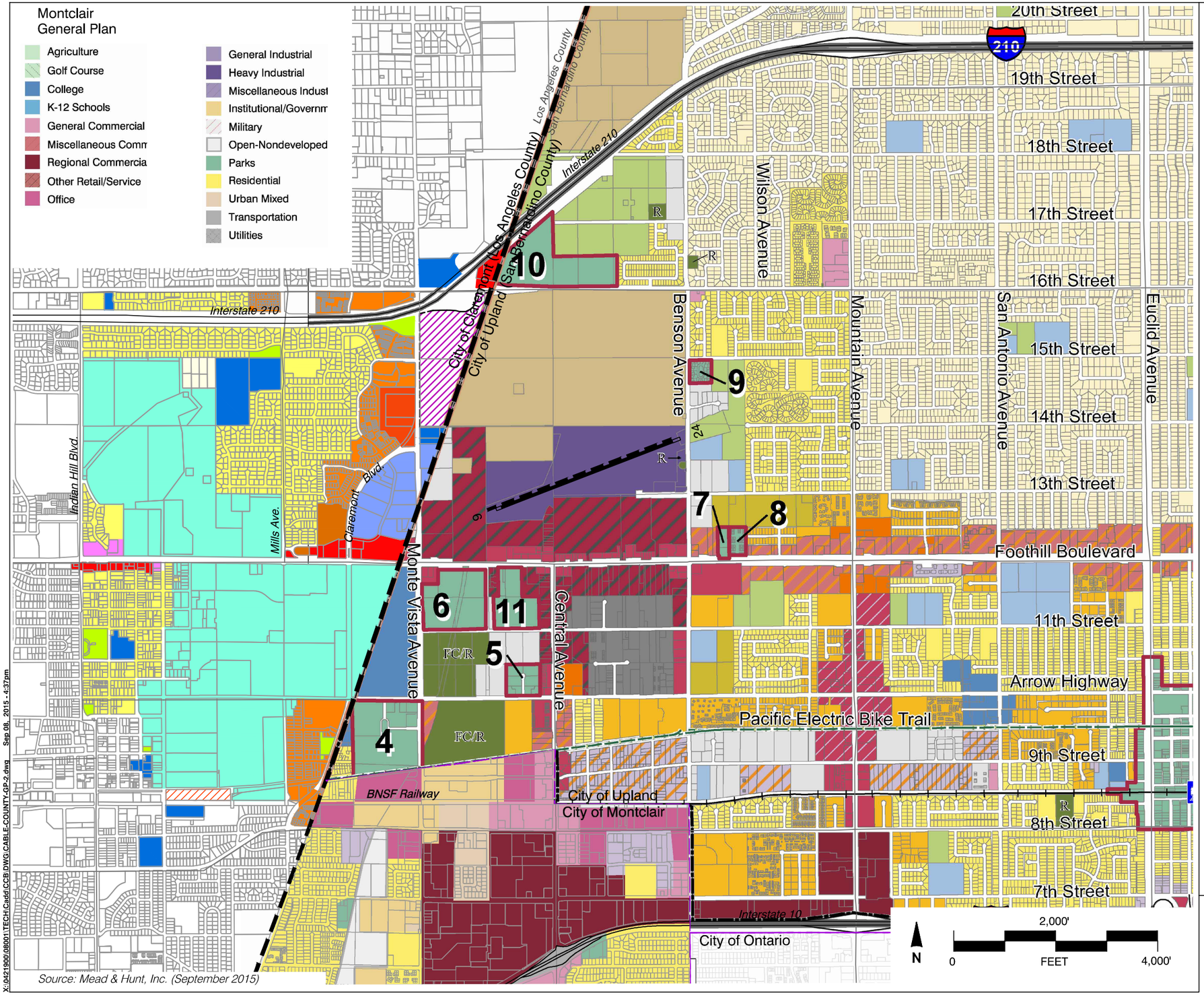

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Legend

Upland General Plan

SINGLE-FAMILY RESIDENTIAL
- LOW (0-4 du/ac; SFR-L)
- MEDIUM (4-10 du/ac; SFR-M)
- Mobile Home (8-14 du/ac; MH)

MULTI-FAMILY RESIDENTIAL
- LOW (10-20 du/ac; MFR-L)
- MEDIUM (20-30 du/ac; MFR-M)
- HIGH (30-40 du/ac; MFR-H)

COMMERCIAL
- Neighborhood Commercial (NC)
- Highway Commercial (HC)
- Regional Commercial (RC)
- Office/Professional (OP)

MIXED-USE
- Commercial/Residential Mixed-Use (C/R-MU)
- Commercial/Office
- Business/Residential Mixed-Use (B/R-MU)
- Commercial/Industrial Mixed-Use (C/IN-MU)

INDUSTRIAL
- Light Industrial/Business Park (LI-BP)
- Industrial (IN)
- Gravel Mine (GM)

SPECIAL/INSTITUTIONAL
- Cable Airport (CA)
- Institutional (I)
- Civic/School (C-P)
- Park/Open Space (P-OS)
- Public Utilities (PU)
  R- Reservoir
  L- Landfill
  EE- Edison Easement
  FC/R- Flood Control/Recharge

SPECIFIC PLAN
- Specific Plan (SP)

1. The Colonies
2. Upland Hills Country Club
3. Historic Downtown Upland
4. College Park
5. College Commerce Center
6. Upland Crossing
7. Foothill Benson Terrace
8. Foothill Walk
9. Wyeth Cove
10. Park View
11. The Enclave

Claremont General Plan
- Residential 2
- Residential 6
- Residential 15
- Residential 22
- Mixed Use
- Commercial
- Office Proffessional
- Commercial Recreation
- Business Park
- Commercial / Business Park
- Public
- Institutional
- Park / Resource Conservation

Notes

Land Use Sources:
- San Bernardino Assoc. of Governments Compilation of General Plan land use maps.
  - Upland (2015)
  - Montclair (1999)
  - Claremont General Plan Land Use Map (2007)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 7

Planned Land Uses

Cable Airport Environs

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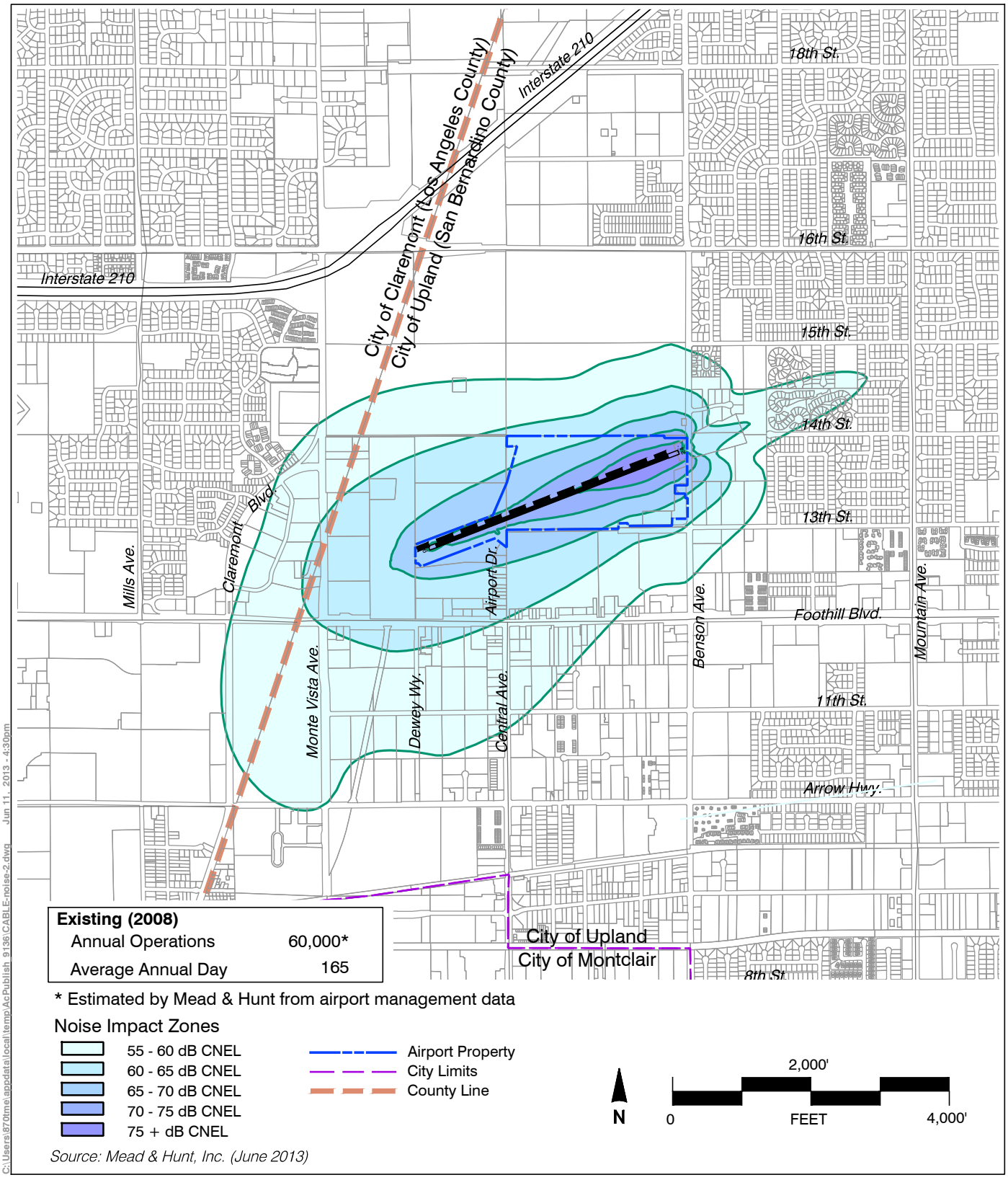
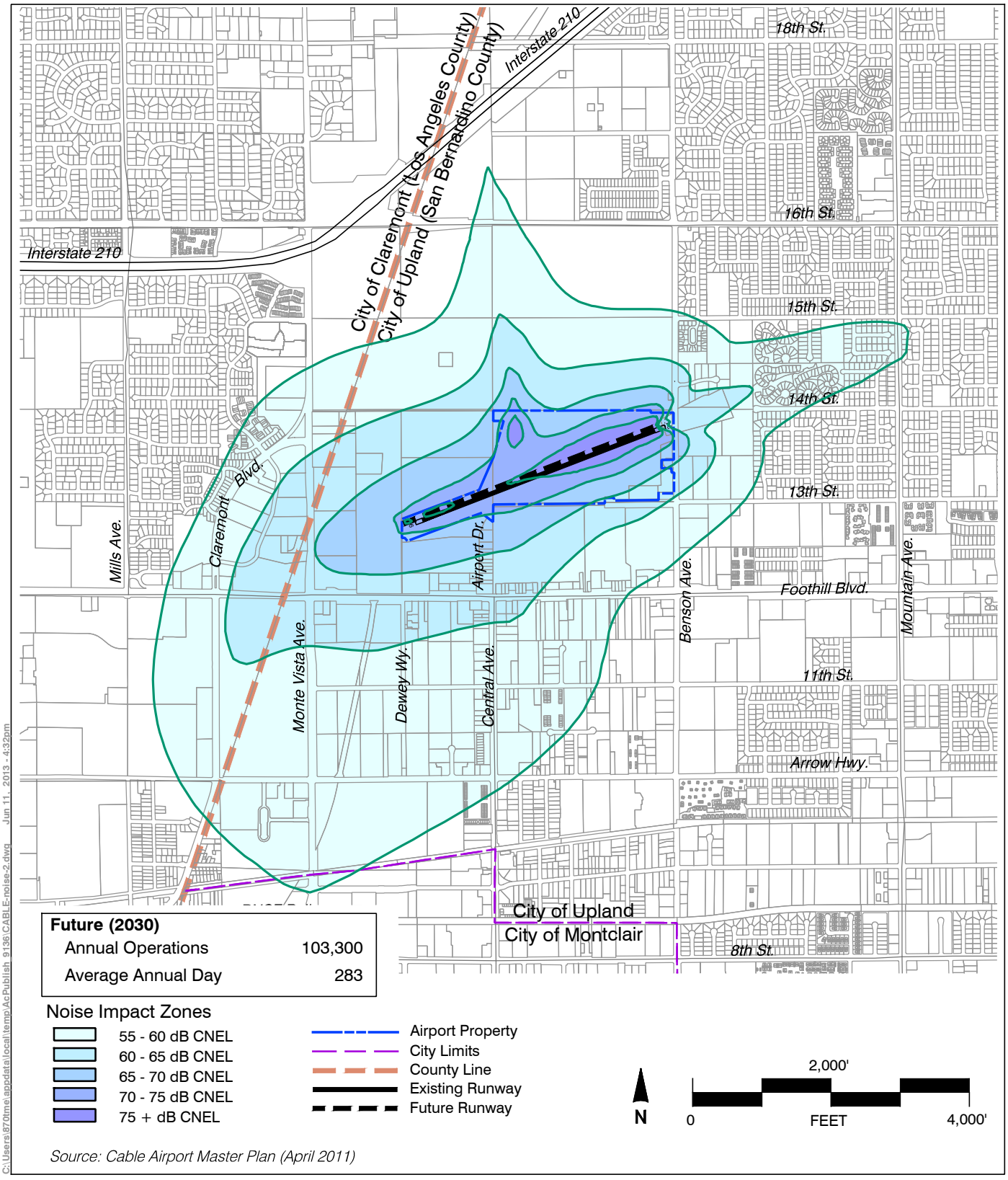


Exhibit 8

Existing Noise Impact - 2008

Cable Airport



Source: Cable Airport Master Plan (April 2011)

Exhibit 9

Future Noise Impact Area

Cable Airport

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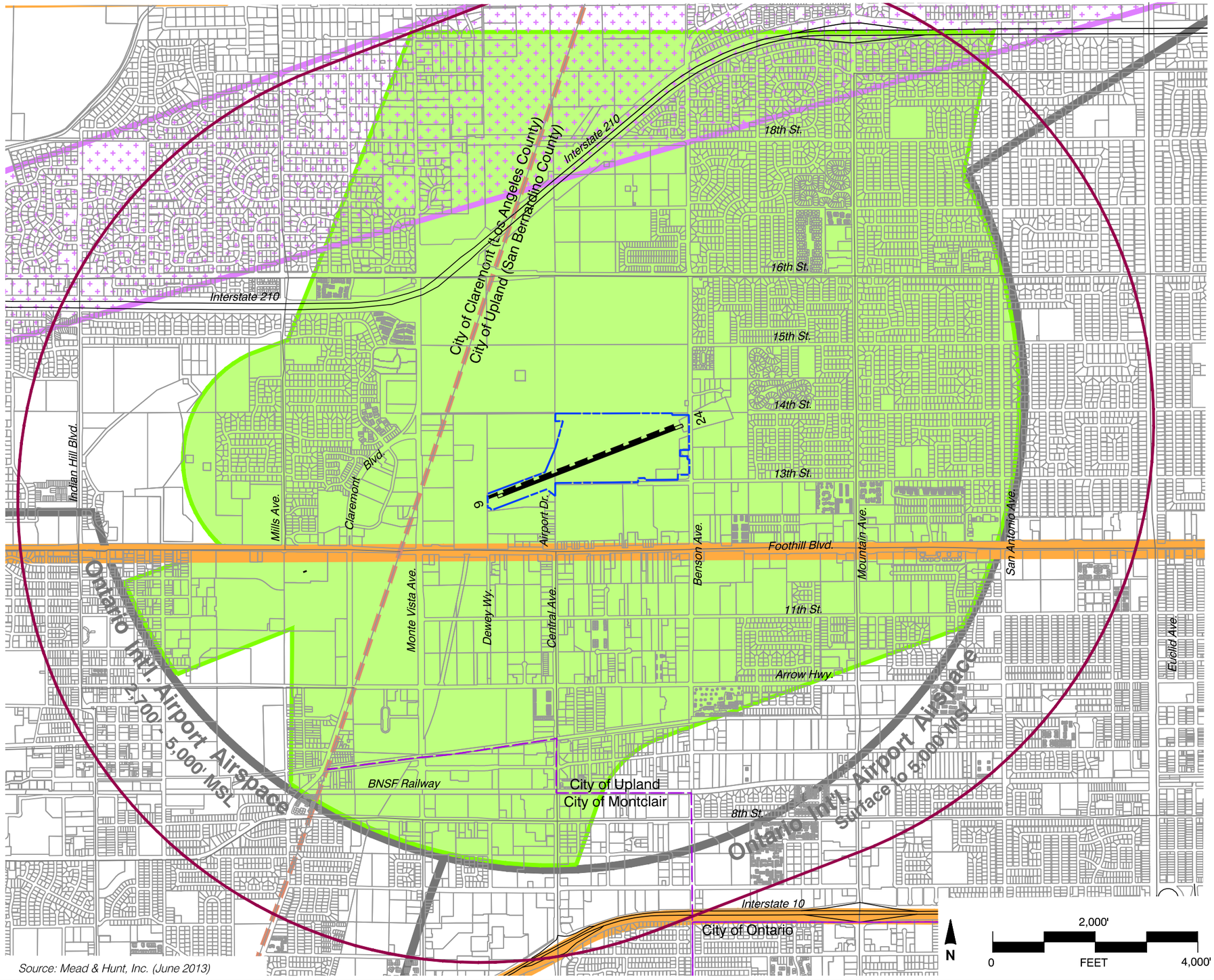

Source: Mead & Hunt, Inc. (June 2013)

Legend

Boundary Lines

- Airport Property Line
- Parcel Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Overflight Factors

- Primary Overflight Area[3]
- Secondary Overflight Area/Airport Infl. Area
- Fixed Wing VFR Route Corridor
- Helicopter Routes

Notes

1. Parcel base map source: San Bernardino Association of Governments.
2. Overflight areas defined based upon flight track data in Exhibit 4.
3. Shaded area represents where aircraft regularly fly at approximately the traffic pattern altitude or below (800 feet above airport elevation or less).

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 10

Overflight Impact Area

Cable Airport

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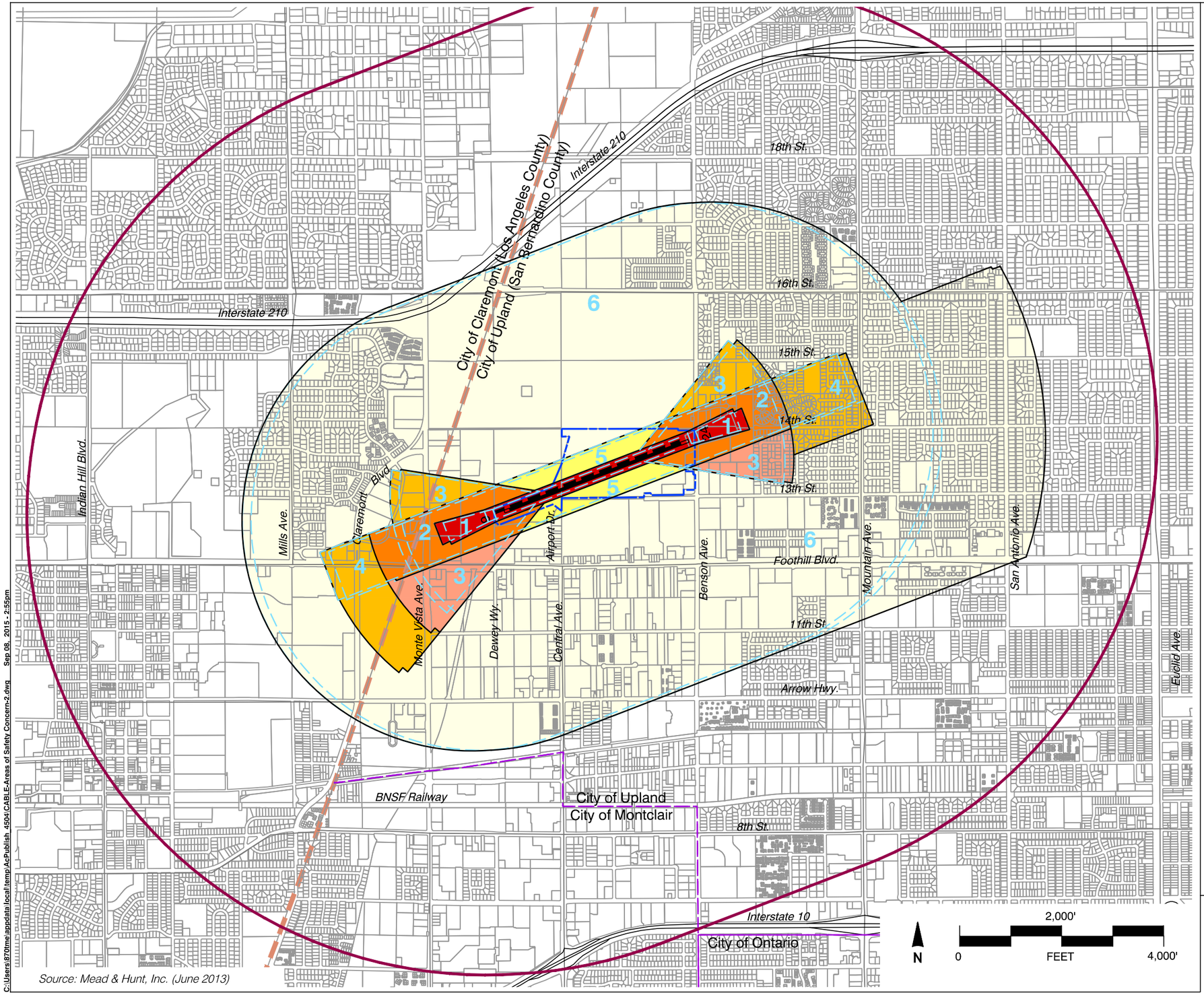

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Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Airport Impact Areas

- Airport Influence Area
- Generic Safety Zones (Short (<4,000') General Aviation Runway)[2]

Areas of Safety Concern

- Zone 1 - Runway Protection Zone
- Zone 2 - Inner Approach/Departure Zone
- Zone 3 - Inner Turning Zone
- Zone 4 - Outer Approach/Departure Zone
- Zone 5 - Sideline Zone
- Zone 6 - Traffic Pattern Zone

Notes

1. Future runway is proposed to shift 50 feet northward and approximately 164 feet westward of its existing position. The length remains unchanged. Runway length = 3,864'

2. Generic safety zones source: California Airport Land Use Planning Handbook (January 2002).

3. Generic safety zones adjusted for Cable Airport to reflect the following factors:
   -Runway length near upper end of short runway range.
   -Close-in noise abatement turns to south on Runway 24 departures.
   -Extended traffic pattern on East.
   -Low traffic pattern altitude (800').
   -Limited North-side traffic pattern.

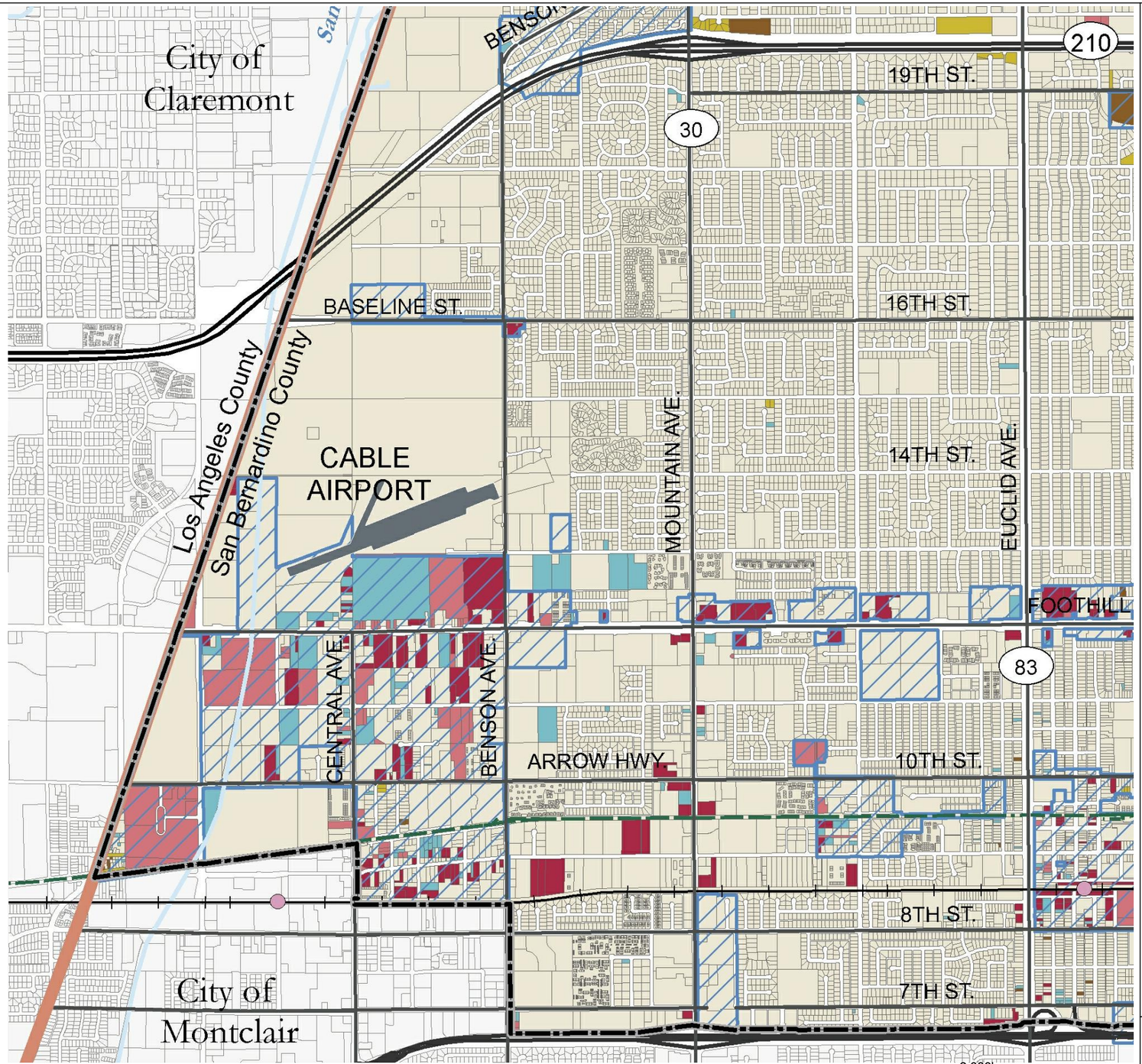
4. ALUCP protects both existing and planned runway alignments (see criterian 3.1.3)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 11

Areas of Safety Concern

Cable Airport



Legend

- County Boundary
- City Limits
- Sphere of Influence
- Redevelopment Areas
- Water Feature
- Underutilized Residential
- Vacant Residential
- Underutilized Non-Residential
- Vacant Non-Residential
- Need to Verify

Notes

1. Source: The Planning Center/DC&E (October 2008)

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 12

Vacant and Underutilized Land

Cable Airport Environs

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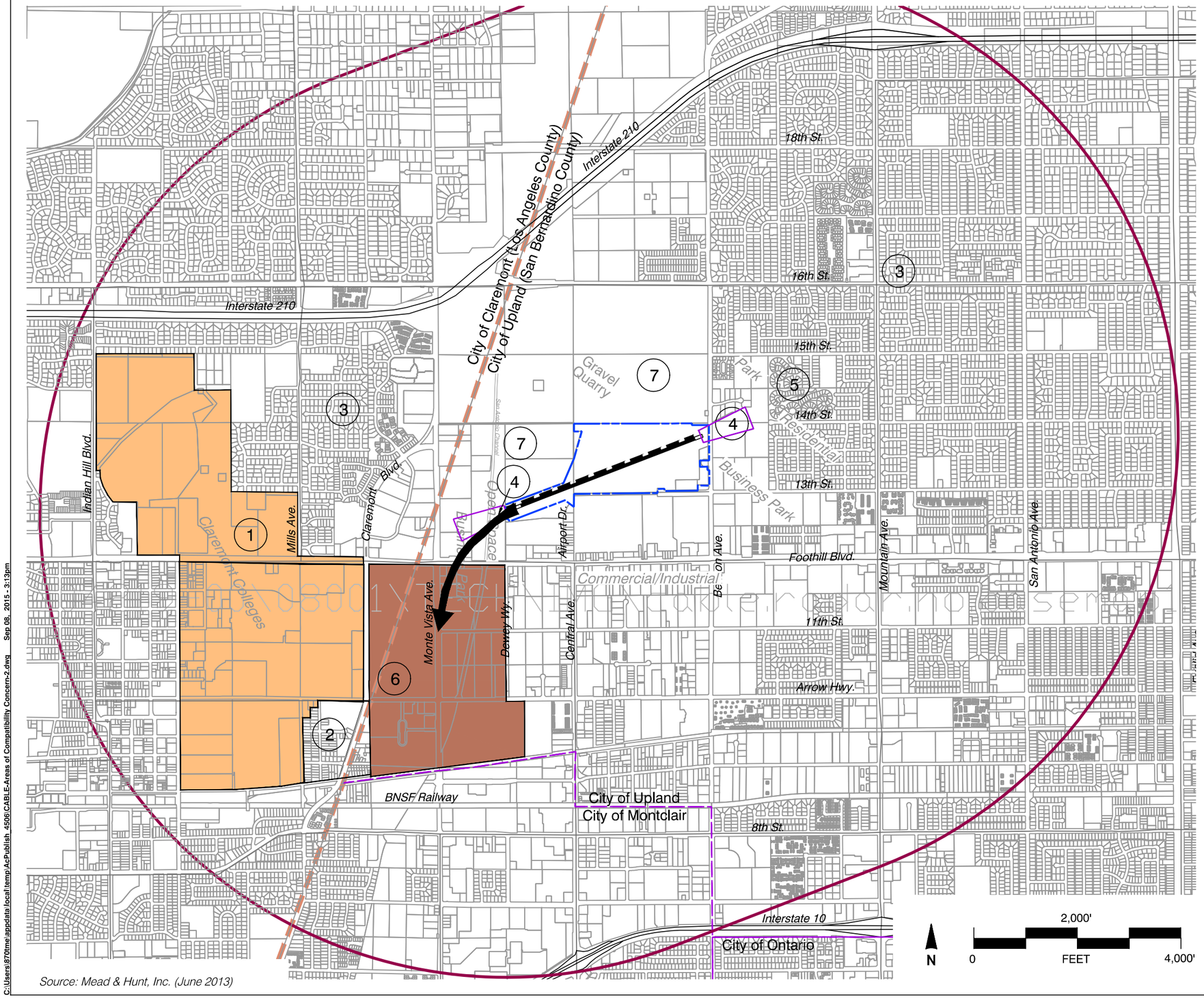

Source: Mead & Hunt, Inc. (June 2013)

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Legend

Boundary Lines

- Airport Property Line
- City Limits
- County Line
- Existing Runway
- Future Runway

Airport Impact Areas

- Airport Influence Area
- Runway Protection Zone
- Primary Departure Route

1. Claremont Colleges (noise and risk sensitive area)
2. Residential area near primary departure route
3. Residential area affected mostly by north-side traffic pattern
4. Runway Protection Zones
5. Residential area in Safety Zone 2
6. Vacant land along primary departure route (noise and safety concern with future development)
7. Gravel Quarries (bird attraction concerns with future development)

Notes

1. See text for discussion.

Cable Airport
Land Use Compatibility Plan
(September 2015)

Exhibit 13

Areas of Compatibility Concern

Cable Airport

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APPENDIX J-4:

Cable Airport Land Use Planning Handbook, California Department of Transportation, Division of Aeronautics, October 2011

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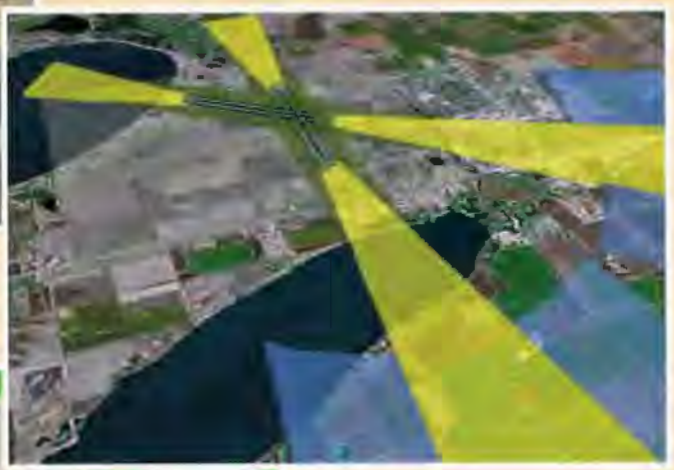
AERONAUTICS
DEPARTMENT OF TRANSPORTATION

California Airport Land Use Planning Handbook









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Division of Aeronautics

Caltrans

October 2011

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INTRODUCTION









Introduction to the California Airport Land Use Planning Handbook

i-1 ENABLING LEGISLATION

The purpose of the California State Aeronautics Act (SSA) pursuant to Public Utilities Code (PUC), Section 21001 et seq., "is to protect the public interest in aeronautics and aeronautical progress." The California Department of Transportation, Division of Aeronautics, administers much of this statute. The purpose of the California Airport Land Use Planning Handbook (*Handbook*) is to provide guidance for conducting airport land use compatibility planning as required by Article 3.5, Airport Land Use Commissions, PUC Sections 21670 – 21679.5. Article 3.5 outlines the statutory requirements for Airport Land Use Commissions (ALUCs) including the preparation of an Airport Land Use Compatibility Plan (ALUCP). Article 3.5 mandates that the Division of Aeronautics create a *Handbook* that contains the identification of essential elements for the preparation of an Airport Land Use Compatibility Plan (PUC Sections 21674.5 and 21674.7). This *Handbook* is intended to (1) provide information to ALUCs, their staffs, airport proprietors, cities, counties, consultants, and the public, (2) to identify the requirements and procedures for preparing effective compatibility planning documents, and (3) define exemptions where applicable.

i-2 APPLICABILITY

This *Handbook* applies to ALUCs established under the SAA, who are charged with providing for compatible land use planning in the vicinity of each existing and new public use airport within their jurisdiction. Most notably, it provides guidance for the preparation, adoption, and amendment of an ALUCP. Several PUC sections identify the *Handbook* as a resource for airport land use compatibility planning, including Sections 21674.5 and 21674.7.

i-2.1 Scope of the Handbook Update

This volume represents the fourth edition of the *Handbook*. While this *Handbook* will present some additional information on the California Environmental Quality Act (CEQA) and present new information on the topic of Next Generation Air Transportation System (NextGen), the

primary purpose of this edition is to update and clarify concepts and processes that were described in the 2002 *Handbook*. Some of the more general discussions have been condensed or removed in order to prevent confusion about what must be done and what might be done. Throughout the text, anytime the term "shall" is used it indicates that there is a statutory requirement to be followed and a legal code reference will be given. The term "may" indicates that the action is statutorily permitted but not required. And lastly, the terms "should" or "could" indicate that the action is simply a best practice recommendation. Any reference to the "Department" means the Department of Transportation, or Caltrans, unless otherwise stated. The "Division" shall mean the Division of Aeronautics.

The 2011 *Handbook* provides guidance for meeting the baseline safety and compatibility requirements; however, ALUCs may choose to be more restrictive than the State's guidance when their local conditions warrant doing so. With respect to how land is used and regulated by local governments, the Division does not have the authority to adopt land use development standards. Conversely, ALUCs are statutorily permitted (i.e. they have the option and authority) to include building standards, height restrictions and land uses in their Airport Land Use Compatibility Plans (PUC Section 21675(a)). When an ALUC chooses to establish development standards in an ALUCP to prevent airport noise and safety hazards, they are indirectly setting development standards for local government because local government general and specific plans (and therefore their implementing standards) must be consistent with the ALUCP (Section 21670.1(c)(2)(D) and Government Code Section 65302.3(a)), unless the conclusion of the overrule process allows otherwise.

It is not the intent of the preparers of this edition to fully replicate the extensive research that was performed in support of the previous *Handbook* editions. The intent was to analyze and determine if the data and conclusions that were reached in the 2002 *Handbook* are still valid today. As discussed in Appendix E, recent accident data does not support changes to the safety zones (presented in Chapter 3). Similarly, while tools for estimating and monitoring aircraft noise continue to improve, the basic compatibility standards for aircraft noise have not changed at the federal or state level.

i-2.2 Handbook Organization

The *Handbook* is organized to assist a variety of participants with the airport land use compatibility planning process. The *Handbook* is composed of an Introduction and six chapters that follow a logical progression. The Introduction gives the statutory authority, purpose and applicability of the *Handbook* and presents the basic concepts behind airport land use compatibility planning. Chapter 1 describes the ALUC formation options, the basic functions of an ALUC, and an overview of the airport land use compatibility planning process. Chapter 2 describes the ALUCP, its contents, and its relationship with other planning documents. The Introduction, Chapter 1 and Chapter 2 provide the guiding principles for the remainder of the *Handbook*. The information in Chapters 3 through 6, and the appendices, provide ALUC staff and consultants with "how to" advice for preparing and using an ALUCP and for other related ALUC duties. Chapter 3 describes the development of compatibility planning policies while Chapter 4 addresses the development of compatibility criteria. Chapter 5 explains the role of local agencies (cities and counties) in the implementation phase of compatibility planning and

their responsibilities in the airport land use planning process. Chapter 6 discusses the ALUC's role in reviewing local actions.

The appendices contain technical information, including some of the information that was in the main body of the 2002 *Handbook*. They also include check lists and sample implementation documents (Appendix H, I and J) to assist the ALUC as they conduct airport compatibility planning.

i-2.3 Transition Between the 2002 and 2011 Handbooks

The transition between a new edition of the *Handbook* is understandably a concern for those ALUCs who are in the process of updating their ALUCPs. The 2011 *Handbook* update supersedes the 2002 *Handbook*. For an ALUCP update that is in process, but not yet adopted, the ALUC will need to consider how far along they are in the planning process, how expansive the update is, and to what extent the revisions and additions in the 2011 *Handbook* apply to a particular airport.

The publication of the 2011 *Handbook* does not trigger the need to update a previously adopted ALUCP. However, ALUCs are well served to consider the adequacy of their adopted ALUCPs with regards to: statutory changes since the last ALUCP update, changes in current or forecasted operations at the airport(s) covered by the ALUCP, and changes in development patterns or land use plans in the vicinity of the airport(s) covered by the ALUCP.

If, as a result of legislative action, there is a conflict between the *Handbook* and the State Aeronautics Act, or any other California statute, the adopted statue shall govern.

The Divisions legal approach to interpreting regulations and the PUC is prescriptive, rather than permissive. When a prescriptive statute is silent and does not address an issue or subject, its language is mandatory and limited to what is explicitly stated in the statute.

i-3 BACKGROUND

A brief description of aviation in California today will help the reader to understand the context in which airport land use compatibility planning exists and the importance of preserving airport facilities.

i-3.1 Airports in California

California has a diverse variety of airport types, ranging from large hub commercial airports to small, privately owned airstrips. Additionally, California supports a large number of facilities in a wide range of categories. Although commercial service airports handle most of the public's air travel needs, the most common type of airport in California is the general aviation airport. General aviation airports offer a wide variety of services, ranging from flight instruction and recreation, to air cargo, emergency medical transportation, law enforcement, and firefighting operations. Each ALUCP must be customized to reflect the individual conditions of each airport.

i-3.2 Economic Importance of Airports in California

Aviation is a vital link in the local, national, and global transportation system. Air cargo, consisting mainly of high-value, time-sensitive documents and goods, plays a significant role in the vitality of the state's economy. In today's international and technology-oriented economy, businesses use the speed and reliability of air service to achieve operating efficiency. California's airports are critical for providing services such as business travel, tourism, emergency response, fire suppression, and law enforcement. Airports, airlines, and businesses that support airports provide direct and indirect jobs and income throughout the State.

The vital role that airports play in economic development and as a means of passenger and cargo transportation cannot be understated. In 2009, 163.9 million passengers (enplaned and deplaned) traveled through California's commercial service airports; making up 11.6 percent of the national enplanement total. Furthermore, 3.5 million tons of air cargo moved through 24 of California's commercial and general aviation airports in 2009.

i-3.3 Reciprocal Impacts: Airports and the Surrounding Community

It is important to understand the ways in which an airport interacts with the land uses around it. Despite the mutually beneficial economic relationship that airports can have with the communities around them, the reality is that airports also create certain unwanted impacts. Airports can create impacts such as noise, vibration, odors, and risk of accidents. Likewise many land uses can cause direct or indirect impacts on the way airports grow and the safety of their operations. Development around an airport, particularly in the approach and departure paths, can create obstructions in the airspace traversed by an approaching or departing aircraft. Additionally, certain land uses have the potential to attract wildlife or to create hazards to aircraft such as a distracting glint or glare, smoke, steam, or invisible heat plumes.

i-4 THE GOAL OF AIRPORT LAND USE COMPATIBILITY

Airport land use compatibility is the reconciliation of how land development and airports function together. The concept of compatibility has been defined as: "Airport compatible land uses are defined as those uses that can coexist with a nearby airport without either constraining the safe and efficient operation of the airport or exposing people living or working nearby to unacceptable levels of noise or (safety) hazards. Compatibility concerns include any airport impact that adversely affects the livability of surrounding communities, as well as any community characteristic that can adversely affect the viability of an airport (PAS 2010, p. 39)".

Incompatible development near an airport can lead to a politically contentious relationship between an airport and the communities around it, resulting in complaints and demands for restrictions on airport operations, ultimately threatening the airport's ability to operate efficiently and serve its function in the local economy.

i-5 BASIC ELEMENTS OF AIRPORT - LAND USE COMPATIBILITY

i-5.1 Compatibility Planning Goals

The desired outcome or result of airport land use compatibility planning is to "minimize the public's exposure to excessive noise and safety hazards" while providing for the "orderly expansion of airports" (Section 21670 (a)(2)). This planning effort is applied to "the area surrounding these airports" (Section 21670 (a)).

i-5.2 Noise and Overflight

Noise is sometimes perceived to be the most significant concern generated by aircraft operations, and it can be audible for miles from an airport. The challenge of determining appropriate land use compatibility policies regarding aircraft noise is that not everyone responds to noise the same way. A sound that is an annoyance to one person may be barely perceived by another. Furthermore, one community may deem a land use acceptable within a certain noise level, while another does not (e.g. urban environments may have less restrictive residential noise standards than suburban or rural ones).

With regard to noise and overflight, the goal of airport compatibility planning is to reduce annoyance and to minimize the number of people exposed to excessive levels of aircraft noise.

i-5.3 Safety and Airspace Protection

The concept of safety is more difficult to define than the concept of noise. Safety issues are considered for both those living and working near an airport as well as those using the airport.

The issue of safety compatibility is one of evaluating "risk", and determining the locations around an airport that are at the greatest risk of experiencing an aircraft accident. Research was performed during the preparation of this *Handbook* update to identify any potential changes in aircraft accident patterns. Nothing substantial has changed with respect to where the highest number of aircraft accidents are occurring. Typically accidents occur along the extended runway centerline. Proper safety and airspace protection minimizes the number of people on and off of the airport that are exposed to the risks associated with potential aircraft accidents and avoids flight hazards that interfere with aircraft navigation.

CHAPTER 1
AIRPORT LAND USE COMMISSIONS









Chapter 1

Airport Land Use Commissions

1.1 PURPOSE AND AUTHORITY OF AIRPORT LAND USE COMMISSIONS

The purpose of an Airport Land Use Commission (ALUC) is to conduct airport land use compatibility planning. ALUCs protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses. The statutes governing ALUCs are set forth in Division 9, Part 1, Chapter 4, Article 3.5, Sections 21670 – 21679.5 of the California Public Utilities Code (PUC).

The statutorily defined responsibilities of ALUCs have not changed since publication of the January 2002 edition of the Caltrans Handbook

This chapter focuses on:

- **The purpose of ALUCs**
- **ALUC formation choices**
- **ALUC compatibility planning process**
- **Statutory requirements and options**
- **Intergovernmental roles**

An ALUC has the following powers and duties, per PUC Section 21674:

- To assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.
- To coordinate planning at the state, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.
- To prepare and adopt an airport land use compatibility plan pursuant to Section 21675.
- To review the plans, regulations, and other actions of local agencies and airport operators pursuant to Section 21676.
- The powers of the commission shall in no w ay be construed to give the commission jurisdiction over the operation of any airport.
- In order to carry out its responsibilities, the commission may adopt rules and regulations consistent with this article.

1.2 ALUC FORMATION CHOICES

The state law governing creation of airport land use commissions applies to every county in California having an airport "operated for the benefit of the general public" (PUC Section 21670(b)). Each county subject to Article 3.5 of the State Aeronautics Act (SAA) must choose the means by which they will accomplish proper airport land use compatibility planning. This section does not apply to the City and County of San Francisco because it does not have a public use airport. Thus, there are 57 counties in California that fall into one of the following six types of ALUCs: an ALUC, an Exempt County, a Designated Body, a Designated Agency, an Exception County, and an Intercounty ALUC. The six types and their statutory authorization are shown in Table 1A below.

Table 1A: ALUC FORMATION CHOICES BY STATUTE

DESCRIPTION	PUC SECTION
ALUC	21670(b)
Self-declared Exempt	21670(b)
Designated Body	21670.1(a)
Designated Agency	21670.1(c)
Statutory Exceptions	
Los Angeles County	21670.2
San Diego County	21670.3
Kern County	21670.1(d)
Santa Cruz County	21670.1(e)
Intercounty ALUC	21670.4

1.2.1 ALUC

The basic procedure established by Article 3.5 of the SAA is the creation of a single-purpose (or stand-alone) ALUC comprised of seven members. The county board of supervisors, a city selection committee, and a public airports selection committee each select two members, with the seventh commissioner appointed by the other six commissioners to represent the general public (PUC Section 21670(b)). The selection process is described in Section 1.4.1, below.

While the ALUC uses county staff, the commission's autonomous decision-making authority is separate from other actions of the County and the board of supervisors. The terms and duties of the commissioners are further discussed in Section 1.4.2.

1.2.2 Self-Declared Exemption

The PUC contains provisions for a self-declared exemption from the SAA (PUC Section 21670 (b)). A county declaring itself exempt from the requirements to form an ALUC is required to consult with airport operators and affected cities, hold a public hearing, and adopt a resolution stating that there are no noise, safety or land use issues affecting any airport in the county. A copy of the resolution must be transmitted to the Division of Aeronautics.

The procedures for conducting this action are found in Section 21760(b) and read in part:

> "The Board of Supervisors of the county may, after consultation with the appropriate airport operators and affected local entities and after a public hearing, adopt a resolution finding that there are no noise, public safety, or land use issues affecting any airport in the county which require the formation of a commission and declaring the county exempt from that requirement. The board shall, in this event, transmit a copy of the resolution to the Director of Transportation" (Section 21670 (b)).

For matters of practicality, the Board may transmit their resolution of exemption directly to the Division of Aeronautics who will advise the Director of receipt of the resolution. Counties that may qualify for this exemption, or want to verify their exemption status, are encouraged to contact the Division's land use planner assigned to their geographic area.

1.2.3 Designated Body

If the board of supervisors and the mayors' committee in a county each determine that another body can accomplish airport land use compatibility planning, then such a body can be designated to assume the planning responsibilities of the airport land use commission and a separate commission need not be established (Section 21670.1(a)). The designated body must have at least two members with aviation expertise or, when serving as the ALUC, be augmented to have two members thus qualified (Section 21670.1(b)). In most of these instances, a regional planning agency (a Regional Transportation Planning Agency or Metropolitan Planning Organization) serves as the ALUC. Other options include the board of supervisors, the county planning commission, or the county airport commission.

A designated body has the same responsibilities as an ALUC County as defined in Section 21670, including the preparation and adoption of an airport land use compatibility plan (ALUCP).

1.2.4 Designated Agency

In lieu of an ALUC or designated body, the county and each affected city may incorporate airport compatibility concerns into their land use planning and permitting processes per PUC Section 21670.1(c). Subject to Division review and approval, the county and each affected city determine the processes to accomplish proper land use planning and determine the agency responsible for preparation of each ALUCP. This format of compatibility planning has the same responsibilities as an ALUC county, including general and specific plan consistency with the ALUCP(s).

The designated agency, identified as the "alternative process" in the 2002 edition of the *Handbook*, was created in 1994 to provide a potentially lower cost option for compliance with the SAA. The processes of a designated agency are described in PUC Sections 21670.1(c). One of the distinguishing features of this option is that the ALUC functions within the County may be carried out by more than one agency, unlike the single-purpose ALUC or designated body. Counties who have chosen this compatibility planning method incorporate various planning tools to carry out their responsibilities. While the Division has the authority to review and approve the proposed processes,

its main concern is with the ability of the county and affected cities to meet the objectives of the SAA, and not with the individual methods employed.

1.2.5 Statutory Exceptions

Statutory exceptions were created by legislation for counties who requested relief from some of the provisions in Article 3.5. Exceptions were granted based on the unique conditions in these counties. None of the statutory exception counties are required to form an ALUC. The PUC includes four counties as statutory exceptions, namely Kern (Section 21670.1(d)), Santa Cruz (Section 21670.1 (e)), Los Angeles (Section 21670.2(a)), and San Diego (Section 21670.3(a)). Additionally, Santa Cruz County has been identified as being a "no procedures county." The organizational structure and processes of a statutory exception county can resemble either a designated body or a designated agency. The applicable Article 3.5 provisions are slightly different in these counties.

Kern County

Section 21670.1(d) provides a conditional waiver from the requirement to form an ALUC for a county that contracts with the Division to prepare ALUCPs. This exception requires that the County and the affected cities (1) "agree to adopt and implement" an ALUCP(s) and (2) to incorporate applicable federal regulations and *Handbook* compatibility criteria into their general and specific plans. Kern County is the only county currently with this arrangement.

Santa Cruz County

Santa Cruz County uses exception (Section 21670.1(e)) as they are a County which "has only one public use airport that is owned by a (single) city." The City of Watsonville is identified as owning the airport. The City of Watsonville is required to include all applicable federal regulations and the *Handbook's* compatibility criteria noted in PUC Section 21670.1(d)(2) as part of its general and specific plans. The original statutory exception did not specify the preparation of an ALUCP, however, the City of Watsonville must submit its general and specific plans to the Division of Aeronautics (21670.1(e)(1)(B)(ii)) for review.

Los Angeles County

Los Angeles County formed their ALUC type pursuant to PUC Section 21670.2(a), which identifies a specific governmental entity, in this case Los Angeles County Regional Planning Commission, to be responsible for airport compatibility planning. The Regional Planning Commission is required to prepare and adopt the necessary ALUCP(s) (PUC Section 21670.2(b)). If there is a conflict between the affected cities and the County's Regional Planning Commission regarding airport land use compatibility, there is an appeal process that triggers a city's ability to overrule the Regional Planning Commission by a four-fifths vote of its governing body.

San Diego County

San Diego County is exempt from the requirement to form an ALUC pursuant to PUC Section 21670 and to name a designated body pursuant to PUC Section 21670.1. PUC Section 21670.3 requires the San Diego County Regional Airport Authority to conduct a collaborative planning process when preparing, adopting or amending the ALUCP(s).

1.2.6 Intercounty ALUCs

In the case where any airport is bisected by a county line through its runways, runway protection zones, inner safety zones, inner turning zones, outer safety zones, or sideline safety zones, that county is provided the option to form an intercounty ALUC pursuant to Section 21670.4. Intercounty ALUCs may take one of two forms: (a) a new airport land use commission as authorized under Section 21670.4(c)(1), or (b) an existing appropriate entity designated by the two counties, as authorized under Section 21670.4(c)(2). Alternatively, each affected ALUC may adopt provisions for its portion of the airport impacts in their individual compatibility plans.

1.2.7 Reported Formation Choices

The Division conducted a survey in 2010 that asked all ALUCs to describe which of the six ALUC types they formed themselves as. The results are shown in Table 1B, below. The counties noted with a plus sign (+) participate in an intercounty ALUC, in addition to their respective county ALUCs. The two 'unknown' counties had incomplete data by the time of printing.

Table 1B: ALUC FORMATION SURVEY

	COUNTY	ALUC FORMATION	ADMISNISTRATIVE AGENCY
1	Alameda	ALUC	County
2	Alpine	Self-declared exempt	None
3	Amador	ALUC	County
4	Butte	ALUC	County
5	Calaveras	ALUC	County
6	Colusa	Designated Body	County Airport Advisory Committee
7	Contra Costa	ALUC	County Planning Department.
8	Del Norte	Unknown	Unknown
9	El Dorado	Designated Body	RTPA-EDTC
10	Fresno	Designated Body	MPO-FresnoCOG
11	Glenn	ALUC	County
12	Humboldt	ALUC	County
13	Imperial	ALUC	County
14	Inyo	ALUC	County
15	Kern	Statutory exception	County and Cities
16	Kings	Designated Body	RTPA-KCRPA
17	Lake	ALUC	County
18	Lassen	Unknown	Unknown
19	Los Angeles	Statutory Exception	County Regional Planning Commission
20	Madera	ALUC	County
21	Marin	Designated Body	County Planning Commission
22	Mariposa	ALUC	County Public Works Department.
23	Mendocino	ALUC	County
24	Merced	ALUC	County
25	Modoc	Self-declared exempt	None
26	Mono	ALUC	County
27	Monterey	ALUC	County

Table 1B: ALUC FORMATION SURVEY

	COUNTY	ALUC FORMATION	ADMISNISTRATIVE AGENCY
28	Napa	ALUC	County
29	Nevada	Designated Body+	RTPA-NCTC
	Nevada/Placer	Intercounty ALUC	RTPAs-NCTC & PCTPA
30	Orange	ALUC	County
31	Placer	Designated Body+	RTPA-PCTPA
32	Plumas	ALUC	County
33	Riverside	ALUC	County
34	Sacramento	Designated Body	MPO-SACOG
35	San Benito	Designated Body	MPO-SBtCOG
36	San Bernardino	Designated Agency	County and Cities
37	San Diego	Statutory exception	San Diego County Regional Airport Authority
38	San Francisco	No Airport – ALUC requirement not applicable	None
39	San Joaquin	Designated Body	MPO-SJCOG
40	San Luis Obispo	ALUC	County
41	San Mateo	Designated Body	MPO-C/CAG
42	Santa Barbara	Designated Body	MPO-SBCAG
43	Santa Clara	ALUC	County
44	Santa Cruz	Statutory Exception	Santa Cruz County & City of Watsonville
45	Shasta	Designated Body	County Planning Commission
46	Sierra	Self-declared exempt	None
47	Siskiyou	ALUC	County
48	Solano	ALUC	County
49	Sonoma	ALUC	County
50	Stanislaus	ALUC	County
51	Sutter	Designated Body	MPO-SACOG
52	Tehama	ALUC	County
53	Trinity	ALUC	County Planning Department
54	Tulare	Designated Body	County Planning Commission
55	Tuolumne	ALUC	County
56	Ventura	Designated Body	RTPA-VCTC
57	Yolo	Designated Body	MPO-SACOG
58	Yuba	Designated Body	MPO-SACOG

Table 1C: ALUC FORMATION SURVEY TOTALS

ALUC	29
Designated Body	18
Designated Agency (formerly “alternative process”)	1
Self-declared Exempt	3
Statutory Exception	4
Intercounty ALUC (in addition to the 57 required counties)	1
Unknown	2
TOTAL	**58**

1.3 ALUC COMPATIBILITY PLANNING PROCESS OVERVIEW

1.3.1 Background

The ALUC is a statutorily created, quasi-legislative, public administrative agency that is responsible for conducting airport land use compatibility planning and preventing the creation of new noise and safety problems in the vicinity of public use airports. Pursuant to PUC Sections 21670 (a) and (b), an airport land use commission shall be established for the purposes of ensuring the orderly expansion of airports and the adoption of appropriate land use measures. California's airport land use compatibility planning is unique because the legislature has created ALUCs, which are separate from both the airport operators and the local agencies (cities and counties) in which those airports are located.

ALUCs have been granted the statutory authority to prepare an ALUCP and to review local government general and specific plans for consistency against the ALUCP. ALUCs oversee the consistency between local plans and the ALUCP. In some cases, they also review the compatibility of individual land use projects with the ALUCP. When an airport layout plan (ALP) or airport master plan (AMP) is amended, the ALUC must review their ALUCP for any changes that may be needed as a result of the airport updating its plan(s). An ALUC's consistency determination should be given substantial consideration by their local agency, as their determinations stand on their own. As discussed below, when review by the ALUC is required under the PUC, the determination of the ALUC is binding unless overruled by the local agency.

1.3.2 Airport Land Use Compatibility Plans

One of the primary responsibilities of an ALUC is the preparation and adoption of an ALUCP (PUC Sections 21674(c) and 21675). As further described in Chapter 2, the ALUCP is the basis for compatible planning within the vicinity of a public airport. The ALUCP may include land use measures specifying land use, height restrictions, and building standards (PUC Section 21675(a)). The planning boundary of the ALUCP is the "airport influence area," and is established by the ALUC after a hearing and consultation with the involved agencies (PUC Section 21675 (c)). Involved agencies are primarily the cities and the county, but also include special districts, school districts, and community college districts (PUC Section 21670(f)). An ALUCP must also address any military airport within the jurisdiction of the ALUC (PUC Section 21675(b)).

1.3.3 Plan Consistency

Government Code (Gov. Code) Section 65302.3 (a) states that a county's or city's general plan, as well as any applicable specific plans, "shall be consistent" with an ALUCP and that every affected county or city must amend its general and specific plans as necessary to keep them consistent with the ALUCP. The ALUC reviews the general plan (and applicable specific plans) and makes a consistency determination (PUC Section 21676(a)). If the ALUC determines the local plan to be inconsistent with the ALUCP, the local agency shall reconsider its plan, or overrule the ALUC's decision. The overrule is accomplished by a two-thirds vote of the local agency's governing body, accompanied by specific findings that its action meets the intent of

Article 3.5 of the SAA (PUC Section 21676(a)) and other published case law. Any local agency seeking to amend its general plan, a specific plan, or adopt zoning ordinance or building regulation within the airport influence area must first refer its proposed amendments to the ALUC for a determination if the proposed action is consistent with the airport land use compatibility plan. If the ALUC determines that the amendment is not consistent, the local agency may not enact the plan or regulation unless a two-thirds of the local agency's governing body votes to overrule the ALUC's inconsistency determination and the local government makes specific findings that its proposed action is consistent with the purposes of the Article 3.5 of the SAA (PUC Section 21676 (b)) and other published case law. The significance of this is that even if a local agency invokes the overrule provision, the local agency's actions must be in compliance with SAA.

1.3.4 ALUC Review

The ALUC's other main tool for compatibility planning, besides the preparation of the ALUCP, is the review of plans, regulations, and other actions of local agencies. Review of local agency actions occurs as follows:

- Prior to the adoption of an ALUCP, the ALUC shall review all local agency actions, regulations, or permits within the vicinity of a public airport. (PUC Section 21676(b)). "Vicinity" is the proposed planning boundary, or in the absence of a planning boundary, within two miles of the airport boundary.

- Upon the adoption of an ALUCP, the ALUC shall review the general plan and any applicable specific for consistency with the ALUCP (PUC Section 21676(a)).

- Prior to the amendment of a general plan or specific plan, or the adoption of a zoning ordinance or building regulation within the ALUCP planning boundary, the ALUC shall review the plan, ordinance, or regulation for consistency with the ALUCP (PUC Section 21676(b)).

- If a local agency has neither revised its general plan or applicable specific plans, nor overruled the ALUC by a two-thirds vote of its governing body (with required findings), the ALUC may require that all local agency actions, regulations, and permits be submitted for review to determine consistency with the ALUCP (PUC Section 21676.5(a)).

- Prior to the modification of an AMP[1] (by a public agency owning the airport), the ALUC shall review the proposed action (PUC Section 21676(c)).

- The ALUC reviews plans for the construction of new airports (PUC Section 21661.5) and the expansion of existing airports within its jurisdiction (PUC Section 21664.5).

- The local agency and ALUC may mutually agree that certain individual projects shall be reviewed by the ALUC (PUC Section 21676.5(b)).

A complete discussion of the recommended procedures and considerations for ALUC review is found in Chapter 6 of this *Handbook*.

[1] Note that the AMP includes the ALP.

1.3.5 The Overrule Process

ALUC consistency determinations for local agency plans and projects (described in Section 1.3.4, above), are subject to overrule by the local agency. The overrule process preserves local government's constitutional land use authority and local government's ability to implement its plans and projects. When a plan or project is found inconsistent by the ALUC, the local agency has a choice to stop or amend the plan or project, and thereby accept the ALUCs inconsistency determination, or to overrule the ALUC with a two-thirds "supermajority" vote of the local agency's governing body.[2]

The overrule process, described in PUC Sections 21675.1(d), 21676, and 21676.5 requires the local agency's governing body to make specific findings that show the project is consistent with the purpose of Article 3.5 of the SAA. When a public agency overrules an ALUC's action or recommendation, pursuant to PUC Sections 21676, 21676.5 and 21677, a non-public operator of a publicly owned airport shall be immune from liability from damages resulting directly or indirectly from the override decision.

At least 45 days prior to the decision to overrule the ALUC, the local agency shall provide the ALUC and the Division a copy of the proposed overrule decision and accompanying findings. The ALUC and the Division may provide comments to the local agency's governing body within 30 days of receiving the proposed decision and findings. While the ALUC and Division comments are advisory, they must be included in the public record of any decision to overrule the ALUC.

1.4 ALUC STATUTORY REQUIREMENTS AND OPTIONS

This section states the basic requirements of the ALUC under Article 3.5 and identifies where actions and procedures are mandatory, and where they are optional. The complete ALUC statute, in addition to other pertinent statutes, can be found in Appendix A.

1.4.1 ALUC Membership and Selection

Per PUC Section 21670(b), each ALUC shall consist of seven members to be selected as follows:

- Two representing the cities in the county, appointed by a selection committee comprised of the mayors of all the cities within that county. If there are any cities contiguous or adjacent to the qualifying airport, at least one city representative shall be appointed from there. If there are no cities within a county, the number of representatives selected by the county and the airport managers shall be increased by one each (as of this *Handbook* edition, only the counties of Alpine, Mariposa and Trinity have no incorporated cities).

- Two representing the county, appointed by the board of supervisors.

- Two having expertise in aviation, appointed by a selection committee comprised of the managers of all of the public airports within the county.

[2] An exception to this rule is found in PUC Section 21677, which allows local agencies in the County of Marin to overrule the ALUC with a simple majority.

- One representing the general public, appointed by the other six members of the commission.

A person "having expertise in aviation," as used above, means a person who, by way of education, training, business, experience, vocation, or avocation has acquired and possesses particular knowledge of, and familiarity with the function, operation and role of airports, or is an elected official of a local agency which owns or operates an airport (PUC Section 21670(e)). While this person is often a pilot, that is not required by law.

A person who already holds an elected or appointed public office, may be appointed and serve as a member of the commission during their term of public office (PUC Section 21670(c)).

Each member of the ALUC shall appoint one proxy to represent him or her in commission affairs and to vote on all matters when the member is not in attendance. The proxy must be made in writing and kept on file with the ALUC. The proxy serves at the pleasure of the member who appointed him or her. A vacant proxy position shall be promptly filled (PUC Section 21670(d).

Designated Body

The membership of a designated body is governed by the rules of that body (for example, a regional transportation planning agency). However, if the designated body does not include among its membership at least two members having expertise in aviation (as defined above), it shall augment its membership with at least two members having that expertise when acting in the capacity of an ALUC (PUC Section 21670.1(b)).

1.4.2 Duties of Members

Term of Office

The term of office is four years (PUC Section 21671.5(a)). All terms are to end on the first Monday in May. The terms of membership are staggered so that no more than two commissioner terms expire in the same year (see PUC Section 21671.5(a) for the exact procedure). Members serve at the pleasure of the body which appointed them (see the discussion under Section 1.4.1, above) and may be removed at any time without cause. Vacancies will be filled by the body that originally appointed that commissioner.

Compensation, Staffing, and Fees

Compensation for commissioners, if any, is determined by the board of supervisors of the county (PUC Section 21671.5(b)).

Staff assistance, including the mailing of notices, keeping of minutes, and the keeping of equipment and supplies, is provided by the county. The necessary operating expenses of the ALUC shall be a county charge (PUC Section 21671.5(c)). The ALUC shall not employ any personnel either as employees or independent contractors without the prior approval of the board of supervisors (PUC Section 21671.5(d)).

The ALUC may establish a schedule of reasonable fees necessary to carry out their statutory responsibilities (PUC Section 21671.5(f). Those fees shall be charged to the proponents of actions, regulations, or permits. Per state law (Gov. Code Section 66016), the fee shall not exceed the estimated reasonable cost of providing the service, and may be levied only after a public hearing. Please refer to Appendix H for information on how some ALUCs have structured their fee schedules. Generally, an ALUC cannot charge a fee until it has adopted an ALUCP (see PUC Sections 21671.5(f) and (g)).

Meetings and Conflict of Interest

The ALUC shall meet at the call of the commission chairperson or at the request of the majority of the commission members. A majority of the commissioners shall constitute a quorum for conducting business. No action shall be taken by the ALUC except by the recorded vote of a majority of the full membership (PUC Section 21671.5(e)). In practice, most ALUCs have a regular schedule for meetings. ALUC meetings are subject to normal open meeting requirements (the Brown Act, Gov. Code Section 54950 et seq.).

Each ALUC shall adopt rules with respect to the temporary disqualification of its members from participating in the review or adoption of a proposal because of conflict of interest (PUC Section 21672). The SAA does not provide guidance on what constitutes a conflict of interest; the ALUC should seek guidance from their legal counsel as to the appropriate state requirements.

CHAPTER 2

AIRPORT LAND USE COMPATIBILITY PLANS









Chapter 2

Airport-Land Use Compatibility Plans

2.1 PURPOSE OF AIRPORT LAND USE COMPATIBILITY PLANS

2.1.1 Introduction

Public Utilities Code (PUC), Section 21675(a) requires preparation of an airport land use compatibility plan (ALUCP) for each public use airport in the state. This requirement applies regardless of whether a county chooses to establish and maintain an airport land use commission (ALUC) or to utilize one of the other authorized formation types for airport land use compatibility planning.

The ALUCP is designed to encourage compatible land uses in the vicinity surrounding an airport. It provides for the "orderly growth of each public airport and the area surrounding the airport" while safeguarding "the general welfare of the inhabitants within the vicinity of the airport and the public in general (PUC Section 21675(a))." The ALUCP contains criteria for making consistency determinations, including building standards and height and land use restrictions.

ALUCPs are the fundamental tool used by ALUCs in fulfilling their purpose of promoting airport land use compatibility.

This chapter addresses:

- **The purpose of ALUCPs**
- **Scope of an ALUCP**
- **ALUCP Contents**
- **Adoption Process**
- **Consistency Review**

2.1.2 Responsibility for ALUCP Preparation

The ALUC (or the body designated to carry out the responsibilities of a commission) is responsible for preparing, adopting and amending the ALUCP. As a practical matter, responsibility for the preparation is typically assigned to staff and/or consultants working under the direction of the ALUC.

2.1.3 Information Resources

A variety of information resources are available to assist ALUCs and their staffs with the process of preparing compatibility plans. Among the most important of these are the following:

- *California Airport Land Use Planning Handbook* – The *Handbook* serves as a source of information regarding compatibility plans and policies. It also identifies many of the problems and issues faced by ALUCs when preparing, using, and updating their plans.

> *A 1994 addition to the State Aeronautics Act requires that ALUCs "shall be guided by" information in the* Handbook *when formulating airport land use compatibility plans.*

- Division of Aeronautics—Division staff is available to respond to inquiries regarding state law, compatibility criteria, review procedures, and any other matters involving airport land use commissions.

- Other ALUCs—The experience of other ALUCs is another valuable information resource. Copies of adopted plans can generally be obtained from individual commissions. Also, commission members and their staffs are usually willing to discuss particular issues that they have faced. The Division maintains a list of contact persons and phone numbers for each of the airport land use commissions in the state.

- Consultants—Airport and land use planning consultants often provide services to ALUCs, including review of airport layout (ALPs) and drafting of ALUCPs.

- Seminars and Workshops—ALUC seminars and workshops are held periodically by the Division and other organizations. These gatherings of airport land use commission members, staffs, and others involved in airport land use planning facilitate the exchange of information about airport land use compatibility planning issues.

- Transportation Research Board's Airport Cooperative Research Program—The ACRP carries out applied research on problems that are shared by airport operating agencies and other interested stakeholders. A number of studies have been published by the ACRP regarding land use compatibility issues, noise and safety concerns, and other topics of interest.

2.1.4 Funding for ALUCP Preparation

Obtaining funds with which to prepare and/or update ALUCPs is an on-going problem for the majority of ALUCs. Potential funding sources include the following:

- State Funding—The Division of Aeronautics has provided grants to local agencies for the preparation of many ALUCPs. This funding has primarily come from the California Aid to Airport Program (CAAP) Acquisition and Development (A&D) grant, which covers up to 90% of the cost for plan preparation. The availability of A&D grant funds varies from year to year depending upon funding levels provided by the legislature and on prioritization guidelines established for airport-related projects by the California Transportation Commission. In addition to the A&D grant program, the state also provides a $10,000 annual grant to each public-use general aviation airport in the state (except those designated as air carrier reliever airports).

- Department of Defense Funding—Funding for ALUCPs that cover areas around military airports is potentially available through the Defense Department's Office of Economic Adjustment.

- ALUC Fees—A portion of the fees that ALUCs are permitted to collect for the purpose of conducting compatibility reviews can be allocated to amending or updating an airport land use compatibility plan. ALUCs are not authorized to collect fees if they have not previously adopted an ALUCP (PUC Section 21671.5(f)).

- Other Local Funds—Preparation of an ALUCP can include funds from the local government's general fund or airport-derived revenues (particularly at larger airports). For designated bodies who are also a MPO or RTPA, local transportation planning funds could be used for the ALUCP.

2.2 BASIC SCOPE OF ALUCPs

2.2.1 Overview

When preparing or updating an ALUCP, several decisions must be made regarding the scope and funding of the plan. Issues to be considered include:

- Each public use and military airport must be included in the ALUCP(s) (PUC Section 21675(a) and (b));

- The types of impacts to be addressed;

- The airport influence area (AIA);

- The availability of FAA approved ALPs or airport master plans (AMPs);

- Types of projects to be reviewed for ALUCP consistency determinations; and

- Procedures for the review of plans, ordinances, and other local agency actions.

2.2.2 Airports

Perhaps the most basic scoping issue is to determine which types of airports the ALUCP should address.

- **Public-Use Airports**—An ALUCP must be formulated for "each public airport" (that is, each airport served by a scheduled airline or operated for the benefit of the general public) within the jurisdiction of the ALUC (Section 21675(a)). In addition to existing public-use airports, ALUCs have, on occasion, also developed ALUCPs for proposed public airports even though it is not required.

- **Military Airports**—Commissions shall include the area surrounding any federal military airport in their ALUCP. The ALUCP shall be consistent with the safety and noise standards in the military's Air Installation Compatible Use Zone (AICUZ) plan (PUC Section 21675(b)). (See also *Muzzy Ranch Co. v. Solano County ALUC* (2008) 164 Cal.App.4th 1 [finding that compatibility plan could be more restrictive than the AICUZ and still be consistent with the AICUZ].)

- **Airports Impacting Adjacent Counties**—Although often overlooked, when an airport impacts multiple counties, each ALUC should adopt compatibility policies for any

airport that impacts the area within its jurisdiction; even if the airport itself is located in an adjacent county. Typically, the county in which the airport is situated will take the lead in development of an ALUCP and then request concurrence or adoption by other affected jurisdictions. Another option is for both counties to jointly establish a separate ALUC for these "intercounty" airports. That commission would then be responsible for preparation of a compatibility plan for all of the airport's influence area.

2.2.3 Airport Impacts

Noise and safety are the two primary airport impact concerns that have the potential to affect the health, safety and welfare of people within the vicinity of an airport. The related issues of overflight (noise) and airspace protection (safety) should also be considered when preparing the ALUCP.

Approaches to addressing these concerns are outlined in Chapters 3 and 4. The Appendices contain additional background discussion of noise and safety compatibility concepts and issues.

People's reaction to aircraft noise varies widely with some people reacting vigorously to very low levels of aircraft noise, while other people have no reaction to very high levels of aircraft noise. The objective of compatible land use planning is to prevent people from being exposed to the most intensive and disruptive cumulative aircraft noise exposure levels. Aircraft noise exposure is depicted with cumulative noise exposure contours—measured in California in terms of community noise equivalent level (CNEL). CNEL contour maps are typically prepared for airports. However, aircraft noise exposure in areas beyond the outermost CNEL contours can also be annoying to some people and may be regarded as locally significant. These levels of aircraft noise exposure are generally described under the heading of overflight impacts.

Safety impacts from aircraft accidents near airports are typically handled by specifying the types of land uses and thus limiting the number of people who would be exposed to the risk of an accident. The other major safety concern is related to land uses that can create hazards to flight. Airspace protection primarily involves limitations on the height of objects on the ground near airports. Additional flight hazards to be considered are activities that can cause electronic or visual impairment to navigation or attract large numbers of birds.

2.2.4 Airport Influence Area

The geographic boundary of the ALUCP is known as the airport influence area (AIA). ALUCs establish the AIA after a hearing and in consultation with the involved agencies, as required by Section 21675(c). ALUCs sometimes describe the AIA as the referral area (as it is the area within which projects are potentially referred to the ALUC).

The ALUC usually establishes the AIA boundary based on:

- The location and configuration of the airport(s) included in the plan; and
- The extent of the noise and safety impacts associated with the airport(s).

The geographic area for noise impacts is typically described by CNEL contours and overflight areas, while safety impacts are mapped according to airport safety zones and the airspace surfaces. These areas are discussed in Chapter 3.

2.2.5 Document Format: Separate versus Countywide ALUCPs

ALUCP documents can be formatted to include only one airport or to cover all of the airports located within the county. Each of these two approaches has its advantages and disadvantages.

- Individual Airport Plans—Some ALUCs have separate ALUCP documents for each airport within their jurisdiction. This approach allows the plan to focus on the specific issues relevant to the individual airport, its surrounding land uses, and affected local jurisdictions.

- Countywide Plan—Other ALUCs have prepared a single ALUCP document that includes all of the airports. This format promotes consistency among the policies for all of the airports within the commission's jurisdiction. A disadvantage is that, especially for counties with many airports, the ALUCP can become unwieldy in size and much of it will be irrelevant to jurisdictions affected by only one airport. A variation on the countywide plan is to prepare one document containing introductory information, policies, and other material that apply countywide, and separate sections that include maps and background data for each individual airport.

2.2.6 Airport Master Plans and Airport Layout Plans

Planning Requirements

Section 21675(a) requires that each ALUCP "shall include and be based either on a long range master plan or an airport layout plan, as determined by the Division of Aeronautics of the California Department of Transportation, that reflects the anticipated growth of the airport during at least the next 20 years."

The Airport Master Plan

An AMP is an airport-sponsored, comprehensive planning study that usually describes existing conditions as well as interim and long-term development plans for the airport that will enable it to meet future aviation demand. An AMP contains an FAA-approved activity forecast and an ALP.

"An airport master plan is a comprehensive study of an airport and usually describes the short-, medium-, and long-term development plans to meet future aviation demand . . . The elements of a master planning process will vary in complexity and level of detail, depending on the size, function, issues, and problems of the individual airport (FAA 2007, p. 1)." The FAA reviews all elements of the AMP to ensure that sound planning techniques have been applied. However, the FAA only approves the following two elements of the AMP: 1) the 20-year forecast of demand and 2) the ALP.

The AMP functions as a long range, comprehensive study of the airports facilities and property needs. Even though an AMP may be "suggestive" of property outside of its boundaries, this document cannot dictate changes beyond the airport boundary (unless owned by the airport).

Thus an ALUCP and an AMP have fundamentally distinct and separate functions. The ALUCP focuses on the area outside of the airport property that is within its AIA, while the AMP focuses on airport operations and the area under the control of the airport. AMPs therefore cannot be used to achieve both purposes, i.e. AMPs cannot be a substitute for an ALUCP. Simply incorporating an ALUCP chapter into the AMP does not constitute an adequate ALUCP.

The Airport Layout Plan

An ALP is a scaled drawing of existing and proposed airport facilities including airport property lines and the information required to demonstrate conformance with applicable FAA regulations. A current FAA-approved ALP is required for airports identified in the National Plan of Integrated Airport Systems (NPIAS) that receive Federal assistance. ALPs remain current for a five-year period or until major changes are made or are planned to be made at the airport. The ALP is one of the components of an AMP.

All airport development at Federally-obligated airports, i.e. those airports who receive federal funds, must be done in accordance with an FAA approved ALP. An approved ALP indicates that the existing facilities and proposed development shown on the ALP conforms to the FAA airport design standards in effect at the time of approval, and it indicates that the FAA finds the proposed development to be safe and efficient (FAA 2005, pg. 8).

Non-NPIAS Airports

Since the eligibility for federal FAA assistance does not extend to non-NPIAS public use airports, the Division will accept a signed ALP drawing in lieu of an FAA-approved ALP as the basis of an ALUCP update, provided the drawing is prepared consistent with the California Code of Regulations, Title 21, Section 3534. The ALP drawing must reflect existing conditions and proposed changes, i.e. anticipated growth over a 20 year period. Only non-NPIAS airports that do not already receive state funds under the California Aid to Airports Program (CAAP) will be eligible for this exception (to the requirement of an AMP/ALP). Non-NPIAS airports and ALUCs are eligible to apply directly for A&D state funds to update their ALPs and ALUCPs respectively. A funding request for an ALP update as part of an ALUCP update can be made or the ALP update can be a separate funding request.

2.3 ALUCP CONTENTS

State law provides only limited guidance regarding the specific components of the ALUCP. One of the most important parts of an ALUCP is a clear statement of the ALUC's compatibility review criteria upon which their decisions are made. Table 2A provides a checklist of typical ALUCP contents.

TABLE 2A: CHECKLIST OF ALUCP CONTENTS

- **Scope of the Plan**—In a preface or introductory chapter, provide a clear statement describing the scope and function of the plan. Specifically:
  - Purpose and Authority: Refer to PUC statute that requires the formation of ALUCs and requires preparation of an ALUCP. Include the resolution that formed the ALUC and the resolution that adopts this ALUCP. The plan's purpose should be defined as a vehicle for conducting airport land use compatibility planning.
  - Airport Identification: List the airport(s) addressed by the plan and the city or unincorporated county in which they are located.
  - Airport Influence Area: Provide a general description and map of the area that comprises the jurisdiction of the ALUC. Also include a map covering the planning boundary of the ALUCP if it varies from the AIA boundary.
  - Jurisdictions Affected: Identify all local jurisdictions and any military facilities that are affected by the ALUCP. Listing the general and specific plans of local jurisdictions also may be valuable.
  - Limitations of the Plan: Note the limitations on ALUC jurisdiction over existing land uses; state, federal and tribal land; and airport operations as stated in the law and how they are applied by the individual ALUC.
- **Airport Information**—Include essential information about the airport(s) that shows the ALUCP has been based upon an FAA-adopted AMP or ALP.
  - Planning Status: Indicate the FAA approval date of the current ALP and activity forecasts (see below). Indicate local government or airport adoption date for the AMP.
  - ALP: Include a copy of the FAA-approved ALP.
  - Airport Activity: Document existing and projected airport operational levels. Include data indicating the known or estimated distribution of operations by type of aircraft, time of day, and runway used. As necessary, extend the 20 year forecasts included in adopted AMPs to ensure that the ALUCP reflects the anticipated growth of airport activity over a 20 year period.
- **Compatibility Policies and Criteria**—State all policies and criteria as clearly, precisely, and completely as possible, in a separate chapter from background information. As appropriate, use tables to present primary criteria. Address each of the following compatibility concerns:
  - Noise: Indicate maximum normally acceptable exterior noise levels for new residential and other noise-sensitive land uses. Note interior noise level standards.
  - Overflight: Indicate how aircraft overflight noise concerns are addressed.
  - Safety: Indicate maximum acceptable land use densities and intensities and the manner in which they are to be measured. List any uses explicitly prohibited from certain zones.
  - Airspace Protection: Note reliance upon FAR Part 77 and Terminal Instrument Procedures (TERPS) if relevant. If applicable, indicate policies addressing objects where ground level exceeds FAR Part 77 criteria. List criteria regarding hazards to flight such as bird strikes, solar panels, wind turbines, stationary smoke plumes and electronic interferences with flight operations.
- **Compatibility Zone Maps**—For each airport, provide either a composite compatibility zone map or individual compatibility zone maps. On base map, identify roads, water courses, section lines, and other major natural and man-made features. Showing the local government zoning as a background layer is also helpful.
  - Noise Contours: Show CNEL contours to be used for planning purposes.
  - Compatibility Policies: If compatibility policies are based on separate assessment of compatibility concerns, indicate boundaries and dimensions of safety zones. When basing zones on guidelines in Chapter 3 of this Handbook, make adjustments as appropriate to reflect traffic pattern locations and other factors particular to each individual airport.
  - FAA Airspace Protection Surfaces: Include map derived from FAR Part 77 standards indicating allowable heights of objects relative to the airport elevation. Indicate locations where ground exceeds these limits. Base map should show topography.
  - Composite Compatibility Zones: When using compatibility criteria representing a composite of the above individual compatibility concerns (noise, overflight, safety, and airspace protection) provide a map showing the boundaries of each zone. Indicate distances of boundaries from the airport runways.
  - Airport Influence Area: Clearly identify the AIA boundary on a map and with a written description.
- **Review Policies**—Describe the process and list the steps that the ALUC will use in reviewing local government plans and projects.
  - Types of Actions for ALUC Review: List the types of local government plans or projects that are to be submitted to the ALUC. Distinguish between mandatory and voluntary submittals.
  - Project Information: List the types of information to be included when a project or plan is submitted for an ALUC consistency decision.

TABLE 2A: CHECKLIST OF ALUCP CONTENTS

- Timing: Define when ALUC reviews are to be conducted and the time limits within which the ALUC must respond.
- ALUC Staff Responsibilities: Define staff duties in the ALUC compatibility review process.

- **Preliminary Review of Plans and Projects for Consistency determinations**—If applicable, describe the steps involved when an affected local jurisdiction requests the ALUC to provide a preliminary assessment of the general plans, specific plans, and relevant land use ordinances and regulations prior to their official submission for an ALUC determination. The ALUC should make a reasonable effort to identify any direct conflicts needing to be resolved as well as criteria and procedures that need to be defined in order for the local plans to be considered consistent with the ALUCP.

- **Land Use Information**—Include maps such as the following:
  - Existing Land Use Development: Show locations in the airport vicinity where development exists by using current, high-altitude aerial photographs and/or GIS data.
  - Planned Land Uses: Show locations in the airport vicinity where development is planned by including current general plan and zoning maps.

- **Discussion of Compatibility Issues**—Discuss the basic concepts and rationale behind the compatibility policies and criteria.

- **Local Government Implementation**—Discuss the general plan and specific plan ALUCP consistency requirement. Refer Local jurisdictions to the Handbook appendices for sample implementation documents such as, Methods for Calculating Usage Intensities, Buyer Awareness Measures, and an Airport Overlay Zone Ordinance.

- **Supporting Materials**—For quick reference, include:
  - State Aeronautics Act: Provide a copy of the current state laws pertaining to airport land use commissions (PUC Sections 21670-21679.5). Indicate the date of the most current legislative amendment.
  - Federal Aviation Regulations Part 77: Provide a copy of regulations governing objects affecting navigable airspace.
  - Glossary: Prepare a glossary of common aviation terms, particularly those associated with airport land use compatibility planning topics.
  - A website link to the Caltrans Division of Aeronautics

2.4 ALUCP ADOPTION PROCESS

2.4.1 Involvement of Local Agencies

Information and input from local agencies is essential to the preparation of airport land use compatibility plans. Adoption and, ultimately, successful implementation of compatibility plans requires that cooperation between ALUCs and affected local governments be continued beyond the plan development stage.

Informal Consultation

In many cases, the majority of issues that arise during the review of a draft ALUCP result more from lack of clarity in proposed policies than from fundamental disagreement over the policy objectives. Informal negotiations between the affected jurisdictions and the ALUC frequently can resolve many of these issues. Initially these negotiations can take place at the staff level, then involve elected county and city officials and commission members at a later date.

Formal Consultation Requirements

PUC Section 21675(c) requires formal consultation between ALUCs and affected local jurisdictions when an AIA is established. Although the statute does not distinguish between

establishing and amending an AIA, consultation is strongly recommended when the AIA is amended.

2.4.2 ALUCP Amendments

PUC Section 21675(a) limits amendment of all ALUCPs to no more than once per calendar year. A comprehensive review and update is recommended at least every five years.

The review and amendment process should follow essentially the same steps as the original adoption process which includes preparation of a draft ALUCP and environmental document, circulation for review and comment among affected agencies and the public, a noticed public meeting, incorporation of comments, and adoption by resolution of the ALUCP and its CEQA document. Coordination with local jurisdictions is important, particularly if the changes affect general and specific plan consistency with the ALUCP.

When an ALUCP is amended, as with its initial adoption, local government again has 180 days within which to amend its general and specific plans to be consistent with the ALUCP or to approve findings and overrule the ALUC.

It is recommended that ALUCs differentiate between major and minor amendments. A major amendment, which can occur only once per year, involves revising the policies in a manner that would change their applicability to a public agency, add new policies, or revise maps. A minor amendment, by contrast, addresses grammatical, typographical, or minor technical errors that do not affect policies or the manner in which those policies are applied to consistency and compatibility reviews.

2.5 ALUCP CONSISTENCY REVIEWS

2.5.1 Types of Local Government Actions Reviewed by ALUCs

Review of local government plans and projects pertaining to airport land use compatibility is one of the fundamental responsibilities of ALUCs. These local government actions fall into two broad groups: (1) Land use related, including general and specific plans, zoning ordinances, building regulation, or individual development projects; and (2) airport related, including the modification of an AMP or plans for the construction or expansion of an airport.

ALUCP policies should clearly specify the types of local government plans or projects that are to be submitted to the ALUC for a review that will result in a compatibility determination. The ALUC determines whether the plan or project is consistent with the ALUCP and therefore compatible with airport operations or it is determined to be inconsistent and incompatible. The ALUCP should also provide guidance on which plans or projects require mandatory review and which are subject to voluntary review.

2.5.2 Consistency Review Procedures

The procedures that the ALUC will use in reviewing local plans and projects should be defined in the ALUCP. Among the procedural matters that should be addressed are:

- The types of plan or project information that needs to be submitted;
- At one point in the local land use process that a plan or project should be submitted to the ALUC;
- ALUC staff responsibilities, if any, for certain ALUCP consistency reviews; and
- Notification procedures.

Some ALUCs append to their determinations various local government documents that memorialize necessary changes to a proposed project. The use of such documents is permissible, provided the determination from the ALUC is either "consistent" or "inconsistent" with the ALUCP.

CHAPTER 3

BUILDING AN AIRPORT LAND USE COMPATIBILITY PLAN









Chapter 3

Building an Airport Land Use Compatibility Plan

3.1 OVERVIEW

While compatibility policies, including both criteria and maps, comprise the substantive body of any airport land use compatibility plan (ALUCP), the compatibility concerns behind them (i.e., noise, safety, airspace protection, and overflight) provide the underlying context. The purpose of this chapter is to provide the foundation for developing an effective ALUCP. As such, the following sections introduce the basis and methods of measuring the four compatibility concerns. Furthermore, this chapter also covers common issues that arise when preparing an ALUCP and formulating the policies contained therein. Specific policy guidance regarding noise and safety compatibility concerns is provided in Chapter 4.

3.2 TYPES OF COMPATIBILITY CONCERNS

Topics addressed in chapter include:

- **Types of compatibility concerns;**
- **Noise contours;**
- **Overflight and notification;**
- **Safety zones;**
- **Airspace protection;**
- **Options in presenting compatibility criteria;**
- **Compatibility planning for different types of airports;**
- **Existing land uses; and**
- **Limits on ALUC land use controls.**

As indicated in the preceding chapters, the land use compatibility concerns of airport land use commissions (ALUCs) fall under two broad headings identified in state law: noise and safety. However, for purposes of formulating compatibility policies and criteria, further dividing these basic concerns into four functional categories is more practical. These categories are:

- *Noise:* As defined by the exposure to noise attributable to aircraft operations.
- *Overflight :* As defined by the annoyance and other general concerns arising from routine aircraft flight over a community.
- *Safety :* As defined by the protection of people on the ground and in the air from accidents.
- *Airspace Protection:* As defined by the protection of airspace from hazards to flight.

Chapter 4 provides strategies for formulating policies that will help achieve these objectives. Before that discussion can occur, however, an understanding of the regulatory and conceptual basis for these policies, and the scale at which attainment of these objectives can be measured, must be understood in order to develop effective land use compatibility criteria.

3.2.1 Noise

Noise is one of the most basic airport land use compatibility concerns. Moreover, at major air carrier airports, many busy general aviation airports, and most military airfields, noise is usually the most geographically extensive form of airport-related impact.

Noise Policy Foundations

Federal and state statutes and regulations establish the basis for local development of airport plans, analyses of airport impacts, and enactment of compatibility policies. Brief descriptions of selected statutes, regulations, and policies having particular significance to noise issues are provided in the following paragraphs.

Federal Statutes and Regulations

While there are a number of federal statutes and regulations addressing the issue of aircraft noise, the following are perhaps the most influential from a land use compatibility standpoint.

Statutes

Aviation Safety and Noise Abatement Act of 1979 (ASNA)—Among the stated purposes of this act is "to provide assistance to airport operators to prepare and carry out noise compatibility programs." The law establishes eligibility requirements for noise compatibility planning funding. The law does not require airports to develop noise compatibility programs—the decision to do so is within the discretion of each individual airport proprietor. Regulations implementing the act are set forth in Part 150 of the Federal Aviation Regulations (FAR).

FAA Regulations and Policies

FAR Part 150 Airport Noise Compatibility Planning—As a means of implementing ASNA, the FAA adopted these regulations, which establish a voluntary program that airports can utilize to conduct airport noise compatibility planning. "This part prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving these programs." FAR Part 150 also prescribes a system for measuring airport noise impacts and presents guidelines for identifying incompatible land uses. Airports that undertake a FAR Part 150 study are eligible for federal funding both for the study itself and for implementation of approved components of the local program.

FAR Part 150 noise exposure maps are depicted in terms of the average annual Day-Night Average Sound Level (DNL) contours around the airport. FAR Part 150 considers all land uses with noise levels less than 65 DNL to be compatible with aircraft operations. At higher noise exposures, selected land uses are also deemed acceptable, depending upon the nature of the use and the degree of structural noise attenuation provided.

The FAA allows use of Community Noise Equivalent Level (CNEL) contours for airports in California.

In setting the various compatibility guidelines, however, the regulations state that the designations :

> "…do not constitute a Federal determination that any use of land covered by the [noise compatibility] program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses."

Military Airfields

Air Installations Compatible Use Zones (AICUZ) Program—The AICUZ program was established by the U.S. Department of Defense in 1973 i n order to protect the federal government's investment in military airfields. The current noise compatibility criteria (as set forth in the Code of Federal Regulations, Title 32, P art 256) are basically the same as those indicated in the Federal Interagency Committee on Urban Noise (FICUN) report and the FAA's FAR Part 150 program; as a r esult, AICUZ compatibility standards for residential use suggest consideration of acoustical treatments above 65 dB DNL. AICUZ plans prepared for individual airfields are primarily intended as recommendations to local communities regarding the importance of maintaining land uses that are compatible with the noise and safety impacts of military aircraft operations.

State of California Laws, Regulations, and Guidelines

State Aeronautics Act —Public Utilities Code (PUC) Section 21669 requires Caltrans to adopt—to the extent not prohibited by federal law—noise standards applicable to all airports operating under a state permit.

California Airport Noise Regulations —The airport noise standards promulgated in accordance with PUC Section 21669 are set forth in Section 5000 et seq. of the California Code of Regulations (Title 21, Division 2.5, Chapter 6). The current version of the regulations became effective in March 1990.

In Section 5006, the regulations state that:

> "The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep and community reaction."

In accordance with procedures listed in Section 5020, the county board of supervisors can declare an airport to have a "noise problem." As specified in Section 5012, no such airport shall operate "with a noise impact area based on the standard of 65 dB CNEL unless the operator has applied for or received a variance as prescribed in…" the regulations.

The compatibility criterion (i.e., 65 dB CNEL) identified in the Airport Noise Regulations only is mandated for a few airports (less than a dozen) that are declared to have a "noise problem." The regulations do not establish a mandatory criterion for evaluating the compatibility of proposed land use development around other airports. Section 5004 of the regulations specifically notes: "It is not the intent of these regulations to preempt the field of aircraft noise limitation in the state. The noise limits specified herein are not intended to prevent any local government, to the extent not prohibited by federal law, or any airport proprietor from setting more stringent standards." As discussed later in this chapter, setting the threshold for land use compatibility lower than 65 CNEL is appropriate at many airports.

For designated "noise problem" airports, the "noise impact area" is the area within the airport's 65 CNEL contour that is composed of *incompatible* land uses. Four types of land uses are defined as incompatible:

- Residences of all types;
- Public and private schools;
- Hospitals and convalescent homes; and
- Churches, synagogues, temples, and other places of worship.

However, these uses are not deemed incompatible if certain mitigation actions have been taken, as spelled out in Section 5014. Among these measures is airport acquisition of an avigation easement for aircraft noise and, except for some residential uses, acoustical insulation adequate to ensure that the interior CNEL due to aircraft noise is 45 dB or less in all habitable rooms.

California Building Code (California Code of Regulations, Title 24)—The California Building Code contains standards for allowable interior noise levels associated with exterior noise sources (California Building Code, 2007 edition, Part 2, Volume 1, Chapter 12, Section 1207.11). The standards apply to new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family residences.

Although the building code does not apply the 45 CNEL interior noise level standard to detached single-family residences, the Division of Aeronautics encourages communities to adopt this standard (or lower) for these uses. Many communities have done so as part of their general plan noise element policies.

The standards state that:

> "Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the Day-Night Average Sound Level (L_{dn}) or the Community Noise Equivalent Level (CNEL), consistent with the noise element of the local general plan. Worst-case noise levels, either existing or future, shall be used as the basis for determining compliance with [these standards]. Future noise levels shall be predicted for a period of at least 10 years from the time of a building permit application."

With regard to airport noise sources, the code goes on to indicate that:

- "Residential structures to be located where the annual L_{dn} or CNEL exceeds 60 dB shall require an acoustical analysis showing that the proposed design will achieve the prescribed

allowable interior level. For public use airports or heliports, the L_{dn} or CNEL shall be determined from the airport land use plan prepared by the county wherein the airport is located. For military bases, the L_{dn} shall be determined from the facility Air Installation Compatible Use Zone (AICUZ) plan. For all other airports or heliports, or public use airports or heliports for which a land use plan has not been developed, the L_{dn} or CNEL shall be determined from the noise element of the general plan of the local jurisdiction."

- "When aircraft noise is not the only significant source, noise levels from all sources shall be added to determine the composite site noise level."

General Plan Guidelines—Section 65302(f) of the Government Code requires that a noise element be included as part of local general plans. Airports and heliports are among the noise sources to be analyzed. To the extent practical, both current and future noise contours (expressed in terms of either CNEL or DNL) are to be included. The noise contours are to be "used as a guide for establishing a pattern of land uses…that minimizes the exposure of community residents to excessive noise."

Guidance on the preparation and content of general plan noise elements is provided by the Office of Planning and Research in its General Plan Guidelines publication (last revised in 2003). This guidance represents an updated version of guidelines originally published by the State Department of Health Services in 1976. Included in the document is a table indicating noise compatibility criteria for a variety of land use categories. Another table outlines a set of adjustment or "normalization" factors that "may be used in order to arrive at noise acceptability standards which reflect the noise control goals of the community, the particular community's sensitivity to noise…, and their assessment of the relative importance of noise pollution."

Noise Contours for Compatibility Planning

Although supplemental metrics may be useful for certain purposes, cumulative noise exposure metrics and the noise contours associated with these metrics continue to represent the best available tools for the purpose of airport land use compatibility planning. The following discussion focuses on issues to consider when projecting future noise impacts and selecting contours for compatibility planning purposes.

Noise Analysis Time Frame

PUC Section 21675 (a) requires that ALUCPs be based on an airport development plan "that reflects the anticipated growth of the airport during at least the next 20 years." Forecasts having the required 20-year time horizon are normally included in airport master plans. The FAA, Caltrans, and some regional planning agencies also prepare individual airport forecasts, some of which extend to 20 years.

For compatibility planning, however, 20 years may be shortsighted. For most airports, a lifespan of more than 20 years can reasonably be presumed. Moreover, the need to avoid incompatible land use development will exist for as long as an airport exists. Once development occurs near an airport, it is virtually impossible—or, at the very least, costly and time consuming—to modify the land uses to ones that are more compatible with airport activities.

The "at least" phrase in the statute warrants emphasis. The 20-year time frame should be considered a minimum for compatibility plans. Noise impacts (as well as other compatibility concerns) should be viewed from the longest practical time perspective.

Past improvements in aircraft noise reduction technology—or, more to the point, the elimination of older, noisier aircraft from the fleet—have caused noise contours at some airports to shrink. One result of shrinking contour sizes during the late 1990s and early 2000s was pressure to allow residential and other noise-sensitive development closer to airports. The decrease in contour size due to the elimination of aircraft reached its pinnacle at most airports in the mid 2000s and contours began to increase again due to increased operations. Barring vast new improvements in aircraft noise reduction technology, the growth in aircraft operations expected at most airports will continue to result in larger noise contours.

In conducting noise analyses for ALUCPs, the long-range time frame is almost always of greatest significance. A possible exception to this is that, at some airports, planned changes in runway configuration or approach procedures could reduce noise exposure in some portions of the airport environs, or change the shape of the contour to include new areas. In these instances, a combination of current and future noise contours may be the appropriate basis for compatibility planning. This would allow for compatible land use planning until the changes are implemented.

Other Factors in Noise Contour Selection

In addition to time frame and forecasting issues, several other factors warrant consideration in selection of noise contours for compatibility planning functions.

Lowest Noise Contour Level

Calculating at least one 5 dB CNEL contour interval below the threshold level can provide valuable supplemental information for land use planning. Aircraft noise does not become suddenly unnoticeable just beyond the CNEL contour that delineates the threshold for determining compatible versus incompatible land uses. The additional contour(s) can show where noise levels are below the level at which residential and certain other noise-sensitive land uses may need to be prohibited or substantially restricted, yet still may be noticeable and may warrant some form of land use compatibility measure. When applying this concept, it is important to recognize that CNEL contours become less precise the further they are from the airport.

Supplemental Forecast Scenarios

At some airports, the distribution of activity throughout the year or among aircraft types is such that an annual average forecast is insufficient for full assessment of noise impacts. For instance, an airport may have distinct seasonal or even daily variations in its activity. Such circumstances may warrant examination of noise contours reflecting these shorter periods in addition to the annual average impacts. These variations are particularly interesting when activity by the noisiest aircraft is concentrated into one part of the year. The predominantly summertime operations of fire attack aircraft is one common example.

As long as the assumptions used in supplemental forecast scenarios are consistent with the defined role of the airport, it is within reason for ALUCs to consider them.

Another situation in which supplemental forecast scenarios may be needed is when there is substantial uncertainty regarding a major component of airport activity. Examples include: possible changes in airline aircraft fleet mix and/or volume of operations; potential addition or elimination of particularly noisy aircraft; and/or, uncertainties in activity levels by aircraft that follow unique flight tracks (such as helicopters or agricultural applicator aircraft).

Special Noise Sources

As noted in Appendix D, most noise contour calculations only take into account the noise from approaches/landings, takeoffs/departures, and closed traffic pattern (touch-and-go) activity. In some circumstances, other sources of aircraft noise may also need to be considered. These include:

- Helicopters —Because helicopters have distinct noise characteristics and usually follow different flight tracks than those used by airplanes, their noise can be particularly noticeable. Inclusion of helicopter noise in computation of airport noise contours is desirable, especially at airports having moderate or high levels of helicopter activity.

Including helicopter operations in noise contour calculations generally will not have much effect on the size or shape of noise contours unless the traffic volumes are quite high. In these instances, the location of common helicopter flight tracks and the single-event noise levels of helicopter overflights may be appropriate to consider in compatibility planning.

- Agricultural Aircraft—Another group of aircraft with unique noise characteristics is agricultural "crop duster" aircraft. For example, unless numerous flight tracks are modeled, the calculated contours tend to maintain a constant width along the flight tracks and never reach an end point.

- Ground Operations—For most airports, aircraft ground operations are not a significant source of noise. Noise from engine run-ups can be included in integrated noise model (INM) calculations, however. At airports where such activity is a noise factor, the INM calculations should account for the aircraft ground operations. If included, some reference to the fact should be noted in the description of the contours.

Sources of Noise Contours

Potential sources of noise contours can be summarized as follows:

The preceding discussion focuses on issues concerning the development of noise contours suitable for compatibility planning. However, it may not be necessary for ALUCs to develop the contours. Noise contours are available from a variety of sources. Some of these are potentially useful for compatibility planning purposes, others are of limited value.

- Airport Master Plans—As indicated above, an adopted airport master plan is one of the preferred sources for airport activity forecasts and noise contours. Even when the forecasts and contours in a master plan do not extend at least 20 years into the future, information

contained about the intended role and future physical characteristics of the airport is needed for compatibility planning.

- Noise Elements of Community General Plans—The status of noise contours depicted in general plans is similar to that of noise contours from airport master plans in that they represent adopted local policy. As for their usefulness in compatibility planning, planners need to be sure the contours are up to date. More often than not, noise contours included in general plans are copies of ones from the most recent airport master plan.

- Environmental Documents—Environmental analysis prepared for major airport development, pursuant to the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), normally contains newly prepared noise contours with a 20-year horizon. Depending upon the timing of the project, these contours may be more recent than ones in an airport master plan.

- FAR Part 150 Studies—Most of the air carrier and busier general aviation airports in the state have conducted FAR Part 150 noise compatibility studies. These studies contain current and five-year projected noise contours. At airports where noise impacts are expected to decrease in the future, the FAR Part 150 noise exposure maps are appropriate for land use compatibility planning purposes. If the noise exposure is expected to expand beyond the five-year time frame, then the noise contours will not provide a sufficiently long time horizon and generally should not be used.

- AICUZ Studies—AICUZ studies conducted by the U.S. Department of Defense are often times the primary source for noise contours associated with military installations. Because aircraft activity levels at most military facilities are highly dependent upon international events, the contours usually represent current conditions and long-range projections are seldom done. When preparing forecasted noise contours for a military installation, ALUC staff should work with military personnel to determine an appropriate mission expansion scenario that would reflect realistic increases in military operations for the foreseeable future.

3.2.2 Overflight

As discussed in Appendix D, experience at many airports has shown that noise -related concerns do not stop at the boundary of the outermost mapped CNEL contour. Instead, many people are sensitive to the frequent presence of aircraft overhead even at low noise levels. These reactions can mostly be expressed in the form of *annoyance*.

> *As the term is applied herein, an overflight means any distinctly visible and audible passage of an aircraft, but not necessarily one which is directly overhead.*

At many airports, particularly air carrier airports, complaints often come from locations beyond any of the defined noise contours. Indeed, heavily used flight corridors to and from metropolitan areas are known to generate noise complaints 50 miles or more from the associated airport. The basis for such complaints may be a desire and expectation that outside noise sources not be intrusive—or, in some circumstances, not even distinctly audible— above the quiet, natural background noise level. Elsewhere, especially in locations beneath the traffic patterns of general aviation airports, a fear factor also contributes to some individuals' sensitivity to overflight.

While these impacts may be important community concerns, the question of importance here is whether any land use planning actions can be taken to avoid or mitigate the impact/concern. Commonly, when overflight impacts are discussed in a co mmunity, the focus is on t he modification of flight routes. Indeed, some might argue that overflight should be addressed solely through the aviation side of the equation—not only flight route changes, but other modifications to where, when, and how aircraft are operated. ALUCs are particularly limited in their ability to deal with overflight, as they have no influence over how an airport operates, nor do their policies affect existing land uses. These limitations notwithstanding, there are steps that ALUCs can and should take to help minimize overflight issues.

Overflight Policy Foundations

Very little guidance exists for limiting people's exposure to overflight. As is often the case, the basis for setting criteria is primarily the experience and knowledge that airport proprietors and ALUCs have about the noise sensitivity of the specific communities. Airport proprietors, specifically, possess not only a unique understanding of the land uses and neighborhoods around their airports, but also how typical airport operations may affect noise-sensitive land uses and communities.

The primary overflight strategy is the buyer awareness measure, which, rather than applying direct restrictions on the types of land uses, seeks to inform the public of potential annoyances associated with overflight.

Business and Professions Code Sections 11010(a) and (b)(13) require that:

> "(a)... [A]ny person who intends to offer subdivided lands within this state for sale or lease shall file with the Department of Real Estate an application for a public report consisting of a notice of intention and a completed questionnaire on a form prepared by the department.
>
> (b) The notice of intention shall contain the following information about the subdivided lands and the proposed offering:
>
> …
>
> (13)(A) The location of all existing airports, and of all proposed airports shown on the general plan of any city or county, located within two statute miles of the subdivision. If the property is located within an airport influence area, the following statement shall be included in the notice of intention:
>
> NOTICE OF AIRPORT
>
> This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

> (B) For purposes of this section, an "airport influence area," also known as an "airport referral area," is the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission."

(See also Civil Code, Sections 1102.6, 1103.4, and 1353.)

California real estate law also requires that sellers of real property disclose "any fact materially affecting the value and desirability of the property" (Civil Code, Section 1102.1(a)). While this general requirement leaves to the property seller the decision as to whether airport-related information constitutes a fact warranting disclosure, other sections of state disclosure law specifically mention airports. Specifically, Civil Code Section 1102.17 states: "The seller of residential real property subject to this article who has actual knowledge that the property is affected by or zoned to allow industrial use described in Section 731a of the Code of Civil Procedure shall give written notice of that knowledge as soon as practicable before transfer of title." Section 731a of the Code of Civil Procedure specifies:

"Whenever any city, city and county, or county shall have established zones or districts under authority of law wherein certain manufacturing or commercial or *airport* uses are expressly permitted, except in an action to abate a public nuisance brought in the name of the people of the State of California, no person or persons, firm or corporation shall be enjoined or restrained by the injunctive process from reasonable and necessary operation in any such industrial or commercial zone or *airport* of any use expressly permitted therein, nor shall such use be deemed a nuisance without evidence of the employment of unnecessary and injurious methods of operation…." [*emphasis added*]

It is interpreted that these sections of law establish a requirement for disclosure of information regarding the effects of airports on ne arby property provided that the seller has "actual knowledge" of such effects. ALUCs have particular expertise in defining where airports have effects on surrounding lands. ALUCs thus can give authority to this disclosure requirement by establishing a policy indicating the geographic boundaries of the lands deemed to be affected by airport activity. In most cases, this boundary will coincide with the ALUC 's planning boundary for an airport. Furthermore, ALUCs and local jurisdictions should disseminate information regarding their disclosure policy and its significance by formally mailing copies to local real estate brokers and title companies. Having received this information, the brokers would be obligated to tell sellers that the facts should be disclosed to prospective buyers.

Overflight Zone s for Compatibility Planning

Overflight boundaries often are established by an amalgamation of various data inputs, including noise contours, flight tracks, and even noise complaint patterns. This is because overflight boundaries extend beyond the well-defined CNEL contours. As CNEL contours are not very precise at low noise levels, especially where aircraft flight tracks are widely divergent, perhaps the most useful tool for determining the location of overflight boundaries are flight tracks. Flight track data depicts not only where aircraft typically operate, but also at what altitudes.

Flight track data, however, is not always available—especially for smaller general aviation airports. In these cases, understanding the standard operating procedures of the airport will assist in the establishment of overflight boundaries. For general aviation airports, such locations include areas beneath the standard airport traffic patterns, the portions of the pattern entry and departure routes flown at normal traffic pattern altitude, and perhaps additional places which experience a high concentration of overflight. Also, at all types of airports, common instrument flight rules (IFR) arrival and departure routes can identify overflight areas of concern, sometimes many miles from the airport.

3.2.3 Safety

Compared to noise, safety is in many respects a more difficult concern to address in compatibility policies. A major reason for this difficulty is that safety policies address uncertain events that *may occur* with *occasional* aircraft operations, whereas noise policies deal with known, more or less predictable events that *do occur* with *every* aircraft operation. Because aircraft accidents happen infrequently and the time, place, and consequences of their occurrence cannot be predicted, the concept of *risk* is central to the assessment of safety compatibility. From the standpoint of land use planning, two variables determine the degree of risk posed by potential aircraft accidents:

- *Accident Frequency:* Where and when aircraft accidents occur in the vicinity of an airport; and
- *Accident Consequences:* Land uses and land use characteristics that affect the severity of an accident when one occurs.

Safety Policy Foundations

In order for ALUCs and local land use jurisdictions to address the preceding compatibility concerns, an assessment of safety standards and guidelines set by federal and state agencies is essential. Unlike the case with noise, though, few federal and state laws, regulations, or policies address the issue of safety-related land use compatibility around airports. Only the guidelines prepared by the U.S. Department of Defense for military air bases are comprehensive in their approach. This section summarizes significant criteria which federal and state agencies have developed.

FAA

Land use safety compatibility guidance from the FAA is limited to the immediate vicinity of the runway, the runway protection zones at each end of the runway, and the protection of navigable airspace. The absence of FAA land use compatibility criteria for other portions of the airport environment is often cited by land use development sponsors as an argument that further controls on land use are unnecessary. What must be remembered, however, is that the FAA criteria apply only to property controlled by the airport proprietor. The FAA has no authority over off-airport land uses—its role is with regard to the safety of aircraft operations. The FAA's only leverage for promoting compatible land use planning is through the grant assurances that airport proprietors must adhere to in order to obtain federal funding for airport improvements. State and local agencies are free to set more stringent land use compatibility policies.

Property acquisition for approach protection purposes is eligible for FAA grant funding.

Runway Vicinity

The emphasis in FAA safety criteria is on the runway surface and the areas immediately adjoining it. Standards are established that specify ground surface gradients for areas adjacent to runways and the acceptable location and height of aeronautical equipment placed nearby. These areas normally are encompassed within airport boundaries.

These standards are set forth in an FAA Advisory Circular entitled Airport Design (AC 150/5300-13).

Runway Protection Zones

Runway protection zones (RPZs) are trapezoidal-shaped areas located at ground level beyond each end of a runway. The dimensions of RPZs vary depending upon:

Runway protection zones (previously called clear zones) date from a recommendation in the 1952 Report of the President's Airport Commission. See Appendix E for additional information.

- The type of landing approach available at the airport (visual, non-precision, or precision); and
- Characteristics of the critical aircraft operating at the airport (weight and approach speed).

Ideally, each runway protection zone should be entirely clear of all objects. The FAA's *Airport Design* advisory circular strongly recommends that airports own this property outright or, when this is impractical, to obtain easements sufficient to control the land use. Acquisition of this property is eligible for FAA grants (except at some small airports that are not part of the national airport system). Even on portions of the RPZs not under airport control, the FAA recommends that churches, schools, hospitals, office buildings, shopping centers, and other places of public assembly, as well as fuel storage facilities, be prohibited. Automobile parking is considered acceptable only on the outer edges of RPZs (outside the extended object free area).

Beyond the runway protection zones, the FAA has no specific safety -related land use guidance other than airspace protection. However, additional property can also potentially be acquired with federal grants if necessary to restrict the use of the land to activities and purposes compatible with normal airport operations. In general, this property must be situated in the approach zones within a distance of 5,000 feet from the runway primary surface. Exposure to high levels of noise can also be the basis for FAA funding of property acquisition.

U.S. Department of Defense

Safety compatibility criteria for military air bases are set forth through the AICUZ program (DOD–1977). The objective of this program is to encourage compatible uses of public and

private lands in the vicinity of military airfields through the local communities' comprehensive planning process.

With respect to safety, AICUZ standards establish three accident potential zones (APZs) beyond each end of a military airfield runway. The innermost zone—the clear zone—is either trapezoidal in shape (at Navy bases) or rectangular (at Air Force bases). Two additional zones—designated APZ I and APZ II —lie beyond the clear zone. The alignment of these zones may be altered to follow the primary flight tracks. The clear zone length is typically 3,000 feet. Other dimensions vary depending upon the type of aircraft and/or number of aircraft operations on the runway. For most military runways, though, the APZs are 3,000 feet wide and have lengths of 5,000 feet for APZ I and 7,000 feet for APZ II, for a total of 15,000 feet from the runway end.

Within each zone, the compatibility or incompatibility of possible land uses is specified. For example, residential uses are considered incompatible in the clear zone and APZ I and compatible only at low densities in APZ II. Retail land uses are unacceptable in the clear zone and may or may not be compatible in APZ I and II depending upon on the intensity of use.

As noted in Appendix E, these dimensions were developed based on a study of where military aircraft accidents have occurred in the past.

State of California

Statutes

Few State-level laws and regulations exist that provide guidance with respect to airport land use compatibility. The guidance that is available is found in two primary locations:

- State Aeronautics Act —The State Aeronautics Act (PUC Section 21001 et seq.) provides for the right of flight over private property, unless conducted in a dangerous manner or at altitudes below those prescribed by federal authority (Section 21403(a)). No use shall be made of the airspace above a property that would interfere with the right of flight, including established approaches to a runway (Section 21402). The Act also authorizes Caltrans and local governments to protect the airspace defined in FAR Part 77. The SAA further prohibits any person from constructing any structure or permitting any natural growth of a height that would constitute a hazard to air navigation as defined in FAR Part 77 unless Caltrans issues a permit (PUC Section 21659). The permit is not required if the FAA has determined that the structure or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Typically this has been interpreted to mean that no penetrations of the FAR Part 77 surfaces is permitted without a finding by the FAA that the object would not constitute a hazard to air navigation.

> *Note that other parts of state law—the Government Code and Public Resources Code, in particular— establish various requirements for compatibility planning and the review of development near airports, but do not set specific compatibility criteria .*

- State Education Code —Education Code Section 17215 requires that, before acquiring title to or leasing property for a new school site situated within two miles of an airport runway, a school district must notify the Department of Education. The Department of Education then notifies Caltrans, which is required to investigate the site and prepare a written report. If Caltrans does not favor acquisition of the site for a school, no state or local funds can be used for site acquisition or building construction on that site. Education Code Section 81033 establishes similar requirements for community college sites. Finally, PUC Section 21655

also prescribes similar requirements for any proposed property acquisition or construction by a state agency within two miles of an airport runway.

Caltrans Guidelines

In 1994, a section was added to the SAA to require that: "An airport land use commission that formulates, adopts or amends a comprehensive airport land use plan shall be guided by … the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation" (PUC Section 21674.7).

The addition of this statute changed the role of this *Handbook* from a useful reference document to one that must be used as guidance in the development of ALUC policies. This is particularly important in the development of safety compatibility policies because very little guidance is otherwise available for civilian airports.

Creating Safety Compatibility Zones

There are two components to safety compatibility policies: identification of the locations where safety—that is, the risk of aircraft accidents—is a concern; and definition of appropriate land use measures addressing those risks. This section focuses on the first of these two components.

Creation of safety compatibility zones is an exercise predominantly driven by aeronautical considerations. That is, the geography of risk is determined by the runway configuration, approach and departure procedures, and other factors that determine where aircraft fly and where accidents occur. Except where features on the ground influence where aircraft actually fly—high terrain or a n oise abatement route, for instance—safety zones should be defined independent of existing and future land uses and other geographic features. At most, these features should be considered only in fine tuning of the boundaries.

The first step in creating safety compatibility zones is to identify historical accident location patterns. In-depth data on this topic is provided in Appendix E and is further analyzed below. This data and analysis has been used to define a set of generic safety zones as described later in this section. For most airports, these generic zones will serve as the starting place for the zone delineation process. The essential remaining action is to adjust the zones to fit the circumstances of the particular airport and each runway end. Guidance on this step is offered here as well.

Identifying Accident Location Patterns

A primary element in the establishment of safety compatibility policies is knowing *where* aircraft accidents pose risks to land uses near airports. Of course, the fact that accidents have historically occurred in certain locations is no guarantee that they will happen in precisely those places in the future, especially at any one airport (where the limited amount of data is not likely to be statistically significant). Furthermore, inevitable advances in aeronautics technology like Next Generation (Next Gen) may affect where aircraft accidents occur in the future, potentially requiring further analysis of accident location patterns (see Appendix C for a discussion of Next Gen) Nevertheless, it is reasonable to predict that the broad areas within which significant numbers of accidents have taken place in the past will be where most accidents will also occur in the foreseeable future.

A glance at the aircraft accident distribution patterns presented in Appendix E gives a good indication of where accidents are most likely to occur in relationship to a runway. In the form presented, however, the accident patterns are not easily usable for defining appropriate land use safety compatibility criteria. Doing so would be equivalent to attempting to set noise compatibility policies by using noise data for a series of discrete geographic points. An essential first step thus is to aggregate the accident location data into a more functional format. This process is described in Appendix F.

Delineation of Geometric Zones

While accident distribution contours are helpful as a means of portraying the geographic pattern of aircraft accident risks near an airport, they are not very satisfactory as the basis for defining safety compatibility policies. Their irregular shape is one drawback— although, in that respect, they are no different from noise contours. More important is the lack of precision that results from the modest size of the database, especially as associated with the contours for the individual runway-length groups.

Historically, regular geometric shapes have been used to define safety zones around airports. The 1952 *Report of the President's Airport Commission* first used accident location data to define the size and shape of clear zones (now called runway protection zones) intended to be created at the end of each runway. Prior to the 2002 *Handbook*, ALUCs mostly used regular geometric shapes when adopting airport safety compatibility zones. Many times, the geometric airspace surfaces defined by FAR Part 77 have been used at least as a starting point for establishment of safety zones.

RPZs and FAR Part 77 surfaces, however, both have shortcomings for purposes of land use safety compatibility objectives. Runway protection zones encompass only the most highly concentrated areas of accident locations near runways. As the data in Appendix E clearly indicates, a significant percentage of near-airport aircraft accidents occur in locations beyond the runway protection zones. And while FAR Part 77 surfaces cover a much greater geographic area, they were established for the purposes of airspace protection, not safety compatibility for people and land uses on the ground. As such, FAR Part 77 surfaces, especially the transitional surfaces, have rather minimal correlation to where aircraft accidents occur around airports.

A detailed analysis of aircraft accident location patterns, together with consideration for where aircraft fly and how they are being operated during takeoff departures and landing approaches, provides the best basis for determining optimum safety zone shapes and sizes. An ideal set of safety zones should have four characteristics:

- The zones should have easily definable geometric shapes;
- The number of zones should be limited to a realistic number (five or six should be adequate in most cases);
- The set of zones should have a distinct progression in the degree of risk represented (that is, the distribution of accidents within each zone should be relatively uniform, but less concentrated than in the zones closer to the runway ends); and

- Each zone should be as compact as possible.

Generic Safety Zones

Converting the above concepts into a set of safety zones for a specific airport is, unfortunately, not a simple task. There is no computer model akin to those for creating noise contours into which airport data can be inserted and a set of safety zones are produced as the output. While accident location data provides a solid foundation for delineation of safety zones, considerable judgment is required when creating zones for a particular airport.

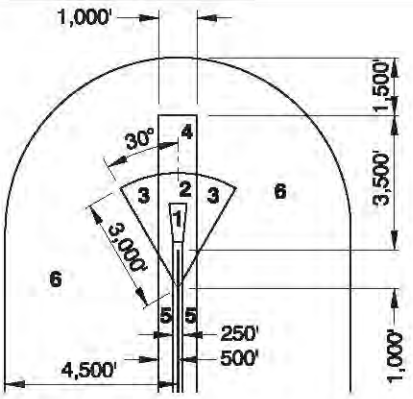
This edition of the Handbook *does not change the safety zone guidance provided in the 2002 edition. As described above, evidence from analysis of the limited new data gathered for this edition was insufficient to conclude that the geographic distribution of accidents has significantly changed during the past decade compared to the pattern from the 1983-1992 period that served as the basis for the previously suggested zones (see Appendix E).*

The dimensions of Zone 1 should reflect the runway protection zone as identified on an airport layout plan, and described in FAA Advisory Circular 150/5300-13: Airport Design.

To assist ALUCs in delineation of safety zones for a given airport, this *Handbook* provides sets of generic zones intended to serve as a starting place for the exercise. A total of seven examples of different safety zone configurations are delineated in a series of diagrams shown in the figures on the following pages. Figure 3A includes safety zone examples for five different types of general aviation runways. Figure 3B presents examples for runways at a large air carrier and military airports. The diagrams divide the airport vicinity into as many as six safety zones in addition to the immediate runway environs (defined by the FAR Part 77 primary surface):

- *Zone 1:* Runway protection zone and within runway object free area adjacent to the runway;
- *Zone 2:* Inner approach/departure zone;
- *Zone 3:* Inner turning zone;
- *Zone 4:* Outer approach/departure zone;
- *Zone 5:* Sideline zone; and
- *Zone 6:* Traffic pattern zone (not applicable to large air carrier airports).

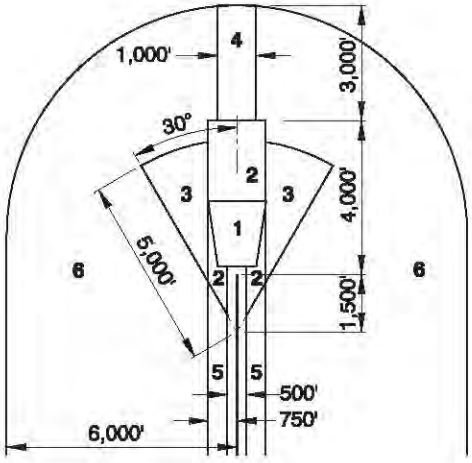
The intent of the set of zones depicted for each example is that risk levels be relatively uniform across each zone, but distinct from the other zones. For the most part, the shapes and sizes of the zones were established based upon mathematical analyses of the accident location data presented in this and Appendix E. Not clearly stated in past editions, though, was that another factor also played a part in the zone delineation and is important to acknowledge here: flight parameters. More specifically, as an aircraft approaches for landing or climbs out after takeoff, how is it being operated? Where is it normally flying relative to the runway, and at what altitude? Is it flying straight and level or turning and climbing or descending? What actions pose the greatest stress on the aircraft and greatest potential for loss of control or fewest options for recovery if the unexpected occurs? Where are conflicts between aircraft in flight most likely to happen and potentially create risks for the land uses below?



Example 1:
Short General Aviation Runway

Assumptions:
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250' x 450' x 1,000'

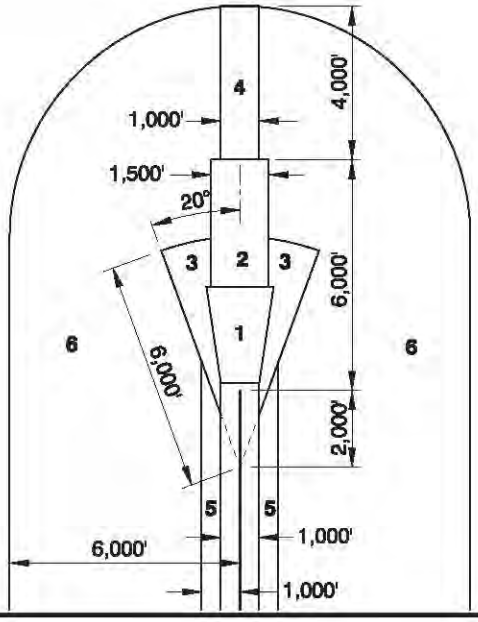
See Note 1.



Example 2:
Medium General Aviation Runway

Assumptions:
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'

See Note 1.



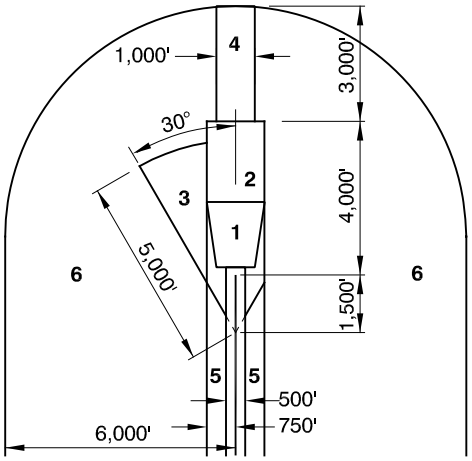
Example 3:
Long General Aviation Runway

Assumptions:
- Length 6,000 feet or more
- Approach visibility minimums < 3/4 mile
- Zone 1 = 1,000' x 1,750' x 2,500'

See Note 1.

FIGURE 3A

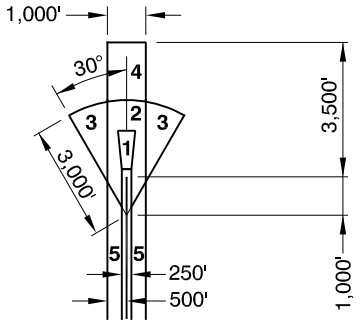
Safety Compatibility Zone Examples – General Aviation Runways



Example 4:
General Aviation Runway with Single-Sided Traffic Pattern

Assumptions:
- No traffic pattern on right
- Length 4,000 to 5,999 feet
- Approach visibility minimums ≥ 3/4 mile and < 1 mile
- Zone 1 = 1,000' x 1,510' x 1,700'

See Note 1.



Example 5:
Low-Activity General Aviation Runway

Assumptions:
- Less than 2,000 takeoffs and landings per year at individual runway end.
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250' x 450' x 1,000'

See Note 1.

Legend

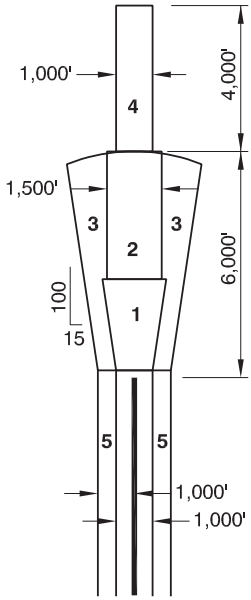
1. Runway Protection Zone
2. Inner Approach/Departure Zone
3. Inner Turning Zone
4. Outer Approach/Departure Zone
5. Sideline Zone
6. Traffic Pattern Zone

Notes:

1. RPZ (Zone 1) size in each example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the Approach type differs.
2. See Figure 3A for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
3. See Figures 4B through 4G for guidance on compatibility criteria applicable with each zone.

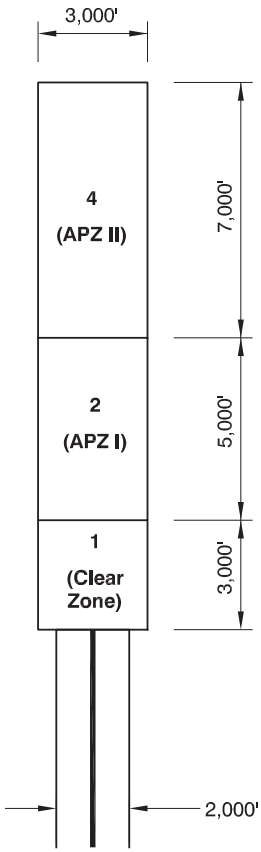
These examples are intended to provide general guidance for establishment of airport safety compatibility zones. They do not represent California Department of Transportation standards or policy.

FIGURE 3A CONTINUED



Large Air Carrier Runway

Assumptions:
- Minimal light-aircraft general aviation activity
- Predominately straight-in and straight-out flight routes
- Approach visibility minimums < 3/4 mile
- Zone 1 = 1,000' x 1,750' x 2,500'



Military Runway for Large Aircraft

Assumptions:
- Military airport
- Predominately straight-in and straight-out flight routes (must modify for turning routes and traffic pattern activity)

Legend

1. Runway Protection Zone (Clear Zone)
2. Inner Approach/Departure Zone (Accident Potential Zone I)
3. Inner Turning Zone
4. Outer Approach/Departure Zone (Accident Potential Zone II)
5. Sideline Zone

Notes:

1. RPZ (Zone 1) size in the large air carrier runway example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the approach type differs.
2. See Figure 3A for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
3. See Figures 4B through 4G for guidance on compatibility criteria applicable with each zone.

These examples are intended to provide general guidance for establishment of airport safety compatibility zones. They do not represent California Department of Transportation standards or policy.

FIGURE 3B

Safety Compatibility Zone Examples – Large Air Carrier and Military Runways

To bring this information into better focus, a series of tables examining the concerns associated with each of the six zones has been created for this edition of the *Handbook*. The tables, which also provide guidance regarding land use compatibility criteria for each zone, are included in Chapter 4.

Adjusting Generic Safety Zones to Individual Airports

The generic safety zones presented in the preceding section are intended just as a starting place for the development of zones appropriate for a particular airport. In some cases, the zones might be quite suitable as is. In most instances, however, some degree of adjustment of the generic zones is necessary in recognition of the physical and operational characteristics of the airport. This section provides guidance on factors to consider when applying and adjusting the generic zones to suit an individual airport.

> *An important concept to understand when adjusting safety zones to fit a particular airport is the interrelationship between the size of the zone and the criteria applicable within them. For example, to the extent that a decision is made to shrink the zones relative to the generic dimensions, then the risks in the remaining area can be assumed to be correspondingly higher unless the runway has very little use. The compatibility criteria should be more stringent as a result. Because attempting to adjust both variables at the same time can get confusing, the recommended approach is to begin by defining the safety zones, focusing on the aeronautical factors that affect their size and shape. The criteria can then be established and, once that is done, the zone boundaries can be fine tuned if necessary.*

The first step in delineating safety zones for an individual airport is to decide which of the generic sets of zones is most applicable. Runway length is a primary consideration. However, if the length falls near the break point between two of the generic groups, it may be appropriate to define zones that are between the sizes of the two groups. The type of aircraft that use the runway can also be considered in this regard. For example, if a runway has little use by twin-engine or business jet aircraft (maybe another, longer, runway is available for these aircraft), then the smaller zones associated with the shorter runway length group may be appropriate. On the other hand, a short runway used by the more demanding types of aircraft may warrant starting with a larger set of safety zones.

> *IT should be noted that the three runway length groupings are not a hard and fast rule—they were created for the convenience of the* Handbook *users. The total accident database was divided into three roughly equal groups with enough points in each to be statistically usable. If more data were available, smaller runway length increments could have been used. Also, a group could just as easily have been created encompassing runway lengths from 3,000 to 5,000 feet. See the discussion regarding adjusting the generic zones for individual runways for factors to consider when a runway length falls at a dividing point between the groups examined here.*

Another basic adjustment that should be made is with regard to Zone 1. Its dimensions should match the size of the runway protection zone at each end of the runway regardless of the runway length. Next, adjustments need to be made at airports with multiple runways. In most cases, where zones from two runways overlap, the lower numbered zone should control. For example, if Zone 2 from one runway overlaps Zone 5 of another runway, the criteria for Zone 2 should be used.

Various other aeronautical factors that may warrant adjustments to the sizes or shapes of the generic zones are listed in Table 3A. Some of these factors relate to the configuration of the runways. Others are dictated by the way the runways are used.

> *Among the adjustment factors noted in Table 3A below are the peculiarities of the flight routes normally flown at a particular airport. While this factor is relevant and should be considered, it is also essential to recognize that the route followed by an aircraft when in distress may not be a normal route. Aircraft accidents can occur in places seldom overflown by aircraft.*

Several other factors deserve consideration when defining safety zones. These factors involve characteristics of the airport environs.

- Airport Area Topography—Characteristics of the terrain in the vicinity of an airport may need to be considered when setting safety compatibility zone boundaries. The presence of high terrain, the edge of a precipice, or other such features may influence the location of aircraft traffic patterns. Extension of safety zones may be justified in places where high terrain results in aircraft flying at a relatively low altitude above the ground. Also, some locations might have reduced levels of risk because they are effectively shielded by nearby higher terrain.

- Locate Boundaries Based on Geographic Features—Another manner in which safety zone shapes and sizes might be adjusted in response to existing urban development is to have the zone boundaries follow established geographic features. Such features might include, roads, water courses, parcel lines, etc. Such adjustments should be made in a manner that provides a level of safety equivalent to that afforded by the applicable generic safety compatibility zones. Though the advent of graphic information systems (GIS) perhaps makes this approach less necessary than in years past, basing zone boundaries on geographic features can still simplify implementation of an ALUCP, particularly one utilizing the composite zone method.

Guidelines for General Aviation Runways

Figure 3A depicts basic guidelines for general aviation runway safety compatibility zones. Five variations are shown:

- General aviation runway with length of less than 4,000 feet and visibility minimums of 1 mile or visual approaches only;

- General aviation runway with length of 4,000 to 5,999 feet and instrument approach visibility minimums below 1 mile, but not lower than 3/4 mile;

- General aviation runway with length of 6,000 feet or more and a instrument approach visibility minimums below 3/4 mile;

- General aviation runway with traffic pattern on one side only; and

- General aviation runway with very-low activity levels (less than 2,000 takeoffs and landings projected per year at the runway end under consideration).

TABLE 3A: SAFETY ZONE ADJUSTMENT FACTORS (AIRPORT OPERATIONAL VARIABLES)

The generic sets of compatibility zones shown in Figures 3A and 3B may need to be adjusted to take into account various operational characteristics of a particular airport runway. Among these characteristics are the following:

- Instrument Approach Procedure s—At least within the final two to three miles, which are of greatest interest for compatibility planning, the flight paths associated with precision instrument approach procedures are highly standardized. Other types of instrument approach procedures are less uniform, however. If such procedures are available at an airport, ALUCs should identify the flight paths associated with them and the extent to which they are used. Procedures that are regularly used should be taken into account in the configuration of safety zones (and in setting height limits for airspace protection). Types of procedures which may warrant special consideration include:
  - o Circling Approaches: Most instrument approach procedures allow aircraft to circle to land at a different runway rather than continue straight-in to a landing on the runway for which the approach is primarily designed. When airports have straight-in approaches to multiple runway ends, circling approaches are seldom necessary. However, when only one straight-in approach procedure is available and the wind direction precludes landings on that runway, aircraft may be forced to circle to land on at another runway end. Pilots must maintain sight of the runway while circling, thus turns are typically tight. Also, the minimum circling altitude is often less than the traffic pattern altitude. At airports where circling approaches are common, giving consideration to the associated risks when setting safety zone boundaries is appropriate.
  - o Non-Precision Approaches At Low Altitudes: Non-precision instrument approach procedures often involve aircraft descending to a lower altitude farther from the runway than occurs on either precision instrument or visual approaches. An altitude of 300 to 400 feet as much as two to three miles from the runway is not unusual. The safety (and noise) implications of such procedures need to be addressed at airports where they are in common use. (A need for corresponding restrictions on the heights of objects also exists along these routes.)
  - o Non-Precision Approaches Not Aligned With The Runway: Some types of non-precision approaches bring aircraft toward the runway along a path that is not aligned with the runway. In many cases, these procedures merely enable the aircraft to reach the airport vicinity at which point they then proceed to land under visual conditions. In other instances, however, transition to the runway alignment occurs close to the runway and at a low altitude.
- Other Special Flight Procedures Or Limitations—Single-sided traffic patterns represent only one type of special flight procedure or limitation that may be established at some airports. Factors such as nearby airports, high terrain, or noise- sensitive land uses may affect the size of the airport traffic pattern or otherwise dictate where and at what altitude aircraft fly when using the airport. These procedures may need to be taken into account in the design of safety compatibility zones.
- Runway Use By Special-Purpose Aircraft—In addition to special flight procedures, certain special-purpose types of aircraft often have their own particular flight procedures. Most common among these aircraft are fire attack, agricultural, and military airplanes. Helicopters also typically have their own special flight routes. The existence of these procedures needs to be investigated and, where warranted by the levels of usage, may need to be considered in the shaping of safety zones.
- Small Aircraft Using Long Runways—When small airplanes take off from long runways (especially runways in excess of 8,000 feet length), it is common practice for them to turn toward their intended direction of flight before passing over the far end of the runway. When mishaps occur, the resulting pattern of accident sites will likely be more dispersed around the runway end than is the case with shorter runways. With short runways, accident sites tend to be more tightly clustered around the runway end and along the extended runway centerline because aircraft are still following the runway heading as they begin their climb.
- Runways Used Predominantly In One Direction—Most runways are used sometimes in one direction and, at other times, in the opposite direction depending upon the direction of the wind. Even when used predominantly in one direction, a busy runway may experience a significant number of operations in the opposite direction (for example, a runway with 100,000 total annual operations, 90% of which are in one direction, will still have 10,000 annual operations in the opposite direction). Thus, in most situations, the generic safety zones—which take into account both takeoffs and landings at a runway end—are applicable. However, when the number of either takeoffs or landings at a runway end is less than approximately 2,000 per year, adjustment of the safety compatibility zones to reflect those circumstances may be warranted.
- Displaced Landing Thresholds—A displaced threshold moves the landing location of aircraft down the runway from where they would land in the absence of the displacement. The distribution pattern of landing accident sites as shown in Appendix F would thus shift a corresponding amount. The pattern of accident locations for aircraft taking off toward that end of the runway does not necessarily shift, however. Whether the runway length behind the displaced threshold is usable for takeoffs toward that end of the runway is a key factor in this regard. The appropriateness of making adjustments to safety zone locations in response to the existence of a displaced threshold needs to be examined on a case-by-case basis. The numbers of landings at and takeoffs toward the runway end in question should be considered in making this determination.

Runway Length and Approach Visibility Variables

The primary variable among the general aviation runway safety zone examples shown in Figure 3A is the runway length. Additionally, different assumptions are made as to the approach visibility minimums for each runway length grouping. For purposes of illustration, longer runways are assumed to have better instrument approaches. Adjustments to the safety zones may be appropriate for runway ends having approaches that do not match the assumptions noted.

Table 3B provides supporting data for three of the general aviation airport safety compatibility zone examples, one in each runway length group. For each of the suggested zones, the table indicates the acreage of the zone and the percentage of arrival, departure, and total accidents which are encompassed within that zone. The capture rates—percentage of accidents divided by acreage—is listed as well.

Single-Sided Traffic Pattern

The single-sided traffic pattern example eliminates the turning zone on the non-pattern side of the runway. This configuration assumes that aircraft are less likely to crash in locations over which they normally do not fly. (Insufficient information is available in the general aviation accident database to better assess this operational configuration.) It is recognized, however, that the potential exists for aircraft to deviate to the non-pattern side on either takeoff or landing, especially under emergency conditions. Some amount of buffer is thus important to maintain. Note that the example shown is for a runway in the 4,000-to-5,999-foot length category. Similar safety zone configurations can be devised for other runway lengths.

Low-Activity Runways

The other operational variable that calls for adjustment of the compatibility zones is for runways where activity levels are currently very low and are forecasted to remain that way indefinitely. Clearly, the likelihood of an aircraft accident happening is reduced when operational volumes remain low. As suggested previously, this reduced risk could be reflected in compatibility policies either by adjusting the safety zones or by modifying the compatibility criteria. The low-activity runway diagram in Figure 3A still works on the basis that the size and shape of the zones are based on the spatial pattern of aircraft accidents, which are generally the same regardless of the number of operations. However, certain changes can be made when two things are considered: 1) with low activity airports, aircraft tend to fly straight in and out, rather than following a traffic pattern; and 2) because of this type activity, the probability of an accident in some locations drops to the point that land use restrictions are hard to justify, thus eliminating the need for a safety zone. Safety compatibility criteria are a reflection of the potential consequences of an accident and that potential does not change even if the activity is low. Furthermore, safety zone shapes and sizes can be more readily adjusted for a single low-activity runway at an otherwise busy airport. Modifying the compatibility criteria would require having different criteria for different runways. In either case, however, activity occurring on a runway, no matter how minor, must be accounted for.

TABLE 3B: ANALYSIS OF SAFETY ZONE EXAMPLES (GENERAL AVIATION RUNWAYS)

	Example 1: Runway Length Less than 4,000 Feet			Example 2: Runway Length 4,000 to 5,999 Feet			Example 3: Runway Length 6,000 Feet or More		
Safety Zone	% of Points	Acres	% / Acre	% of Points	Acres	% / Acres	% of Points	Acres	% / Acres
Arrival Accident Sites									
Primary Surface	29%	-	-	2%	-	-	11%	-	-
Zone 1: Runway Protection Zone	27%	8	3.35	26%	49	0.53	25%	79	0.32
Zone 2: Inner Approach/Departure Zone	15%	44	0.34	9%	101	0.09	12%	114	0.11
Zone 3: Inner Turning Zone	2%	50	0.04	5%	151	0.04	6%	131	0.05
Zone 4: Outer Approach/Departure Zone	3%	35	0.07	5%	69	0.08	8%	92	0.09
Zone 5: Sideline Zone	1%	-	-	3%	-	-	1%	-	-
Zone 6: Traffic Pattern Zone	10%	-	-	11%	-	-	21%	-	-
Total: Zones 1-6 + Primary Surface	87%	-	-	79%	-	-	85%	-	-
Departure Accident Sites									
Primary Surface	9%	-	-	9%	-	-	16%	-	-
Zone 1: Runway Protection Zone	17%	8	2.09	14%	49	0.28	13%	79	0.17
Zone 2: Inner Approach/Departure Zone	28%	44	0.63	11%	101	0.11	3%	114	0.02
Zone 3: Inner Turning Zone	5%	50	0.10	9%	151	0.06	8%	131	0.06
Zone 4: Outer Approach/Departure Zone	2%	35	0.06	4%	69	0.06	3%	92	0.03
Zone 5: Sideline Zone	8%	-	-	8%	-	-	5%	-	-
Zone 6: Traffic Pattern Zone	24%	-	-	37%	-	-	39%	-	-
Total: Zones 1-6 + Primary Surface	94%	-	-	91%	-	-	86%	-	-
All Accident Sites									
Primary Surface	18%	-	-	15%	-	-	13%	-	-
Zone 1: Runway Protection Zone	21%	8	2.65	21%	49	0.40	20%	79	0.26
Zone 2: Inner Approach/Departure Zone	22%	44	0.50	10%	101	0.10	8%	114	0.07
Zone 3: Inner Turning Zone	4%	50	0.08	7%	151	0.05	7%	131	0.05
Zone 4: Outer Approach/Departure Zone	2%	35	0.07	5%	69	0.07	6%	92	0.07
Zone 5: Sideline Zone	5%	-	-	5%	-	-	3%	-	-
Zone 6: Traffic Pattern Zone	18%	-	-	23%	-	-	29%	-	-
Total: Zones 1-6 + Primary Surface	91%	-	-	85%	-	-	85%	-	-

Notes:
Totals may not equal the sum of the numbers above because of mathematical rounding.
See Figure 3A for the shapes and dimensions of each zone.
Accident site locations as indicated in expanded general aviation aircraft accident database (see Appendix E).

Obvious questions posed by the idea of modifying safety zones for low-activity runways are:

- How low must the activity level continue to be for the runway to be considered low activity?
- How much can the safety zones be adjusted in response to the low activity?

In each case, the answer is a relative one. The assumption employed in the example here is that the runway end under consideration has fewer than 2,000 total takeoffs and landings projected annually (roughly 6 operations per day). Less modification is justified when the activity is higher. Beyond about 10,000 annual operations, the basic safety zone configuration should be applied.

The other factor is that locations close to the runway remain critical even when the activity is low, particularly if the development has more than low density uses. FAA criteria for runway protection zones, for example, do not depend upon aircraft operations volumes, only the types of approach the runway has and the type of aircraft it accommodates. Thus, depending upon where the common flight tracks are located, it is the outer safety zone and/or the turning zone which can most reasonably be modified. In defining safety zones for low-activity runways, special consideration also needs to be given to the mix of aircraft and the existence of any common but unusual flight tracks. Runways used primarily by agricultural aircraft are a prime example of such situations. Safety zones for low-activity runways that are sometimes used by large aircraft also need to be carefully evaluated.

Guidelines for Large Air Carrier Runways

There are numerous factors that distinguish the risks associated with runways predominantly used by commercial air carrier aircraft in passenger service from those used for general aviation purposes:

- Commercial air carrier aircraft are flown by professional pilots;
- Commercial air carrier aircraft pilots are instrument rated;
- Commercial air carrier aircraft pilots are more experienced and fly more frequently;
- Typically, there are at least two pilots in the cockpit;
- Many flights are conducted under the more restrictive requirements of FAR Part 121, 135, etc.;
- The majority of flights are conducted under instrument flight plans, even when weather does not require it;
- The vast majority of aircraft have multiple engines and can remain airborne following the loss of one engine;
- Aircraft maintenance programs are monitored by the FAA ;
- Aircraft are much newer on average than small aircraft in the general aviation fleet; and
- Essentially all of these airports have electronic landing aids.

All of these factors support the very low frequency of commercial aviation accidents. At air carrier airports, noise tends to be such a dominant consideration that safety is seldom discussed. However, the consequences of an off-airport air carrier accident are potentially devastating. For compatibility planning purposes, defining realistic safety criteria is complicated by the fact that many busy air carrier airports were established decades ago and are now surrounded by higher densities of urban development.

The accident database relied upon in defining safety zone guidelines for general aviation airports contain data only on general aviation aircraft accidents. Equivalent data for air carrier accidents is comparatively scant. Data in Appendix E shows the location pattern for some three dozen near-airport commercial aircraft accidents. A British study also cited in Appendix E includes additional data, but it is not formatted in a manner showing the overall scatter pattern (data along and lateral to the extended runway centerline are separately summarized).

Both studies portray similar results. The highest concentration of accidents sites are within approximately 1,500 feet of the runway end, but significant numbers occur within an area extending about two miles beyond the runway end. Most of the sites are directly along the runway centerline and the majority of the remainder are within 1,000 feet of the centerline.

This data provides the basis for the safety zones for large air carrier runways depicted in Figure 3B. These zones assume minimal activity by light general aviation aircraft. The example shown also assumes that the runway length is 8,000 feet or more and that essentially all flights are flown straight in and out along the extended runway centerline. To the extent that any of these assumptions do not strictly apply to a specific airport, modification of the indicated zones should be considered.

As for the criteria applicable within these zones, the presence of large aircraft might argue for greater stringency. That is, the potential consequences of an air carrier aircraft accident are much greater than they are for small, general aviation aircraft, thus land uses should be more restricted. However, this risk factor is largely offset by the significantly lower frequency of accidents by airline aircraft. Also, the most at-risk locations can be protected by making the most restricted zones relatively large as shown in Figure 3B.

Guidelines for Military Runways

Guidelines set forth by the U.S. Department of Defense as part of its AICUZ program are the appropriate starting point for safety compatibility policies for military airport runways. For the U.S. Air Force (USAF), Air Force Instruction (AFI) 32-7063 provides implementing procedures for AICUZ preparation for USAF installations, while OpNav Instruction 11010.36C sets forth AICUZ instructions for naval installations. The federal government has prepared individual AICUZ plans for all major military airports.

The AICUZ -recommended APZs are illustrated in Figure 3B. The depicted zones assume that flight tracks are straight-in and straight-out. ALUCP preparers should coordinate with military staff to determine if different or additional tracks are used on a regular basis, and if so, determine whether the APZs should be modified or expanded. Consideration may also need to

be given to providing safety zones lateral to the runway if these areas are not fully contained within the boundaries of the military facility.

The safety compatibility criteria suggested in AICUZ guidelines tend to represent *minimum standards* (more so with respect to noise than safety). Also, the criteria are formatted using a detailed listing of land uses types. ALUCs may choose to use the AICUZ guidelines directly. Alternatively, the safety compatibility guidelines indicated in this *Handbook* may be appropriate, particularly where the ALUC utilizes this format for safety compatibility criteria at other airports within its jurisdiction. In either case, the specific criteria should be reviewed and revised as necessary to fit the operational characteristics of the specific airfield and the land use characteristics of the surrounding area. Moreover, PUC Section 21675 (b) requires that the ALUC adopt an ALUCP that is "consistent with the safety and noise standards in the [AICUZ] prepared for that military airport." For additional guidance on collaboration between ALUCs, local jurisdictions, and military leadership for the purposes of compatibility planning, see the *California Advisory Handbook for Community and Military Compatibility Planning*, which is published by the Governor's Office of Planning and Research (OPR).

Guidelines for Heliports

Very little information is available upon which to base safety compatibility guidelines for heliports. No useful compilation of data on the location of helicopter accidents in the proximity of heliports is known to exist. The only significant policy guidance is contained in the FAA *Heliport Design* Advisory Circular (AC 150/5390-2B), issued on September 30, 2004. The primary concerns of that document are with respect to the design of the touchdown and liftoff pad itself and requirements for obstruction free approach/departure paths.

The one additional FAA safety-related guideline—described as applicable only to public-use facilities—is for creation of heliport protection zones. These zones, equivalent to runway protection zones at airports, extend 280 feet from the edge of the final approach and takeoff area. As with runway protection zones, the helipad protection zone should be clear of incompatible objects and any land uses involving a congregation of people.

Establishment of heliport protection zones is a desirable safety-compatibility objective for all heliports. There are practical limitations to doing so, however. One is that, even when approach/departure routes are formally defined and approved, the highly maneuverable capabilities of helicopters means that their actual routes may differ. The other is that, except for facilities on an airport, the heliport protection zone is likely to extend onto adjacent property.

To the extent that is practical, buildings (particularly ones higher than the heliport itself) and congregations of people should be avoided within helipad protection zones. Once a heliport is established, the facility owner, local land use jurisdictions, and ALUC should take action to preserve compatible uses in the heliport protection zones and, even more critically, to prevent obstructions to the approach/departure surfaces.

Guidelines for Private Airports

Since personal use airports are not subject to the *Handbook*, responsibility for airport land use compatibility planning falls to local government. When preparing general or specific plans, local governments should consider potential safety issues with regards to development near existing personal use airports, and deliberate on, at a minimum, the safety guidance appropriate for the environment in which the airport is located (as outlined in Chapter 4 of this *Handbook*).

3.2.4 Airspace Protection

Relatively few aircraft accidents are caused by land use conditions that are hazards to flight. The potential exists, however, and protecting against it is essential to airport land use safety compatibility.

Airspace Protection Policy Foundations

FAA Guidance

FAR Part 77 Airspace Surfaces

To help ensure protection of the airspace essential to the safe operation of aircraft at and around airports, the FAA has established a process that requires project sponsors to inform the agency about proposed construction that could affect navigable airspace. The standards by which the FAA conducts these aeronautical studies are set forth in FAR Part 77, Objects Affecting Navigable Airspace. Specifically, FAR Part 77 establishes standards for:

- FAA Notification. Notifying the FAA about any proposed construction or alteration of objects—whether permanent, temporary, or of natural growth—that could be a hazard to flight;
- Imaginary Surfaces. Defining an airport's airspace, referred to as 'imaginary surfaces'; and
- Aeronautical Studies. Determining obstructions to navigable airspace and the potential hazardous effects of such obstructions on the safe and efficient use of that airspace.

Limits on Federal Authority under FAR Part 77

The FAA's authority to protect the navigable airspace from obstructions and other hazards, including existing and proposed structures, is predominantly derived from Title 49 U .S.C. Section 44718. However, Section 44718 does not provide specific authority for the FAA to regulate or control of off-airport real property. Nevertheless, the FAA does have authority to require that sponsors of new objects that could be airspace obstructions submit notice to the agency prior to the construction as outlined below. Persons failing to comply with the provisions of FAR Part 77 are subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended and pursuant to 49 U.S.C. Section 46301(a).

Primary responsibility for preventing hazardous obstructions to airport airspace rests with state and local governments and the airport operator.

If new airspace obstructions are created or, as may happen with the growth of trees or other vegetation, are newly identified, federal action is primarily limited to three possibilities:

- Reduced Instrument Approach Minimums. For airports with instrument approaches, an obstruction could necessitate modification to one or more of the approach procedures (particularly greater visibility and/or cloud ceiling minimums) or even require elimination of an approach procedure.

- Reduced Runway Length. Airfield changes, such as displacement of a landing threshold, could be required (especially at airports certificated for commercial air carrier service).

- Reduced Federal Aid. The owner of an airport could be found in noncompliance with the conditions agreed to upon receipt of FAA grant assurances, airport development or property acquisition grant funds and could become ineligible for future grants (or, in extreme cases, be required to repay part of a previous grant).

FAA Notification

Subpart B, Notice of Construction or Alteration, of the regulations requires that the FAA be notified of any proposed construction or alteration of objects within 20,000 feet of a runway and having a height that would exceed a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway. This requirement applies to runways more than 3,200 feet in length; for shorter runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway; for heliports, the notification surface has a 25:1 slope and extends 5,000 feet from takeoff and landing area, also referred to as the FATO. Notification is required with regard to any public-use or military airport and heliport.

Note that these notification surfaces have a much shallower slope and extend farther from the runway than the obstruction surfaces defined by Subpart C of the regulations typically shown in an airspace plan as described below.

Also requiring notification is any proposed object more than 200 feet in height regardless of proximity to an airport.

Exceptions to the notification requirement are allowed for "any object that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement where it is evident beyond all reasonable doubt that the structure so shielded would not adversely affect safety in air navigation."

When determining the height of structures, it is important to consider all of their components, including elevator shafts, flag poles, and antennas that would extend above the roof level. Furthermore, proposed objects do not need to be permanent to require submittal of a notification. Notice also must be provided for temporary objects such as construction cranes. Such objects are critically important to airspace protection in that they often are taller than the ultimate height of the structure. Mobile objects on roads must be taken into account as well. To allow for vehicles, 17 feet must be added to the road elevation of Interstate highways, 15 feet

added for other public roadways, and 10 feet to private roads. A 23-foot clearance over railroad lines is required.

The notification is to be provided using FAA Form 7460-1, Notice of Proposed Construction or Alteration. The notice can be submitted on-line (see Appendix B for on-line submittal procedures of Form 7460). Receipt of the notice enables the FAA to evaluate the effect of the proposed object on air navigation and chart the object or take other appropriate action to ensure continued safety. There is no cost associated with the filing.

FAR Part 77 Surfaces for Compatibility Planning

Subpart C, *Obstruction Standards*, of FAR Part 77 establishes the standards for determining obstructions to air navigation. This subpart defines a set of imaginary surfaces that differ from those used for FAA notification. The imaginary surfaces are established with relation to an airport and each runway. The slope and dimension of each imaginary surface is based on the type of approach available or planned for each runway (e.g., visual, nonprecision, precision). The imaginary surfaces extend to about two to three statute miles around airport runways and approximately 9.5 statute miles from the ends of runways having a precision instrument approach. The five types of imaginary surfaces for civil airports are:

- **Primary Surface.** The primary surface is longitudinally centered on a runway and has the same elevation as the elevation of the nearest point on the runway centerline. When the runway has a prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. The width of the primary surface ranges from 250 to 1,000 feet depending on the existing or planned approach and runway type. The primary surface must be clear of all obstructions except those fixed by their function, such as runway edge lights, navigational aids, or airport signage. The majority of the primary surface is controlled by runway safety area criteria contained in FAA Advisory Circular 150/5300-13, *Airport Design*, and almost always lies within airport-controlled property.

- **Approach Surface.** The approach surface is longitudinally centered on the extended runway centerline and extends outward and upward from the end of the primary surface. The slope of the approach surface is based upon the type of approach available or planned for each runway: 20:1 (visual), 34:1 (nonprecision), or 50:1 (precision). The length of the approach surface varies from 5,000 to 50,000 feet depending on the approach type.

- **Transitional Surface.** The transitional surface extends outward and upward at right angles to the runway centerline and extends at a slope of 7 feet horizontally for each one-foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to the point at which they intercept the horizontal surface at a height of 150 feet above the established airport elevation (i.e., highest runway end elevation).

- **Horizontal Surface.** The horizontal surface is a horizontal plane located 150 feet above the established airport elevation and encompasses an area from the transitional surface to the conical surface.

- **Conical Surface.** The conical surface extends upward and outward from the periphery of the horizontal surface at a slope of 20 feet horizontally for every one-foot vertically (20:1) for a horizontal distance of 4,000 feet. Height limits for the surface range from 150 feet above the airport elevation at the inner edge to 350 feet at the outer edge.

Similar, but different airspace surfaces apply to military airports. The dimensions differ and there are two additional surfaces: a clear zone surface and an outer horizontal surface. The latter extends to a horizontal distance of 30,000 feet from the runway ends.

By definition, any object that penetrates one of the imaginary surfaces is deemed an obstruction to air navigation. However, not all obstructions are necessarily hazards. The determination of whether an object would be a hazard to air navigation is made as part of an aeronautical study conducted by the FAA as described above. See Figure 3C for FAR Part 77 Imaginary Surfaces for civilian airports.

FAA Aeronautical Studies

When the FAA receives a Notice of Proposed Construction (Form 7460-1) submitted in accordance with Subpart B requirements, Subpart D dictates that the FAA conduct an aeronautical study of the proposal. Accordingly, the FAA disseminates the information to different divisions within the agency. Each division specializes in different FAA regulations and orders and provides comments within their own expertise.

"In the aeronautical studies, present and future IFR and VFR aeronautical operations and procedures are reviewed and any possible changes in those operations and procedures and in the construction proposal that would eliminate or alleviate the conflicting demands are ascertained."

The regulations do not specify a time limit for the FAA to complete an aeronautical study, but a typical turn-around time is 30 to 45 days. If the FAA requests additional information, the applicant will have a period of time (normally 30 days) to provide the requested data. Failure to provide the requested information will result in a termination of the study and the need to re-apply.

After the FAA completes its aeronautical study of the proposed construction, it usually issues a letter indicating its determination as to whether the specific proposal studied would be a hazard to air navigation. The letter determinations include:

- Determination of No Hazard (DNH). The study did not reveal any substantial adverse effect and can proceed on that basis. For example, if the object is shielded by other taller objects or is located away from the normal traffic patterns and instrument approach routes, the outcome in most cases will be a "Determination of No Hazard" even if the object is technically an obstruction. As a condition for non-objection, the FAA may recommend that the object be marked and lighted in accordance with FAA standards. The letter may include optional information such as the basis from which the conclusion was made, identification of obstruction standards exceeded, cautionary aeronautical/operational impacts (e.g., to VFR operations, traffic patterns, etc.), valid aeronautical comments received during circulation/review, marking/lighting requirements, petition deadlines, etc.

- Notice of Presumed Hazard (NPH). Indicates the proposed structure exceeds obstruction standards and/or will have an adverse effect on navigable airspace. The goal of the notice is to allow the sponsor an opportunity to amend the proposal to avoid the impact. The FAA will work with the sponsor to seek modification to eliminate the problem. Adjustments to aviation requirements that would accommodate the proposed object are investigated as well. These letters normally require a response within 60 days of issuance. Once the deadline

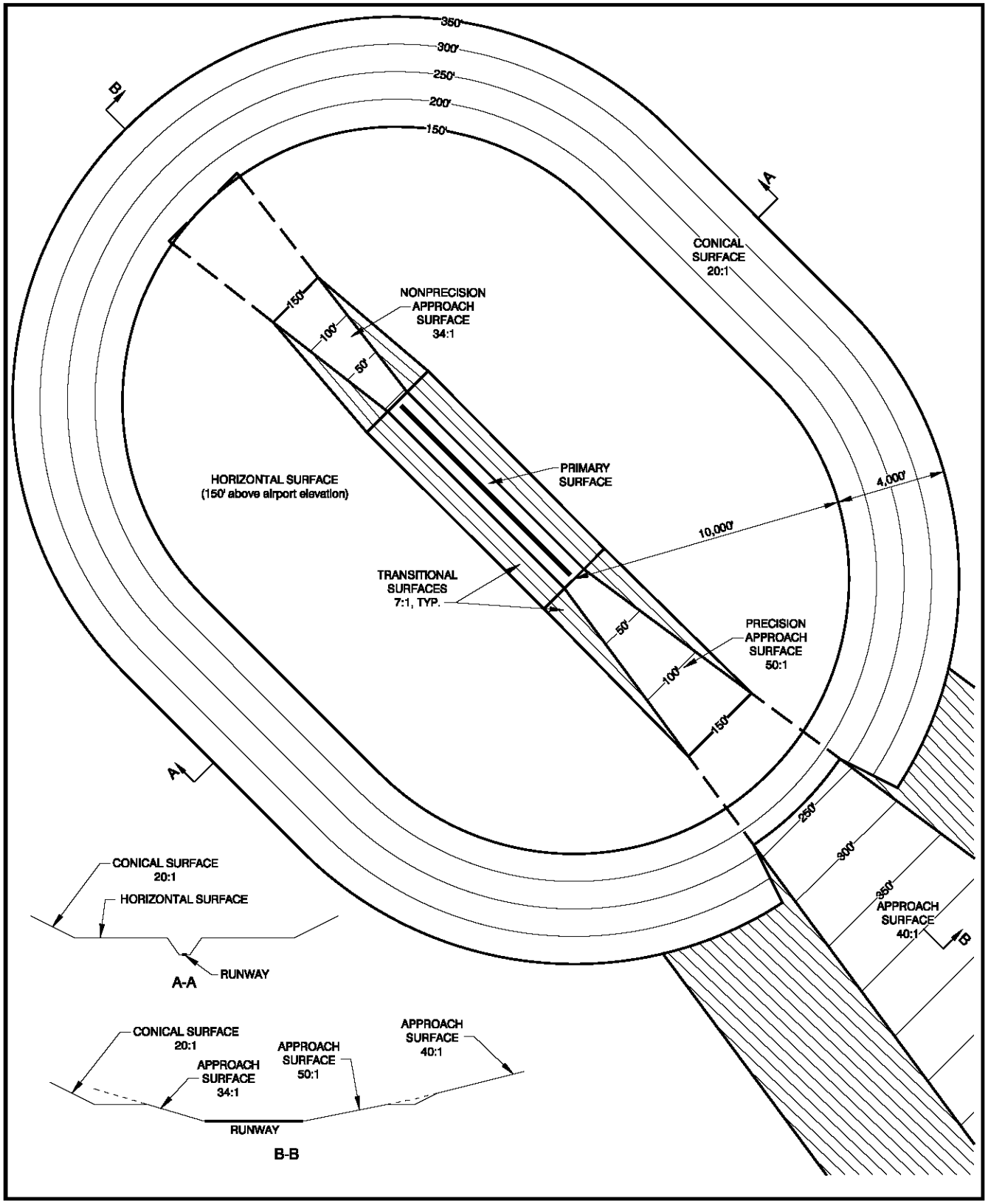


FIGURE 3C

Example of Civil Airport Airspace Protection Surfaces – FAR Part 77

passes, the FAA assumes the project has been terminated. No further action will be taken unless the sponsor submits a new 7460 submission to restart the process. Alternatively, a written response from the sponsor before the deadline will result in either a new determination (e.g., DNH) or will require the FAA to undertake further study to determine adverse impacts.

- Determination of Hazard (DOH). This letter indicates that substantial adverse impact could not be eliminated during the negotiation period following the NPH and the affected aeronautical operations cannot be adjusted to accommodate the structure without substantial adverse effect. Even under these circumstances, however, the determination is advisory and the FAA has no authority to prevent construction of the object. Federal action in response to new airspace obstructions is primarily limited to the three possibilities noted above under the section entitled "Limits on Federal Authority under FAR Part 77."

Unless otherwise specified in the letter, DNH determinations are valid for a period of 18 months from the issue date, while DOH determinations have no expiration date. The letter will normally include a petition deadline 30 days following the issue/effective date. Unless a valid petition is filed, the determination becomes final 40 days following the issue/effective date.

In the broader context of compatibility planning, the significance and limitations of FAA aeronautical study determinations are essential to recognize. These studies only address airspace issues. Due to the FAA's limited authority on matters related to local land use decisions, a DNH by the FAA does not equate to compatibility with an adopted ALUCP. The FAA's jurisdiction, insofar as it relates to local land use regulations, is limited to authority over airspace and environs within the Runway Protection Zone (as long as it's within the confines of airport property). Should the FAA find that a proposed land use presents no hazard to air navigation, it may still warrant ALUC review, particularly if the proposed land use was not already evaluated during the update to a general or specific plan (and thereby found to be consistent by the ALUC during that process). Compatibility with regard to noise, the density or intensity of the land use, and other factors also must be considered in the local decision. Height of the structure and its affect on airspace is only one part of the puzzle. In other words, an FAA DNH is not a determination that no airport land use compatibility issues exist, and an ALUC may find a project incompatible for other reasons, regardless of the issuance of a DNH.

Other FAA Airspace Surfaces

In addition to the FAR Part 77 surfaces, there are other airspace surfaces that are evaluated by the FAA for obstructions. Three of these surfaces are worth mentioning since they may contribute to the height limitations near airports with instrument approaches and/or air carrier operations.

> *Terminal Instrument Procedures are the navigational procedures used by aircraft to find, land, or depart an airport. The instrument flight procedures are predicated upon the specifications stated in TERPS and, when used, are intended to keep aircraft within the allocated airspace.*

- **TERPS Clearance Surfaces.** The United States Standard for Terminal Instrument Procedures (TERPS), as described in FAA Order 8260.3B, June 2009, establishes clearance requirements for all en route and terminal (airport) instrument procedures including

approach, landing, missed approach, and departure. The TERPS clearance surfaces exactly match the instrument procedures in effect at an individual airport. Unlike FAR Part 77 surfaces, the elevations of which are set relative to the runway end elevations irrespective of surrounding terrain and obstacles, the TERPS surface elevations are directly determined by the location and elevation of critical obstacles. By design, neither the ground nor any obstacles can penetrate a TERPS surface.

TERPS surfaces utilize what is known as 'required obstacle clearance (ROC)' bands for all flight segments of the instrument procedure. Placing the bottom surface of the ROC band on top of the highest obstacle within a segment yields the minimum altitude for that segment. When an obstruction penetrates a TERPS clearance surface, the ROC is maintained by raising the minimum altitude for that segment and adjusting the adjacent flight segments. In terms of instrument flight procedures, a penetration of a TERPS clearance surface is considered a hazard to flight and can dictate that minimum flight visibility and altitudes be raised or the instrument course be realigned. In severe instances, obstructions can force a procedure to be cancelled altogether. These consequences reduce the operating utility of the airport.

Required Obstacle Clearance (ROC)—The minimum measure of obstacle clearance considered by the FAA to supply a satisfactory level of vertical protection.

- **Departure Surface for Instrument Runways.** This surface is applied to runways with an instrument approach and is defined in FAA Advisory Circular 150/5300-13, Change 15, Appendix 2. This surface has a slope of 40:1 starting from the departure end of the runway with corresponding dimensions of 1,000 feet inner width, 6,466 feet outer width, 10,200 feet in length. Objects penetrating this surface may affect departure procedures, just as approach procedures can be affected by these same penetrations.

- **One-Engine Inoperative (OEI) Obstacle Identification Surface.** For runways and airports that support air carrier operations, FAA Advisory Circular 150/5300-13, Change 15, Appendix 2 recommends identifying objects that would penetrate this departure surface. The OEI surface starts at the same elevation as the departure end of the runway and slopes upward at 1 foot vertically to 62.5 feet horizontally (62.5:1). The inner width of the OEI surface is 600 feet, the outer width is 12,000 feet, and the surface extends for a distance of 50,000 feet along the extended runway centerline. This area is much larger than the surfaces provided for in FAR Part 77 and TERPS making it difficult to coordinate the potential impacts to airspace and airport operations should an obstruction exist.

  The OEI surface developed by the FAA is intended to encompass and provide protection for all the possible variations of the specific OEI surfaces developed by air carrier operators. Under FAR Part 25, every air carrier operator of transport category airplanes is required to have an OEI surface in place for each airport it serves. The OEI surface sets the maximum departure weights for air carrier aircraft. The OEI surface is unique to each operator, aircraft type and airport served. The air carrier-specific OEI surfaces are typically narrower than the FAA's standard OEI surface and/or have slight turning procedures.

  Although the FAA has no direct role in protecting the OEI surface from obstructions, the protection of the OEI airspace can be critical to preserving the viability of commercial air service at airports and should be considered when evaluating land use compatibility impacts near airports. That is, data regarding penetrations to this surface are provided for information and use by the air carriers operating from the airport.

The importance of maintaining these surfaces clear of obstructions is critical to protecting navigable airspace and preserving the utility of an airport. These surfaces are typically more controlling or restrictive in terms of limiting heights of objects than the FAR Part 77 obstruction surfaces. However, a significant downside of using these surfaces for compatibility planning purposes is that they are highly complex compared to the relative simplicity of FAR Part 77 obstruction surfaces. Also, the configuration and/or elevations of these surfaces can change not only in response to new obstacles, but as implementation of new navigational technologies permit additional or modified instrument procedures to be established at an airport.

Other Federal Airspace Protection Guidance

Additional guidelines regarding protection of airport airspace are set forth in other FAA documents. In general, these criteria specify that no use of land or water anywhere within the boundaries encompassed by FAR Part 77 should be allowed if it could endanger or interfere with the landing, take off, or maneuvering of an aircraft at an airport (FAA–1987). Specific characteristics to be avoided include:

- Creation of electrical interference with navigational signals or radio communication between the airport and aircraft ;
- Lighting which is difficult to distinguish from airport lighting;
- Glare in the eyes of pilots using the airport;
- Smoke or other impairments to visibility in the airport vicinity; and
- Uses which attract birds and create bird strike hazards.

Bird strike and other forms of wildlife hazard have become a major concern internationally. In the United States and Canada, reduction and management of wildlife hazards are of particular concern. With regard to bird strike hazards, the FAA specifically considers waste disposal sites (sanitary landfills) to be incompatible land uses if located within 10,000 feet of a runway used by turbine-powered aircraft or 5,000 feet of other runways. Any waste disposal site located within five statute miles of an airport is also deemed incompatible if it results in a hazardous movement of birds across a runway or aircraft approach and departure paths. Caution should be exercised with regard to certain other land uses—including golf courses and some agricultural crops—in these locations to ensure that wildlife hazards do not result (FAA–1997). (Additional guidance on the issue of hazardous wildlife can be found in the FAA's Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*.)

Furthermore, federal statutes (49 U.S.C. §44718(d)) now prohibit new "municipal solid waste landfills" within six miles of airports that: (1) receive FAA grants, and (2) primarily serve general aviation aircraft and scheduled air carrier operations using aircraft with less than 60 passenger seats. A landfill can only be built within six miles of this class of airports if the FAA concludes that it would have no adverse effect on aviation safety (FAA–2000b).

State of California

The State Aeronautics Act (PUC Section 21001 et seq.) provides for the right of flight over private property, unless conducted in a dangerous manner or at altitudes below those prescribed by federal authority (PUC Section 21403(a)). No use shall be made of the airspace above a property which would interfere with the right of flight, including established approaches to a runway (PUC Section 21402). The Act also authorizes Caltrans and local governments to protect the airspace defined by FAR Part 77. The Act prohibits any person from constructing any structure or permitting any natural growth of a height which would constitute a hazard to air navigation as defined in FAR Part 77 unless Caltrans first issues a permit (PUC Section 21659). The permit is not required if the FAA has determined that the structure or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Typically this has been interpreted to mean that no penetrations of the FAR Part 77 imaginary surfaces is permitted without a finding by the FAA that the object would not constitute a hazard to air navigation.

Furthermore, no payments shall be made from the Aeronautics Account for expenditure on any airport or for the acquisition or development of any airport, if the department determines that the height restrictions around the airport are inadequate to provide reasonable assurance that the landing and taking off of aircraft at the airport will be conducted without obstruction or will be otherwise free from hazards (PUC Section 21688).

Note that other parts of state law— the Government Code and Public Resources Code, in particular— establish various requirements for compatibility planning and the review of development near airports, but do not set specific compatibility criteria .

3.3 COMPATIBILITY CRITERIA TABLES AND MAPS

Understanding the regulatory background and the means by w hich the four compatibility concerns can be measured and depicted is one part of the compatibility planning process. The other piece of the puzzle is to relate these strategies to a specific airport environment; both geographically and for various categories of land uses. This is done by means of a compatibility criteria table or tables— although sometimes a list or outline format is used—together with one or more compatibility zone maps.

- Tables—Compatibility criteria tables provide the measures by which land use categories can be evaluated for compatibility with the airport impacts identified for various portions of the airport environs.

- Maps—Compatibility maps show where the various criteria geographically apply within the airport environs. Generally, the maps divide the airport environs into a series of zones in which a progressively greater degree of land use restrictions apply the closer the zone is to the airport.

3.3.1 Compatibility Criteria Table and Map Formats

Three basically distinct table and map formats have evolved among the ALUCPs adopted by ALUCs in California. As with many other facets of compatibility planning, there are advantages and disadvantages to each choice with none being clearly the best.

All of these formats are acceptable options for ALUCPs.

Separate Criteria Tables and Maps

The traditional approach to compatibility criteria tables and maps is to have separate sets for each type of impact. For noise, the table indicates whether each land use classification is or is not acceptable within various ranges of noise exposure as measured on the CNEL scale. For safety, the relationship is between each land use category and the degree of accident risk at locations around the airport. An airspace protection map indicates the allowable heights of objects near the airport. Finally, overflight concerns can be addressed by a map showing where any associated compatibility policies apply.

- Advantages—The chief advantage to this approach is that the relationships between the noise and safety concerns and the associated criteria are relatively obvious. For example, at a minimum, residences should not be exposed to noise levels above 65 CNEL and schools and shopping centers should not be situated in a RPZ.

  A second advantage is that the resulting large number of zones (because noise and safety each have their own set of zones and airspace protection is also separately considered) gives greater flexibility in adjusting the compatibility criteria to suit the circumstances. This flexibility can be particularly important in urban areas where site design and other specific features of the development can become critical to determining the compatibility of a proposed land use.

- Disadvantages—The disadvantages involve ease of use and occasional confusion in application. Although technically sound, the use of separate criteria and maps can be more complicated and require greater understanding of compatibility concepts. For any given land use classification or individual development proposal to be evaluated, it must be checked against multiple sets of criteria tables and maps—noise, safety, and overflight impacts—as well as a map of protected airspace. For a given location, one type of land use may be acceptable with respect to noise, but not for safety; another use may be just the opposite; and, taken together, most forms of urban land use development may sometimes appear to be ruled out.

Composite Criteria Table and Map

A different and equally common approach is one that simplifies compatibility assessments by condensing the various factors down to a single set of criteria presented in one table and one map for each airport. The map defines a small number of these discrete zones—preferably no more than five or six—which represent locations with similar *combinations* of noise, safety hazard, and overflight exposure. Airspace protection criteria can sometimes be included as well.

An example of such zones might combine the various factors as follows:

Zone	Location / Compatibility Factors
A	◆ Runway primary surface and runway protection zones
B1	◆ Inner segment of runway approaches ◆ High noise levels; high safety concerns ◆ Low-altitude aircraft overflight ◆ Height limits as little as 50 feet
B2	◆ Adjacent to runway ◆ High noise ; moderate safety concerns ◆ Normally no overflights ◆ Transitional surface height limit restrictions
C1	◆ Outer portion of runway approach routes, particularly instrument approaches ◆ Moderate noise ; moderate safety concerns ◆ Overflight at less than normal traffic pattern altitude
C2	◆ Remainder of common traffic patterns ◆ Overflight at traffic pattern altitude ◆ Potential overflight annoyance concerns
D	◆ Less frequent overflights ◆ Remainder of airspace protection surfaces

- Advantages—One advantage to the composite approach is that it allows most land uses to be evaluated with quick reference to a single table and map. More significantly, though, is that it allows more flexibility in the mapping of compatibility zones (as compared to the separate criteria and map format that offers higher flexibility in defining the compatibility criteria). As discussed later in this chapter, generic boundaries can be drawn for a limited number of airport classes. These boundaries can then be applied to all similar airports in the ALUC 's jurisdiction and adjusted as necessary to reflect atypical airport operational characteristics, local geographic boundaries, and established land uses.

- Disadvantages—The major disadvantage to combining compatibility criteria into a single table and map is that the basis for location of the zone boundaries is not always clear. In locations where substantial development may be planned, local planners, property owners, and developers will want to know the specific reasons for any restrictions on property. If more detailed assessment of a co mplex land use development proposal is necessary, reference to separate noise and safety compatibility tables and maps is often still required.

Categorization of Land Uses

The other variation in the formatting of compatibility criteria pertains to how land uses are categorized in the compatibility table(s). There are two different approaches to the listing of land uses. Both are common among ALUCPs and, as with the overall format of the tables, each has advantages and disadvantages.

Either of these two formats is acceptable. In both cases, however, attention should be paid to minimizing the shortcomings listed among each option's disadvantages.

Functional or Performance-Oriented Characteristics

This approach entails dividing land uses according to characteristics related to the previously described compatibility planning strategies. It applies primarily to when a composite compatibility table and map are utilized, but could also be employed as a means of evaluating safety compatibility. The number of categories needed is thus kept small. No distinctions are made among different types of land uses with similar functional or performance-oriented characteristics. When this method of land use categorization is used in a compatibility table, the result for most categories is not an indication of whether the land use is compatible or incompatible. Rather, the table establishes a set of criteria based upon specified performance measures which, if satisfied, will result in compatible land use.

A typical set of performance-oriented land use characteristics and their respective compatibility measures follows:

- Residential Density—For airport compatibility purposes, the chief distinguishing feature among residential land uses is the number of dwelling units per acre. To be compatible with airport activities, the number of dwelling units per acre should not exceed the criterion specified for the compatibility zone where the use would occur.

- Nonresidential Usage Intensity—The most significant factor among most other types of land use development is the number of people attracted by the use. Safety is the principal concern in this regard, although noise could also be evaluated in this manner. With the exception of certain sensitive uses, the nature of the activity associated with the actual land use is not highly relevant to airport land use compatibility objectives.

See Appendix G for guidance on methods of calculating intensities of nonresidential land uses.

- Sensitive Uses—This category includes land uses which, because of their special sensitivity, should be excluded from certain locations near airports even if they meet other quantitative criteria. Children's schools, day care centers, hospitals, nursing homes, and other highly risk-sensitive, or low-mobility uses are primary examples. Uses involving storage of large quantities of hazardous materials also fit into this category on the basis of safety. In terms of noise, uses such as an amphitheater might be considered unacceptable near an airport regardless of the number of people exposed to the noise.

- Open Land—Requirements for open land usable for the emergency landing of aircraft near an airport apply regardless of the overall land use classification of the property. The associated criteria indicate what percentage of the land area in each compatibility zone should be devoted to functional open space.

- Permitted Heights—Another land use characteristic that can be incorporated into a composite compatibility table is the height that structures clearly can attain without penetration of the airport airspace. Including permitted heights as a criterion in a composite compatibility zone works best at airports in relatively level terrain. At airports where elevations of the surrounding terrain vary substantially, special provisions might need to be made to account for the lack of consistent relationship between the height permitted and the location of the individual compatibility zones.

Advantages and disadvantages of this style of land use categorization include:

- Advantages—The principal advantage of performance-oriented categorization of land uses is that this method directly addresses factors pertinent to compatibility. Recognition is given

to significant land use characteristics that might not be distinguished in a traditional listing of land uses.

- Disadvantages—The primary disadvantage of performance-based land use categories is that assessing the compatibility of a particular land use designation or individual development proposal requires interpretation of the associated criteria (except for residential uses). If, for example, data regarding the usage intensity is not available, then compatibility evaluation will require reliance on information sources (building and fire code standards, for example) that may not accurately reflect the aviation-related concerns. The results may not always be consistent with previous determinations.

Detailed Listing Format

One approach is to divide the full range of land uses into specific classes. The number of classifications might be relatively few in number—residential, commercial, industrial, public facility, etc.—as commonly found in general plans or specific plans. Alternatively, a much more narrowly defined listing might be utilized—one in which the broader land use categories are divided into more precise subcategories.

The detailed listing approach to land use categories works with either separate or composite compatibility tables and maps.

- Advantages—The advantage of the detailed listing approach is that it removes most of the need for interpretation of standards as required within the performance-oriented categories. Each listed use can be denoted as either compatible or incompatible. This greatly simplifies the task of local planners when they must evaluate an individual development proposal either with respect to the ALUCP directly or the local agency's plan and/or regulations. Even when using a detailed list, however, performance criteria (i.e., density/intensity limits, etc.) need to be set first.

- Disadvantages—The major disadvantage of this method is that, unless the land use categories are defined very narrowly, the usage intensity (the number of people per acre) and other characteristics that affect compatibility, might cover a wide range. Indicating that a particular land use is compatible with the airport could result in development of an activity that clearly exceeds the intensity considered acceptable. Oppositely, listing a land use as incompatible might preclude a development that could be a good airport neighbor. Some ALUCs resolve this problem by including a third consistency category: conditionally compatible. Assessment of the compatibility of an individual development proposal then usually requires returning to functionally oriented criteria as described below.

  Another potential difficulty with including a detailed listing of land uses in an ALUCP is that the selected categories may not conform to those used by the local land use jurisdictions. This is particularly likely to occur when the ALUCP covers multiple airports and encompasses several jurisdictions, each with its own set of land use categories.

Preparing Compatibility Maps

Regardless of the format used, several important factors should be considered when preparing the maps for a particular airport.

Basic Determinants of Compatibility Zone Boundaries

The manner in which compatibility zone boundaries are determined depends to some extent upon the map format utilized.

- Separate Compatibility Maps—With this format, each map directly reflects the associated airport impacts:
  - *Noise*: CNEL contours directly from the computer output or with minor graphical clean-up can be utilized. The lowest CNEL contour depicted may vary depending on how sensitive the surrounding community is to aircraft noise.
  - *Overflight* : Areas where overflight compatibility criteria apply may be shown on noise or safety compatibility maps. Alternatively, areas of potential overflight concern can be separately depicted.
  - *Safety* : ALUCs that separately map each compatibility concern typically establish three to six safety zones reflecting assumed accident potential. The distinct zones might include: the runway protection zone; an approach zone (perhaps divided into two segments); a traffic pattern overflight zone; and sometimes a zone encompassing areas adjacent to the runway.
  - *Airspace Protection*: The height-limit component of airspace protection can be mapped by utilizing FAR Part 77. Critical TERPS surfaces can be added as appropriate. Zones related to bird strike hazards and visual and electronic interference concerns are seldom mapped.
- Composite Criteria Maps—Creation of a composite compatibility zone map for an airport starts with preparation of the separate compatibility maps as described above. These maps are then reviewed in combination with each other to identify locations where the overall extent of noise, risk, and other impacts are similar. Preferably, no more than five or six composite zones should be created.

  Even when a composite map is used for noise, safety, and overflight compatibility evaluation, a separate map is usually prepared to allow precise assessment of airspace protection requirements.

Relationship of Zone Boundaries to Geographic Features

The location of airport-related impacts is mostly determined by the location of runways, flight routes, and other aviation-related factors, not geographic features of the airport environs. While defining compatibility zone boundaries based strictly on the impacts provides the closest relationship to those impacts, the resulting maps are not as easy for local planners to use. The alternative is to adjust the zone boundaries to follow geographic features, existing land use development, and other local land use characteristics. By so doing, situations where a compatibility zone boundary splits a parcel can be minimized.

Adjustment of boundary lines is generally more practical in urban areas, because they offer more choices of roads, parcel lines, and other geographic features, than in rural locations where these features are more widely spaced. Also, the composite criteria format better lends itself to boundary adjustments than do separate compatibility maps.

Adjustment of compatibility zone boundaries to follow geographic features is acceptable provided that the area within each of the resulting zones is reasonably uniform with respect to the extent of airport-related impacts which it experiences.

Relationship of Compatibility Zones to Overall Planning Area

The overall planning or influence area for an airport is normally the area encompassed by a composite of each of the individual compatibility zones. For most civilian airports, the most geographically extensive compatibility concern is the airspace protection area defined by the outer edge of the FAR Part 77 conical surface. This distance equals 9,000 feet from the runway primary surface for small airports with no instrument approaches and 14,000 feet for most other civilian airports (the primary surface extends 200 feet beyond the runway end).

There are exceptions to this basic rule, however.

- Precision Instrument Runways—The FAR Part 77 approach surface for precision instrument runways extends 50,000 feet (nearly 10 miles) from the runway primary surface. Considering that the height limit at this distance is 1,200 feet above the runway end elevation, establishing an airport influence area (AIA) of that size solely for the purposes of airspace protection is usually unnecessary. However, where rising terrain is a factor or where other types of approaches place aircraft at a low altitude several miles from the runway, extension of the AIA beyond the conical surface may be appropriate.

- Major Flight Routes—Major flight routes to and from busy airports, especially major airline airports and some military fields, can produce overflight impacts and sometimes even noise contours that extend beyond the FAR Part 77 boundaries. If corresponding compatibility policies are designated for these locations, the AIA boundary would be extended accordingly.

- Limited-Use Airports—At some airports, aircraft-related impacts are limited almost exclusively just to portions of the airport environs (because certain runways are seldom used, for example, or because the traffic pattern is situated only on one side of the runway). In these situations, the AIA can sometimes be reduced to less than the area encompassed by the FAR Part 77 surfaces. If this is done, however, steps need to be taken to assure that tall objects situated within the excluded area do not constitute significant airspace obstruction concerns.

- Military Airports—Military airports have their own separate set of FAR Part 77 airspace surfaces. These surfaces cover a much more extensive area than for civil airports: a minimum of 30,000 feet from the runways in all directions plus 50,000 feet along the runway approaches.

- Default Boundaries—If an ALUC has not adopted an influence area boundary for a particular airport, then (in accordance with Section 21675.1(b)) the default "study area" includes all land within two miles of the airport boundary (not the runway). Some ALUCs may choose to maintain approximately this boundary when adopting an ALUCP.

An alternative to stretching the airport planning area boundary simply to encompass the outermost limits of the FAR Part 77 airspace surfaces is to require that any proposed construction more than 200 feet in height be submitted to the ALUC for review regardless of where the object would be located. Proposed construction of this height also must be referred to the FAA for review in accordance with FAR Part 77.

ALUCs should take two additional factors into account when defining AIA boundaries. One consideration is that all of the AIA should be subject to at least one type of compatibility policy even if it is only height limits. If there are no compatibility restrictions or other conditions applicable within a portion of the influence area, the boundary should be redrawn to reduce its size. The second point—one emphasized in Chapter 2—is that state law (Section 21675 (c)) requires ALUCs to consult with affected local jurisdictions before adopting or modifying an AIA boundary.

Base Map Alternatives

An important step in the mapping of an airport's compatibility zones is selection of an appropriate base map. Common alternatives include:

- Geographic Information System (GIS) Mapping—These computer-based mapping and data systems have become common in local government. When used in planning departments, street systems, parcel lines, and other geographic elements usually form the base map and then a variety of information associated with each parcel is included in the database. GIS maps are typically geo-referenced, thus assuring that at least major features—especially section corners—are geographically accurate. When a GIS has been established, addition of compatibility zones as another data layer or "theme" is highly advantageous. By so doing, the likelihood that compatibility criteria will be overlooked during local review of a development proposal is reduced.

- Parcel Maps—When GIS mapping is not available, a common alternative is a composite parcel map assembled from assessor's maps or other sources. Producing a reasonably accurate base map from smaller parcel maps can often be a challenge.

- Land Use or Zoning Maps—If sufficiently detailed, the same base maps as used for local land use or zoning purposes offer another alternative when a GIS has not been established.

- Topographic Maps—Topographic maps prepared by the U.S. Geological Service (USGS) are obtainable for all areas of California in both printed and digital form. Because these maps show ground elevations, they are particularly useful for airspace protection plan mapping. However, topographic maps do not show enough detail to facilitate finding particular locations within urban areas and they are generally outdated as well.

A note of caution regardless of the source of the base map: airport runways frequently are not shown, are not accurately located, or are not the correct length. Since most compatibility zones are typically tied to the runway position, not other geographic features, steps should be taken to assure that the runway is correctly depicted. A current airport layout plan indicating the geographic coordinates of the runway ends is an ideal source of runway location data. When GIS is used, this data can be directly entered into the system. Although normally not as precise, aerial photographs can also be used as a means of establishing the placement of a runway on a base map.

3.4 COMPATIBILITY PLANNING FOR SPECIFIC AIRPORT TYPES

The State Aeronautics Act requires that ALUCPs be prepared for various types of airports. While each airport presents a distinct combination of characteristics, both operationally and in terms of surrounding land uses, even broader differences are apparent among the various airport

categories. The relative extensiveness of noise versus safety concerns varies between a typical air carrier airport and a typical general aviation facility, for example. The availability of data from which to develop an ALUCP also tends to differ from one airport type to another. The discussion in this section focuses on the distinctive compatibility planning concerns and approaches common to each category:

- Air carrier airports ;
- General aviation airports ;
- Converted military airports;
- Military airports ; and
- Heliports.

3.4.1 Air Carrier Airports

Several factors distinguish compatibility planning for air carrier airports from that for most other facilities. Some of these factors pertain to the substance of the compatibility policies, others involve the resources available for preparation of the ALUCP.

From a compatibility standpoint, noise is usually the dominant concern. The 65 CNEL contour for a major air carrier airport can extend far beyond the runway ends. Lower noise level impacts can encompass several square miles of the airport environs.

As a practical matter, though, the ability of ALUCs to address compatibility matters around air carrier airports is often limited. Most air carrier airports in California are situated in existing, highly urbanized communities. Where new development is allowed, noise insulation programs and the requirement for avigation easements are a major component of land use compatibility policies both for the ALUC and the airport itself.

The second distinct factor about compatibility planning for air carrier airports is that data and other resources needed for plan preparation are typically more readily available than for other airports. To start with, these facilities typically have full-time staff specifically assigned to dealing with noise, land use compatibility, and other issues affecting the surrounding communities. Recent calculations of current noise contours and up-to-date projections of future activity levels and noise impacts are commonly available. Moreover, noise monitoring and radar flight track data may be available to increase the precision of both current and projected noise contours. For planning purposes, however, the predictions for the noise environment in the distant future (20+ years) are more important than the measurements of noise in the past.

3.4.2 General Aviation Airport s

The characteristics of general aviation airports and their environs vary widely. They range from very busy “reliever” airports in metropolitan areas to minimally used facilities in rural locations. The extent of compatibility issues and the availability of data from which to create an ALUCP also run the full gamut.

For an average general aviation airport, noise, safety, airspace protection, and overflight compatibility concerns are all important issues to be addressed in ALUCPs. Moreover, because many general aviation airports are located on the fringes of urban areas, both the threat of new incompatible development and the opportunity for ALUCs to help preserve compatible land uses are great.

Available activity level, noise impact, and other data needed for compatibility planning is not normally as extensive as for air carrier airports. Essential information often must be gathered from a variety of sources ranging from airport master plans to interviews with airport staff and others familiar with operation of the airport. Obtaining data on the locations of principal flight routes can be particularly difficult, yet of key importance at moderately busy facilities. Again, planning for the distant future is highly important.

3.4.3 Converted Military Airports

A series of federal Base Realignment and Closure (BRAC) Acts since the 1980s has led to closure of numerous military bases across the country. In California, many airfields located on closed bases have been (or could be) converted to civilian use. Most of these airports are major facilities with long runways capable of accommodating almost any type of aircraft. Because of the wide range of future operational scenarios possible for converted military airports and their lack of history as civilian facilities, preparation of ALUCPs for them can be particularly challenging. In this regard, there are two key issues which ALUCs need to address: the timing of ALUC involvement in the conversion process, and the assumptions regarding future airport configuration and use.

Timing of ALUC Involvement in Conversion Process

Conversion of a military base to civilian use entails a lengthy series of steps. In practice, the process generally entails four distinct sub-processes:

- The military's property disposal process;
- The community reuse planning process;
- The environmental review process; and
- The environmental clean-up process.

These processes are not sequential. Rather, there are many overlaps and interconnections among them. The individual processes may be delayed, halted, and then started again and they do not necessarily span the same period of time.

After the decision to close a military base has been made, other federal agencies have first option to obtain all or part of the property. Any property deemed surplus to federal needs is made available to local government entities and certain community organizations in accordance with the community's reuse plan. Major steps in the reuse and environmental review processes are summarized in the above inset.

ALUCs can get involved in the conversion process at any time. The State Aeronautics Act does not specifically mention military base conversions or when ALUCs should become involved. The only statutory requirement stems from ALUCs' responsibility to review proposed airport construction plans prior to their adoption by the local reuse authority or a successor entity chosen to operate the airport (as required by the PUC Section 21661.5). Most often, this step does not occur until relatively late in the conversion process, after many key decisions have been made. Given these circumstances, it is usually wise for an ALUC to become involved early in the process, albeit at a very modest level initially. For example, initial consultations with ALUC staff may be appropriate at step 4 or 5 (see above).Conversion of military bases typically involves allocation of land and facilities among many competing uses. Early in the conversion process, ALUCs should make sure that decision-makers are aware that enough land needs to be retained to afford maximum compatibility with the eventual civilian aviation use. Initially, it should be sufficient to note that, while the areas beyond the runway ends are the most sensitive, all areas which will be routinely overflown have potential compatibility concerns. These compatibility concerns will likely involve land both on the base and in its environs. The next point at which an ALUC can be of service is during the development and analysis of alternative uses. ALUCs should seek to ensure that every alternative involving an aviation use includes appropriate compatibility measures. Existing ALUC policies can be used to formulate preliminary compatibility zone boundaries for each alternative.

Once a preferred alternative is selected, the ALUC needs to be satisfied that the environmental documents (under CEQA and NEPA) include consideration of the full range of compatibility concerns. Limiting consideration to noise contours associated with future civilian aviation uses is not sufficient. Safety and overflight impacts must also be considered. This is also the time to make certain that off-base land use designations support the civilian airport use. There may be pressures to permit residential uses (as well as schools, etc.) closer to the civilian airport than was permitted when used by the military.

Assumptions Regarding Future Airport Configuration and Use

A base reuse plan and/or airport master plan together with their associated environmental documents will typically contain most of the elements necessary to prepare an ALUCP:

> *A potential shortcoming of these plans is that the forecasts may not extend far enough into the future to adequately serve the purposes of airport land use compatibility planning. As discussed in Chapter 2, noise impacts associated with an airport capacity level of activity may warrant evaluation.*

- A physical plan for the airfield showing the location and dimensions of runways and types of instrument approaches, both current and future;
- A description of the future roles of the airport, including the mix of aircraft types;
- Forecasts of aircraft activity; and
- Noise contours associated with the forecast level of activity.

Inherently, the base conversion process requires greater speculation about future civilian aviation uses than would a master plan for an existing civilian airport. First, there is typically no history of civilian aeronautical use or only very specialized civilian use. Secondly, there is commonly an explicit marketing or promotional aspect to conversion plans. The first factor increases the uncertainty, while the second tends to inflate the magnitude and scope of future activities.

Since land uses tend to endure for long periods of time, it is appropriate for aviation forecasts to anticipate activity levels at the high end of the range of plausible levels. Forecasts that are somewhat high will help preserve an envelope within which future aviation activities can take place in harmony with nearby land uses.

ALUCs are not empowered to determine what the future airfield configuration, airport role, or activity levels will be. State statutes direct that an ALUCP must be based upon an airport master plan. A base reuse plan can be expected to contain the elements of an airport master plan. However, if an ALUC is presented with a reuse plan that is so visionary that the anticipated civilian aviation use strains the bounds of credibility, it is faced with a dilemma.

State law anticipates that ALUCs will devise ALUCPs to support the future aviation uses selected by the airports' owners. If an airport's owner has selected a future airfield configuration, role, or activity level that an ALUC considers unrealistic or inappropriate, the ALUC has few options. The most that ALUCs can do is negotiate with the airport owner in an effort to have the airport plan modified to be more realistic or appropriate. Ultimately, state law forces ALUCs to accept plans adopted by airport owners, even if the ALUC considers the plans either unrealistically grandiose or too modest.

3.4.4 Military Airports

Adoption of ALUCPs for military airports is required by PUC Section 21675 (b). Several factors make compatibility planning for military facilities distinct from that for civilian airports.

Most of the remaining military airports in California are part of large bases covering extensive land areas. Even the bases located near urban areas tend to have substantial amounts of open land near the runways. These buffer areas are valuable in terms of land use compatibility, especially with regard to safety. The noise impacts of military airports, however, can still extend far beyond the base boundaries due in large part to high noise levels generated by many military aircraft.

A particularly unique aspect of compatibility planning for military airports is that aircraft activity forecasts of the sort done for civilian airports are not very meaningful. Military airport activity levels depend almost exclusively on the mission of the base and on national or international events involving military participation. A typical planning approach thus is to postulate a "maximum mission" for the base. ALUCs wishing to anticipate the potential for yet greater aircraft operations impacts sometimes base their planning on a multiple of the maximum mission activity levels (a multiplier of 1.5 or 2, for example).

The best source of data from which ALUCs can develop an ALUCP for a military airport normally is the AICUZ study, which the U.S. Department of Defense requires for each base. In fact, PUC Section 21675 (b) requires that ALUCs adopt ALUCPs for military airports that are "consistent with the safety and noise standards in the [AICUZ] prepared for that military airport." AICUZ studies contain analyses of noise, accident potential, and height restrictions impacts of aircraft operations. For each of these impacts, a set of land use compatibility criteria are indicated. These criteria are merely recommendations to local land use jurisdictions—other than through acquisition of property, the military has no powers to enforce them.

AICUZ compatibility criteria tend to be minimal in terms of the degree of protection from incompatible land uses which they afford. ALUCs and local jurisdictions can and should consider setting higher standards in their own respective compatibility planning. Ensuring a high degree of land use compatibility around military airports is particularly prudent given the economic importance which major bases have to the surrounding communities and the fact that land use compatibility is one of the factors considered in the government's assessment of which bases to maintain in operation.

3.4.5 Heliports

Compatibility planning for heliports presents another uncommon set of circumstances for ALUCs. As discussed in Chapter 2, the first consideration is to decide which heliports should have ALUCPs. The State Aeronautics Act requires all public-use heliports not located on an airport and all special-use heliports to obtain a Heliport Permit. A public-use heliport would be considered a public airport, and would require an ALUCP. A special-use heliport, most notably those at hospitals, would not require an ALUCP, but the ALUC has the option to prepare one. Any ALUCP prepared for a heliport needs to take into account the unique operational characteristics of helicopters. Because of the steep approach and departure profiles which helicopters normally fly, they are effectively operating in an en route manner once beyond a short distance from the heliport (FAR Part 77 airspace surfaces extend just 4,000 feet from the landing pad). Within the immediate vicinity of a heliport, helicopter noise impacts can be relatively intensive on a single-event scale. However, except for the few heliports which experience a high volume of operations, cumulative noise impact contours are very small. Also, the limited accident data available for helicopters suggests that significant safety concerns are generally confined to within a few hundred feet of the landing pad. Perhaps most important with respect to safety is the necessity of keeping established approach/ departure corridors clear of obstructions.

Given this combination of factors, some restrictions on land use development is appropriate within the immediate vicinity of public-use and special-use heliports. However, except where warranted by high activity levels, more extensive restrictions are normally unnecessary.

3.5 ACCOUNTING FOR EXISTING DEVELOPMENT

The State Aeronautics Act gives ALUCs authority to conduct compatibility planning for areas around public airports only "to the extent that these areas are not already devoted to incompatible uses." This phrase is generally accepted to mean that the commissions have no authority over existing development. In formulation of ALUCP policies, several facets of this limitation are important to take into account.

3.5.1 Defining "Existing"

The first issue to be addressed is *when* during the development process a property becomes "devoted to" a certain use and thus constitutes "existing " development. The State Aeronautics Act does not provide instruction on this issue; therefore, it is necessary to turn to other statutes together with case law for guidance.

A development does not need to be completed in order to be considered an existing use. Instead, at a certain time during the development process, approvals become irrevocable and a use is considered existing, insofar as the ability of local governments to require changes to a project is eliminated. In these circumstances, a project sponsor is considered to have a *vested right* to proceed with the development. *Vested* means "the irrevocable right to complete construction notwithstanding an intervening change in the law that would otherwise preclude it" [*McCarthy v. California Tahoe Regional Planning Agency*, 129 Cal.App.3d 222, 230 (1982)].

For the purposes of this discussion, local government approvals can be divided into three categories:

- Actions that clearly give a developer vested rights;
- Actions that may provide vested rights depending upon the circumstances; and
- Actions that do not provide vested rights.

An ALUC should also consult with their legal counsel when determining existing development rights.

Development Rights Established

According to the California Supreme Court, the right to develop becomes vested when all *discretionary* approvals for a project have been obtained and only *ministerial* approvals remain. More specifically, vested rights have *not* been established *unless* the developer has:

- Obtained a valid building permit (as distinguished from merely a foundation or other specific permit); *and*
- Performed substantial work; *and*
- Incurred substantial liabilities in good faith reliance upon the permit.

[*AVCO Community Developers, Inc. v. South Coast Regional Commission*, 17 Cal.3d 785, 791 (1976)]

To give further certainty to the development process, the State Legislature provided for vested rights to be established by means of two specific types of local actions, the first of which is a *development agreement*. State statutes allow a county or city to enter into a binding agreement with a developer enabling a project to proceed in accordance with policies, rules, and regulations existing and any conditions established at the time of the agreement (Government Code, Section 65864 et seq.). "A development agreement shall specify the duration of the

agreement, the permitted uses of the property, the density or intensity of use, the maximum height and size of proposed buildings, and provisions for reservation or dedication of land for public purposes" (Section 65865.2).

The second form of agreement between a developer and the local land use jurisdiction, which establishes vested development rights, is a *vesting tentative map* (Government Code, Section 66498.1 et seq.). Such agreements "confer a vested right to proceed with development in substantial compliance with the ordinances, policies, and standards in effect at the time the vesting tentative map is approved or conditionally approved" (Section 66498.1(b)). A related California Supreme Court decision noted that: "Tentative map approval is the final discretionary approval issued by a local government under the Map Act; final map approval is merely ministerial if the application for such approval is in substantial compliance with the tentative map and its conditions" [*City of West Hollywood v. Beverly Towers, Inc.*, 52 Cal.3d 1184, 1191 (1991)].

Development Rights Uncertain

The principal local action falling into a middle ground of potentially establishing vested development rights is issuance of government permit other than a building permit—a *conditional use permit* being the primary example. Court decisions have concluded that such permits effectively provide vested rights only when they function much like a building permit. To qualify, the permit must afford "substantially the same specificity and definition to a project as a building permit" [AVCO, Supra at PP. 793-794].

Development Rights Not Established

A wide variety of governmental permits and other actions have been determined by state appellate courts as being insufficient to form the basis of a vested right to proceed with a development. Some of the court decisions were based upon narrowly defined sets of circumstances. Nevertheless, while some caution should be exercised in applying this list more broadly, the following types of actions generally do not by themselves establish vested rights:

- Issuance of a tentative tract map (fees and other requirements can be imposed as conditions for subsequent issuance of a building permit);
- Recording of a final tract map;
- Issuance of a demolition permit and a foundation permit;
- Filing of an application for a building permit;
- Establishment of an assessment district;
- Extension and/or installation of infrastructure (e.g., roads and utilities); and
- Issuance of a business license.

3.5.2 Implications for ALUCs

The preceding discussion has several important implications for ALUCs.

Define "Existing Land Use"

ALUC policies should declare as clearly as possible the types of local government approvals that, in the ALUC's opinion, establish a land use development as effectively "existing" even if actual construction has not taken place. Such development is not subject to ALUC review and also would not be considered for the purposes of the ALUC's review of local plans and policies. Developments for which vested rights have been obtained must be considered to be existing land uses. Developments which have not become vested may nevertheless be treated as existing land uses, but there is no requirement that the ALUC do so. For example, most ALUCs regard issuance of a valid building permit as giving a development the status of an existing land use even if construction has not yet begun.

Because ALUCs have some leeway in how they interpret what constitutes an existing land use, it is important that a definition be included in the ALUCP.

Also important to recognize, however, is that receipt of one of these approvals does not eliminate the obligations of a project sponsor to comply with development regulations and conditions that other local, state or federal agencies have established, particularly those published via statute or regulation.

Mapping of Existing Land Uses

Some ALUCs map the locations or parcels in the AIA that it considers to be developed with existing uses at the time of an ALUCP's adoption. Alternatively, other ALUCs request that an existing land use map to be submitted by affected local governments as part of the consistency process.

A current high-altitude, aerial photograph of the airport environs is an excellent tool for this purpose. It shows the extent of development on a broad scale without providing largely unnecessary detail regarding the development status of individual small parcels.

Existing Residential Parcels

As a practical matter, an ALUC cannot prevent construction of a dwelling on an existing residential parcel, even one located within a runway protection zone. Construction of a secondary dwelling on such parcels also typically cannot be prohibited where allowed by local zoning (Government Code Section 65852.2 (c)(5)). These points are worth stating in the ALUCP's policies.

Reasonable limitations can nevertheless be set on the height of the structure. Also, where the size of the lot allows, location of the building on the least impacted portion can be encouraged.

Change of Use

The limitation on ALUC authority over existing land uses applies only to the extent that the use remains constant. Merely because a land use exists on a property does not entitle the owner to

expand the use, convert it to a different use, or otherwise redevelop the property if new or increased compatibility conflicts would result. To the extent that such land use changes require discretionary approval on the part of the county or city, they may fall within the authority of the ALUC to review. For example, a change involving an amendment to a general or specific plan or zoning ordinance would be reviewable.

Infill Development

Another special situation which ALUCs should consider when formulating compatibility policies is how to deal with infill development. Since infill is new development (within a largely developed area), it falls under the jurisdiction of an ALUCP. The chief issue with regard to infill occurs when the existing surrounding uses are, and new infill development would be, inconsistent with the ALUC's compatibility criteria. ALUCs are not obligated to allow infill development. The question which ALUCs need to address is whether it is realistic to attempt to prevent technically incompatible development of a small area surrounded by similar existing development.

The topic of infill, and the often related topic of mixed-use development, is discussed further in Section 4.6.

3.6 LIMITS ON LAND USE RESTRICTIONS

While having an airport environs totally devoid of development may be ideal from a land use compatibility perspective, it seldom is a realistic objective. For one, existing development already makes such sterility impossible to achieve at most airports. Moreover, even in sparsely populated areas, tradeoffs generally must be made between an ideal degree of land use compatibility and the community needs for land use development. This section explores some of the legal and practical limitations on the restrictiveness of land use compatibility measures.

3.6.1 Inverse Condemnation

A concern sometimes raised (especially by landowners) with regard to establishment of airport land use restrictions is that the restrictions might constitute inverse condemnation—a *taking* of private property without just compensation. This is not a new concern. The criteria for compensable takings have long been debated in legal literature. Also, many court cases, including some specifically dealing with airports, have delineated when a taking has or has not occurred. Even as far back as 1952, the report of the President's Airport Commission, *The Airport and Its Neighbors*, devoted several pages to the topic.

The material presented in this section is written from a professional planning perspective. It is not a legal opinion.

Inverse condemnation is a highly complex subject. It is not possible for this *Handbook* to delve into it at length—entire books can and have been written on the topic. Rather, this section is merely a brief summary of the issue as it applies to airport land use compatibility planning. The emphasis is on the implications for ALUCs.

State law does not give ALUCs direct authority over land use. Implementation of an ALUC's policies is accomplished by local agencies through the process of making their general plans, specific plans, and applicable ordinances consistent with the ALUCP. Therefore, a legitimate question is whether it is possible for an ALUC policy to result in a taking through inverse condemnation in the first instance. Without doubt, a property owner who feels aggrieved might sue the ALUC along with other local entities. What the outcome of any such lawsuit might be is uncertain. One view is that, because an ALUC has no assets or taxing powers of its own, either the airport owner or local agency that implements the compatibility policies is more likely than the ALUC to bear the brunt of any such lawsuit. Regardless of whether this assessment is valid, the question of which local agency could more readily be successfully sued is not directly of interest. The issue here concerns the limitations which the potential for inverse condemnation presents in implementation of airport land use compatibility measures. Therefore, more to the point is the issue of what forms and degrees of land use restrictions for airport compatibility purposes are legally sound.

3.6.2 Practical Considerations

The sole responsibility of ALUCs is to prevent incompatible land use development and thereby both protect the public from noise and risks and preserve the utility of airports. In carrying out this responsibility, ALUCs should be guided by objective analyses of airport land use compatibility concerns. This focus notwithstanding, ALUCs also need to be practical in their actions. Although ALUCs should not be driven by political, economic, or other non-compatibility-related factors, they should at least be cognizant of them. They should be aware of the effects that their plans and compatibility determinations will have on local land use jurisdictions and the possible reactions which these jurisdictions may have to these matters.

The bottom line is that the most desirable outcome of the compatibility planning process is for local agencies and the public to support and take the necessary measures to implement the compatibility policies adopted by ALUCs. If ALUCs can maintain the integrity of the compatibility planning objectives set forth in the State Aeronautics Act while still accommodating local needs, then they should give careful consideration to any such alternatives.

3.7 PROCEDURAL ISSUES

3.7.1 Public Notice and Hearing Requirements

The State Aeronautics Act does not specifically require that an ALUC provide public notice or hold a public hearing in order to adopt an ALUCP. Such measures exist elsewhere in state law, however, and in any case are generally prudent.

Public Notice

The only mention of public notice requirements in the ALUC statutes is with regard to ALUC action on land use proposals. Section 21675.2(d) says that: "Nothing in this section diminishes the commission's legal responsibility to provide, where applicable, public notice and hearing before acting on an action, regulation, or permit." By extension, this responsibility can be interpreted as

applicable to adoption or amendment of ALUCPs. The question faced by ALUCs and their staffs then becomes one of deciding what type of public notification is appropriate.

The best guidance in this respect is for ALUCs to follow the notice procedures that are applicable to general plans and specific plans. These requirements are set forth in the Government Code (in particular, Sections 65090, 65091, and 65353). Basically, notice must be sent to each affected property owner unless mailing of more than 1,000 such notices would be necessary. In this case, notice may be published in a newspaper of general circulation serving the area affected.

Since most ALUCPs—especially countywide plans covering multiple airports—involve more than 1,000 parcels, providing public notice by means of a local newspaper is common. Many ALUCs, though, find it desirable to supplement the newspaper notice with individual mailings to selected property owners. These owners are ones whose property development potential might be impacted by the ALUCP. Such parcels may include agricultural or other large parcels capable of subdivision under local zoning regulations, and parcels zoned commercial or industrial on which usage intensity limitations would be applied. To the extent that an ALUCP would not establish any new restrictions or limit the subdivision potential of existing residential lots, mailing of notices to the individual owners is normally unnecessary.

The posting of notices on agency websites is increasingly common, as is the use of email notices to alert interested parties. These methods are recommended, but should not replace the use of mailed notices when property owners would be directly affected by an action.

Public Hearings

ALUC public hearing requirements pertaining to the adoption or amendment of ALUCPs arise only with respect to the establishment of an airport planning area boundary. Other laws applicable to ALUCs also do not require the holding of a public hearing. The Brown Act requires only that ALUC meetings be open to the public, not that public input be received. Furthermore, nothing in the California Environmental Quality Act mandates a public hearing; public input can be limited to correspondence only. From a practical perspective, however, ALUCs are well advised to solicit public and local agency input before adopting an ALUCP, even if a formal public hearing process is not utilized.

3.7.2 California Environmental Quality Act

Environmental Review Requirements

Historically, opinions regarding whether or not review under the California Environmental Quality Act (CEQA; Public. Resources Code (PRC), Section 21000 et seq.) of an ALUCP prior to its adoption or amendment is required have varied. The central issue revolved around whether or not an ALUCP constitutes a "project" under CEQA, which is defined to include the "whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (California Code of Regulations, Title 14 ("CEQA Guidelines") Section 15378)." Recent case law has confirmed that the adoption or amendment of an ALUCP is a "project" under CEQA. And practically

speaking, the environmental impacts of an ALUCP arise from its potential to result in displaced development as a result of the potential imposition of more limiting development criteria. Conversely, environmental impacts also may result if the ALUCP would lessen the restrictiveness of development criteria and expand the types of land uses that could be accommodated within an area. The remaining question of what type of environmental document, if any, must be prepared is a separate issue, as explained below.

Muzzy Ranch Co. v. Solano County ALUC

In *Muzzy Ranch Co. v. Solano County Airport Land Use Commission* (2007) 41 Cal.4th 372, the California Supreme Court found that the Solano County ALUC's adoption of an ALUCP was a "project" for purposes of CEQA.

However, the court also found that adoption of the ALUCP for Travis AFB fell within CEQA 's "common sense" exemption, such that no further environmental review was required. (Id. at p. 378; see also PRC Section 21065; CEQA Guidelines Section 15061(b)(3)). In so concluding, the court made clear that the common sense exemption applied because the ALUCP incorporated the *existing* county general plan and zoning provisions concerning the maximum number of permitted dwelling units; therefore, the plan would not result in any displacement that was not otherwise accounted for during the development of the existing land use designations by the local jurisdictions (Id. at p. 389). Where an ALUCP provides more restrictive provisions than the existing general plan/zoning regulations, the court noted that further environmental review may be necessary (i.e., negative declaration, mitigated negative declaration, and/or environmental impact report) to address potential development displacement.

The CEQA Process

The CEQA Guidelines describe a three-step process for implementing CEQA (CEQA Guidelines Section 15002(k)). The first step is to determine if the project is subject to CEQA. There are two relevant issues at this step. The first is whether or not the proposed action should be considered a "project" within the meaning of CEQA. As discussed above, preparation or amendment of an ALUCP, similar to many other planning actions, should be considered a "project." The second issue is whether or not an exemption applies to the particular project. The possible types of exemption are discussed below.

The second step of the process is the preparation of an Initial Study to determine if the project may have a significant impact on the environment. If there is no substantial evidence that the project will have a significant adverse effect on the environment, the lead agency may prepare a Negative Declaration. If the Initial Study identifies potentially significant effects, but revisions have been incorporated into the project to avoid or reduce those effects to a less-than-significant level, the lead agency may prepare a Mitigated Negative Declaration.

If, on the other hand, the Initial Study shows that the project may have a significant effect on the environment, the third step is the preparation of an Environmental Impact Report (EIR).

The Lead Agency

Central to the implementation of CEQA is the concept of the "lead agency." The lead agency is the agency with primary responsibility for carrying out or approving a project. The entity having lead responsibility for ALUCP preparation (as discussed above) will be the CEQA lead agency. The ALUC (or the entity acting in that capacity) will typically fulfill this role.

The lead agency bears primary responsibility for the CEQA process. The lead agency will make the key decisions as to what kind of environmental document is appropriate, and will prepare and adopt that document. A responsible agency is a public agency, other than the lead agency, with some discretionary power over the project. A responsible agency is consulted by the lead agency during the CEQA process and will use the document prepared by the lead agency to support its decision making process for the project.

CEQA Document Approach

As shown in the *Muzzy Ranch* case, the question of whether or not a project is subject to CEQA is separate from the question of what type of document must be prepared, if any. This section describes the three most common means of compliance: exemption, Negative Declaration, and EIR.

CEQA Exemptions

There are two broad categories of exemption under CEQA: statutory and categorical. There is a third type of exemption, the "common sense" exemption, that CEQA applies only to projects where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment (CEQA Guidelines Section 15061(b)(3)).

- Statutory Exemption—The California Legislature has provided for complete or partial exemption from CEQA for certain projects. Notable statutory exemptions include feasibility studies, emergency projects (which are narrowly defined), and ministerial projects (this exemption codifies the concept that a "project" under CEQA must include discretion on the part of the lead agency, so where the action is only ministerial, it is not a "project."). There are no clear statutory exemptions that would apply to the adoption or amendment of an ALUCP.

- Categorical Exemption—Public Resources Code Section 21084 directs the Secretary of Resources to identify classes of projects that do not have a significant effect on the environment and should be exempt from CEQA. These exemptions are called categorical exemptions, and are listed in the CEQA Guidelines (CEQA Guidelines Section 15300 et seq.). It should be noted that there are exceptions to these exemptions that limit their use in certain locations and under certain circumstances. There are currently 33 classes of exemption. Common categorical exemptions include those for ongoing operations (including repair and maintenance), replacement and reconstruction, construction of small structures (such as a single-family home), minor alterations in land use (such as lot line adjustments and minor variances), actions by regulatory actions to protect the environment, and certain in-fill developments. An important concept when considering categorical exemptions is that a substantial change in use, either the type of use or the level of activity, is usually outside the parameters of exemption.

- Common Sense Exemption—While not listed as either a statutory or categorical exemption, there exists in CEQA the "general rule that CEQA applies only to projects that have the potential for causing a significant effect on the environment" (CEQA Guidelines Section 15061(b)(3)). Therefore, "[w]here it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA." (Ibid.) This is sometimes called the "common sense exemption" and should be considered during the first step of the CEQA. As discussed in the *Muzzy Ranch* decision, the ALUC should carefully examine how a proposed plan or plan amendment may change the current policies and standards for future development. These parameters may include: exclusion of certain uses, limitations on residential densities and nonresidential occupancy levels, site design and open space requirements, and building height and other building design requirements. Where the ALUCP would maintain existing development controls, the adoption of that plan may fall within this exemption. However, ALUCs should exercise caution in using this exemption. When there are questions as to the potential for either direct or indirect impacts on the environment, a more conservative approach would be the preparation of an Initial Study.

There is another group of projects that are "exempt" from CEQA, and those are projects that are subject to another certified regulatory program (for example, the permitting of power plants by the California Energy Commission). While these "CEQA equivalents" have an important role in California's environmental process, ALUCs will infrequently deal with them.

Assuming an exemption applies, a notice of exemption should be prepared and filed in accordance with the procedures articulated in the CEQA Guidelines (CEQA Guidelines Section 15062).

Negative Declaration (and Mitigated Negative Declaration)

If a project is not exempt from CEQA, the lead agency shall prepare an initial study. The initial study is a preliminary analysis that will direct the lead agency down one of two paths: a negative declaration or an EIR (CEQA Guidelines Section 15063). The initial study typically includes a checklist (such as the one provided in Appendix G of the CEQA Guidelines) that is used to help identify the environmental effects of a project. The checklist entries must be explained, either by a brief narrative or a reference to another information source (such as a plan, study, previous CEQA document, etc.).

An annotated checklist is provided in Appendix I to assist ALUCs in preparing an initial study for the adoption or amendment of a ALUCP.

If the initial study shows that there is no substantial evidence that the project will have a significant adverse effect on the environment, the lead agency shall prepare a Negative Declaration.

- Negative Declaration—A Negative Declaration is a written statement by the lead agency that briefly describes the reasons that a project, not exempt from CEQA, will not have a significant effect on the environment. The contents of a Negative Declaration typically include a brief description of the project and its location, a proposed finding that the project will not have a significant effect on the environment, and the initial study (CEQA Guidelines Section15071).

- Mitigated Negative Declaration—A Mitigated Negative Declaration (MND) is prepared for a project when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment (CEQA Guidelines Section 15369.5).

Environmental Impact Report (EIR)

An EIR is a detailed informational document that describes and analyzes the significant effects the project may have on the environment, and discusses the mitigation measures or alternatives that would avoid or substantially reduce those effects. The EIR represents the third stage of the CEQA process, and as such is both the most thorough and the most time-consuming form of compliance. While not common, the preparation of an EIR may be the appropriate approach in certain situations, either because there is substantial evidence that the ALUCP may have a significant effect on the environment, or where the ALUCP is prepared as part of a larger plan (such as a specific plan or airport master plan) for which an EIR is required.

CHAPTER 4

DEVELOPING AIRPORT LAND USE COMPATIBILITY POLICIES









Chapter 4

Developing Airport Land Use Compatibility Policies

4.1 OVERVIEW

The purpose of this chapter is to build upon the foundations established in previous chapters and provide guidance on how to develop effective land use compatibility criteria. The goal, when establishing land use compatibility policies, is not only to prevent the encroachment of incompatible land uses, but to also encourage the development of land uses that are both appropriate *and* beneficial to the surrounding community.

As has been emphasized in other chapters of this *Handbook*, developing an effective airport land use compatibility plan (ALUCP) involves not only understanding the regulatory basis for land use restrictions and the ways in which an airport operates, it also requires an understanding of the surrounding communities—including what land uses are there now and what is planned for the future. The policies set forth in an ALUCP do not operate in a vacuum, and are required by law to be reflected in the planning documents of each jurisdiction within an airport influence area (AIA), or are otherwise subject to overrule. Therefore, in order to develop an ALUCP that considers the land use needs of both an airport and surrounding communities, it is recommended that local planners have some level of involvement in the formation of compatibility policies.

Topics addressed in this chapter include:

- **Noise Criteria Guidelines;**
- **Overflight Criteria Guidelines;**
- **Safety Criteria Guidelines;**
- **Airspace Protection Guidelines; and**
- **Guidance on developing conditional compatibility criteria.**

4.2 NOISE

The basic strategy for achieving noise compatibility in the vicinity of an airport is to prevent or limit development of land uses that are particularly sensitive to noise. Common land use strategies are ones that either involve few people (especially people engaged in noise-sensitive activities) or generate significant noise levels themselves (such as other transportation facilities or some industrial uses).

4.2.1 Establishing Cumulative Noise Exposure Criteria

Just as there are no absolute determinants of the noise level at which an individual person will be highly annoyed, there are no absolute scientific measures for establishing which land uses and noise exposures are or are not compatible with each other. The best outcome that can be achieved

is compatibility criteria that will reflect what is appropriate for the communities involved. It is important to remember, however, that what may be considered an acceptable level of noise to a reasonable person will not satisfy 100% of the public.

The Context of Acceptability

Abbreviations:

- **dB = Decibel**
- **DNL = Day-Night Average Sound Level**
- **CNEL = Community Noise Equivalent Level**
- **Leq = Equivalent Sound Level**

The level of noise acceptable to an individual depends greatly upon the context of the noise and the perspective of the listener—noise to one person may be music to another. Similarly, context is important in determining the level of noise acceptable to a community. The level selected depends upon whether the function of the standards is control and abatement of noise sources or making land uses compatible with those sources.

Methods of Limiting Aircraft Noise Impacts

Methods of limiting airport noise impacts can be divided into four basic groups. All four categories have significant roles to play if the goal of quieter communities is to be attained. Importantly, the authority for implementation of each method differs.

- Preventative Measures—Falling into this category are the wide variety of land use planning measures designed to avoid encroachment of incompatible development into airport environs. These measures include general plans, specific plans, and zoning ordinances adopted by local governments. ALUCPs adopted by ALUCs are another example.

- Remedial Actions—This group of actions is one designed to mitigate current and future noise impacts on established land uses around airports through modification of the land uses. The objective is to change existing incompatible land uses into ones that are compatible or at least more acceptable. Property redevelopment and reuse are examples of remedial actions that can be fostered by local governments and taken by property owners. Airport proprietors can effect remedial action through programs such as property acquisition and soundproofing of existing structures.

- Source Noise Reduction—From the perspective of most communities, the ideal method of limiting aircraft noise impacts is to reduce aircraft noise at its source. However, local entities—including airports, local land use jurisdictions and ALUCs—have no control over this technique. Responsibility for source noise reduction actions rests with the federal government (which sets standards and conducts research), aircraft manufacturers (which design and build new technology aircraft), and aircraft owners (which place the new aircraft in their fleets). A basic difficulty with implementation of this process is that it takes time between when new technologies are created and when they are put into use.

- Operational Limitations—Operational methods to reduce noise include a variety of measures affecting how, where, and when aircraft are flown. The principal authority over these actions rests with the federal government and the pilots of aircraft. Airport proprietors have some influence over operational measures by working cooperatively with the FAA and pilots, but only to the extent that the airport proprietors' actions are not preempted by federal law, do not adversely affect safety, and are implemented in a manner which is reasonable, non-arbitrary, and nondiscriminatory. Airport proprietors also can affect where aircraft fly by modifying the configuration of airport runways. Other than when they are also the airport proprietor, local governments have no authority over aircraft operations. Airport Land Use Commissions (ALUCs) are explicitly prohibited from regulating airport operations.

Among the four categories of noise impact reduction methods, preventative measures are the only category in which ALUCs have any authority.

Impact Criteria

Not only does the authority to implement each of the preceding noise impact reduction methods differ, the standards that the methods seek to achieve may vary as well. Indeed, in the case of source noise reduction, even the metric used to measure compliance differs. More specifically, source noise reduction also is evaluated as a single-event metric, whereas the other methods are primarily evaluated in terms of cumulative noise level metrics. Particularly important with respect to the methods over which ALUCs and local land use jurisdictions have authority are differences in objectives for preventative measures versus remedial actions. The noise levels considered appropriate—as opposed to optimum or ideal—under each of these two contexts may not be the same.

In each case, setting appropriate noise level criteria for a community implies that an element of feasibility or cost-effectiveness is being taken into account. For example, within the limits of powers available to local governments, it is usually more feasible to avoid creation of new incompatible land uses than it is to reduce existing noise impacts through land use changes. Moreover, while the benefits or effectiveness may be the same in each case, the cost of eliminating or mitigating existing land use incompatibilities is usually far greater than avoiding it in the first place. *Thus, noise level criteria might justifiably be set lower for new land use development than for triggering action to mitigate existing impacts.*

Even for new development, competing community needs can influence the level deemed to constitute acceptable noise. As examined in Chapter 3, various practical considerations can shift the line of demarcation between acceptable and unacceptable noise exposure. ALUCs need to reflect upon such factors when establishing noise compatibility criteria. In so doing, however, commissions should also remember that their primary responsibility is toward promoting compatibility between airports and proposed land use development in the airport vicinity. Local elected officials can weigh the importance of other factors if they so choose (in so doing, though, they must understand that any action to overrule a decision of an ALUC must adhere to the procedural requirements set forth in state law).

4.2.2 Variables Affecting Cumulative Noise Level Criteria

Most federal and state regulations and policies set 65 decibel (dB) Day-Night Average Sound Level (DNL) or Community Noise Equivalent Level (CNEL) as the basic limit of acceptable aircraft noise exposure for residential and other noise-sensitive land uses. Often overlooked, though, is that this standard has been set with respect to relatively noisy urban areas. *For quieter settings and many—if not most—airports in California, 65 dB CNEL is too high of a noise level to be appropriate as a standard for land use compatibility planning.* This view is particularly evident with respect to the evaluation of proposed new land use development. Federal policy articulated by the Federal Aviation Administration (FAA) has evolved to where the agency now will "respect and support" local establishment of a lower threshold of noise exposure

acceptability. On the other hand, special situations continue to exist in which noise exposures above 65 dB CNEL may be regarded as appropriate.

> *As discussed elsewhere, DNL is the only metric for which there is a substantial body of research data defining the relationship between noise exposure and people's reactions (as noted in Appendix D, the CNEL metric used in California is essentially the same as DNL).*

Clearly, the level of noise deemed acceptable in one community is not necessarily the same in another. Therefore, the issue that needs to be examined is what factors influence setting of appropriate noise level criteria.

4.2.3 The Concept of Normalization

A long-standing method of adjusting noise levels in a community is the concept of "normalization." The normalization concept has its origin in research done for the U.S. Air Force in the 1950s. The purpose of the research was to establish a method for adjusting aircraft noise levels used for determining and predicting expected community reactions. The adjustments take into account local conditions as described below. National recognition and support of normalization appeared in the U.S. Environmental Protection Agency's (EPA) Community Noise (1971) and "Levels" (1974) documents. The California Department of Transportation (Caltrans) also used the normalization process in its development of noise standards for California airports, and the California Governor's Office of Planning and Research continues to include the normalization procedure in its General Plan Guidelines (2003).

The normalization procedure was originally designed to adjust or "normalize" actual measured noise levels so that the effects of different noises on different communities could be compared more reliably. Over the years, planners have also found normalization to be a valuable tool for establishing appropriate noise level limits for new noise-sensitive development in the vicinity of an airport. This latter application of normalization is particularly well-suited to airport land use planning.

The normalization procedure takes into account four categories of adjustment factors associated with the noise source and the characteristics of the affected community:

- Seasonal characteristics of the noise;
- Background noise level in the community, absent distinct noise events;
- Previous exposure to, and attitudes toward, the noise; and
- Whether the noise includes pure tones or impulse characteristics.

Table 4A lists the complete set of normalization factors and recommended adjustments to measured noise levels. To use this table for the purpose of setting a land use compatibility noise-level criterion, the values must first be reversed (positive for negative and vice versa). The results can then be applied to adjust a baseline noise-level criterion. In California, a commonly used baseline criterion is a CNEL of 65 dB. As discussed earlier, this criterion is indicated in the noise standards for California airports, in FAA guidelines, and elsewhere. It is the cumulative noise level defined as being acceptable to a reasonable person (a person whose sensitivity to aircraft noise is near the middle of public response) residing in an urban setting in the vicinity of an airport.

The two examples on the top of the following page illustrate the use of normalization in airport land use compatibility planning.

TABLE 4A: ADJUSTMENT FACTORS FOR OBTAINING NORMALIZED CNEL

Type of Correction/Description	Added to Measured CNEL in dB
Seasonal Correction	
Summer (or year-round operation).	0
Winter only (or windows always closed).	-5
Correction for Outdoor Noise Level Measured in Absence of Intruding Noise	
Quiet suburban or rural community (remote from large cities and from industrial activity and trucking).	+10
Normal suburban community (not located near industrial activity).	+5
Urban residential community (not immediately adjacent to heavily-traveled roads and industrial areas).	0
Noisy urban residential community (near relatively busy roads or industrial areas).	-5
Very noisy urban residential community.	-10
Correction for Previous Exposure & Community Attitudes	
No prior experience with the intruding noise.	+5
Community has had some previous exposure to intruding noise but little effort is being made to control the noise. This correction may also be applied in a situation where the community has not been exposed to the noise previously, but the people are aware that bona fide efforts are being made to control the noise.	0
Community has had considerable previous exposure to the intruding noise and the noise maker's relations with the community are good.	-5
Community aware that operation causing noise is very necessary and it will not continue indefinitely. This correction can be applied for an operation of limited duration and under emergency circumstances.	-10
Pure Tone or Impulse	
No pure tone or impulsive character.	0
Pure tone or impulsive character present.	+5

Notes:
- Source document uses the equivalent DNL metric.
- See text for guidance on application of these factors to setting maximum noise level criteria for new land use development near airports.
- Source: U.S. Environmental Protection Agency (1974)

EXAMPLES OF USING NORMALIZATION IN AIRPORT LAND USE COMPATIBILITY PLANNING

Factor	Characteristics Present in Community	Correction
Example 1: An urban residential community near a major air carrier airport.		
Seasonal Character of Noise:	Year-round operation	0
Community Setting:	Typical urban residential background noise levels	0
Previous Community Exposure to Noise:	Some exposure, but no control of noise	0
Noise Qualities:	No pure tones or impulse characteristics	0
Under these conditions, no corrections would be made to the basic CNEL 65 dB criterion as the design guideline.		
Example 2: A small airport in a quiet location.		
Seasonal Character of Noise:	Year-round operation	0
Community Setting:	Quiet suburban area	-10 dB
Previous Community Exposure to Noise:	Some exposure, but no control of noise	0
Noise Qualities:	No pure tones or impulse characteristics	0
Under these assumptions, a total correction of minus 10 dB would be applied to the basic criterion of CNEL 65 dB. A community fitting these conditions therefore may find that a criterion of CNEL 55 dB should be set as the maximum acceptable noise exposure for new residential and other noise-sensitive land use development.		

ALUCs are encouraged to consider the normalization factors listed in Table 4A when setting noise level limits for new noise-sensitive development in the vicinity of an airport. However, caution should be exercised in the event that the normalization procedure indicates a planning criterion greater than a CNEL of 65 dB. With few exceptions, new noise-sensitive land uses should not be allowed where current or projected airport related noise exceeds a CNEL of 65 dB. To do so would be inconsistent with the overall goals and objectives of the noise standards for California airports.

ALUCs are encouraged to consider the normalization factors listed in Table 4A when setting noise level limits for new noise-sensitive development in the vicinity of an airport.

It should also be noted that normalization is not applicable to implementation of the noise standards for California airports. The noise standards are formal regulations that have their own requirements separate from land use planning guidelines.

At the present time, normalization is the best method available for quantitatively adjusting noise levels to account for local conditions in an effort to establish appropriate noise limits for noise-sensitive land uses near airports. Its applicability is perhaps greatest in relatively quiet suburban or rural communities.

Varying Noise Sensitivity of Different Land Uses

Noise compatibility standards, such as those summarized at the beginning of Chapter 3, typically place primary emphasis on residential areas. Residential development is one of the most noise-sensitive land uses, and often covers the greatest proportion of urban land. Several factors contribute to this sensitivity:

- Normal residential construction usually provides less sound attenuation than typical commercial construction and windows are more likely to be open;
- Outdoor activity is a significant aspect of residential land use; and
- People are particularly sensitive to noise at night when they are trying to sleep.

The three CNEL values commonly used as the limit for acceptable residential noise exposure are: 65 dB, 60 dB, or 55 dB. The choices and rationale for each are listed in Table 4B, while Figure 4A depicts typical noise levels in a variety of community types.

For purposes of airport land use compatibility planning, Caltrans advises that 65 dB CNEL is not an appropriate criterion for new noise-sensitive development around most airports. At a minimum, communities should assess the suitability and feasibility of setting a lower standard for new residential and other noise-sensitive development .

TABLE 4B: NOISE COMPATIBILITY CRITERIA ALTERNATIVES (NEW RESIDENTIAL LAND USES)

CNEL	Criteria	Suggested Applicability
65 dB	Set by the FAA and other federal agencies as the level above which residential land uses may be incompatible if not acoustically treated. Established by California state regulations as the maximum normally acceptable noise level for residential and certain other land uses at county-designated noise-problem airports.	Generally not appropriate for most new development. May be acceptable in noisy urban locations and/or in hot climates where most buildings are air conditioned.
60 dB	The contour within which California Building Code (Section 1207.11) requires an acoustical analysis of proposed residential structures, other than detached single-family dwellings. Suggested by the California Governor's Office of Planning and Research *General Plan Guidelines* as the maximum "normally acceptable" noise exposure for residential areas. [Note: Individual noise events will occasionally cause significant interference with residential land use activities, particularly outdoor activities, in quiet suburban/rural communities.]	Suitable for new development around most airports. Particularly appropriate in mild climates where windows are often open.
55 dB	Identified by the EPA as the level below which "undue interference with activity and annoyance" will not occur. [Note: Individual noise events will seldom significantly interfere with residential land use activities (e.g., interference with speech). In urban areas, aircraft contribution to this noise level may be less than that of other noise sources.]	Suitable for airports in quiet, rural locations.

Note: When setting criteria for a specific airport, other characteristics of the airport and its environs also need to be considered.

See Table 4A for normalization factors.

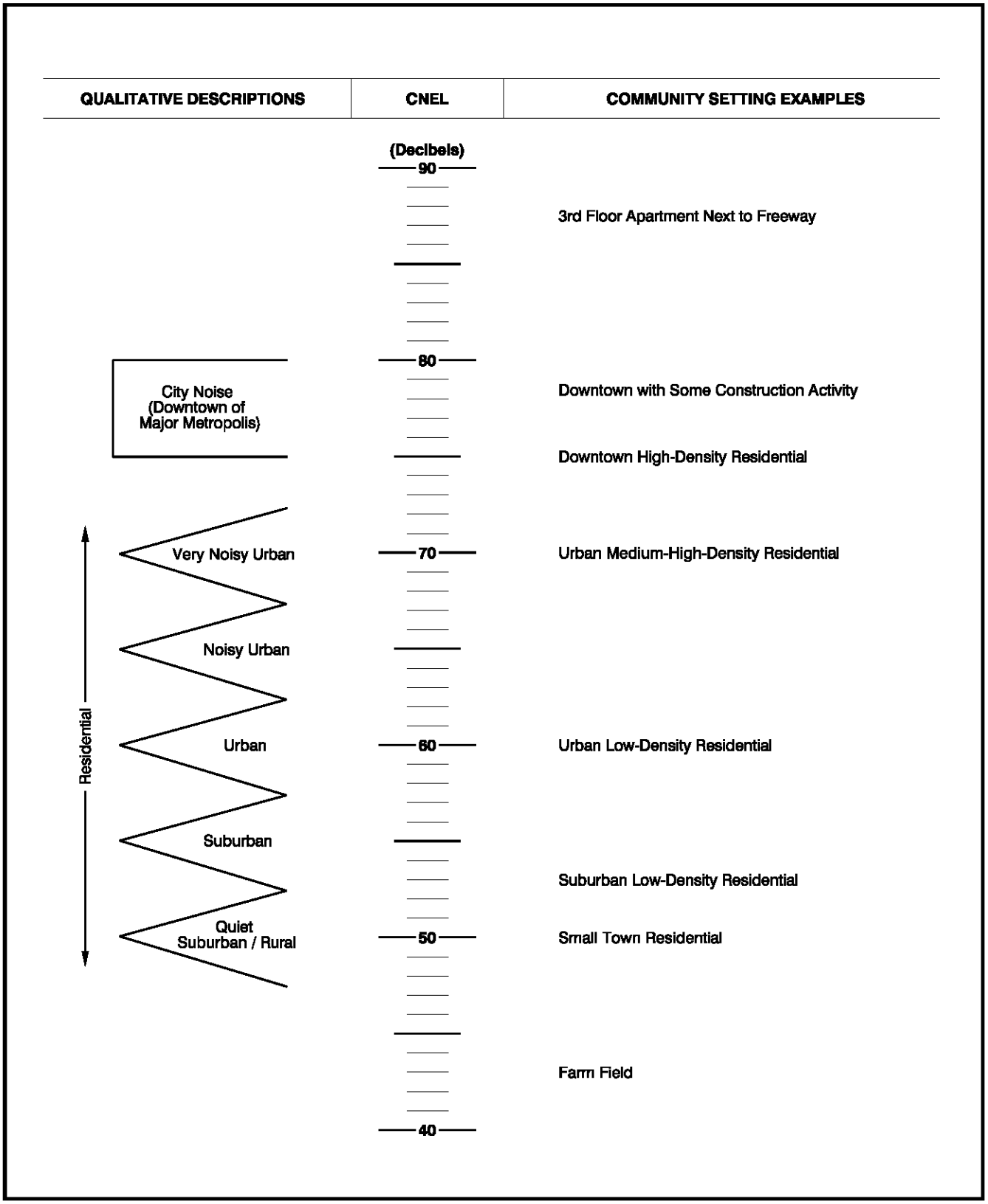


FIGURE 4A

Typical Noise Levels in Various Communities

Data on acceptable noise exposure for other land uses is not as extensive as for residential uses. Some guidelines exist in the various regulations and documents cited in Chapter 3. In general, once a criterion has been set for residential uses, the criteria for other land uses can be established by considering the comparative extent to which human activities associated with that land use would be disrupted by noise, as well as the degree of structural sound attenuation that typically is provided.

Differences Between High- and Low-Activity Airports

Although cumulative noise exposure metrics have been shown to correlate closely with public annoyance over a wide range of noise exposure levels, there probably are limits beyond which these metrics do not adequately describe potential public reaction. For communities near larger airports with relatively many operations (like air carrier airports), CNEL is well suited to describing anticipated public reaction to aircraft noise. However, at the extreme conditions, where there are either very many relatively quiet events or a small number of very loud events, public reaction is probably more difficult to gauge, and may not be well described.

To illustrate this point, consider two situations in which the CNEL is the same, but the circumstances are quite different. A CNEL of 65 dB due to a single Boeing 727 departure at 2 a.m. would probably have a different effect on people than a CNEL of 65 dB produced by one hundred small aircraft operations during daytime hours. In the first instance, sleep disturbance would be the primary issue; while, in the second case, the issue could well be speech interference. Additionally, the first example would yield one very intrusive event, with quiet prevailing for the rest of the day. The second case would result in a nearly continuously noisy situation, with an aircraft in the air every few minutes. Whether these situations would be equivalent in terms of annoyance is uncertain.

4.2.4 Other Noise Compatibility Measures

Although not applicable as the primary basis for formulation of noise compatibility policies, certain other noise compatibility measures can play important secondary roles in the determination of noise level acceptability.

Interior Noise Levels

For many land uses, interior noise levels resulting from exterior noise sources are equally, if not more, important than exterior noise levels as a determinant of acceptability. Furthermore, interior noise level criteria together with data and assumptions regarding the noise level reduction (NLR) provided by the structure can be combined to indirectly indicate a maximum acceptable level of exterior noise.

Factors Affecting Interior Noise Level Criteria

Various human factors play a part in determining acceptable interior noise levels. For residences, the most important are usually considered to be speech interference and sleep disruption. Speech interference begins to become a problem when steady noise levels reach approximately 60 to 65 dBA. For sleep disruption, the threshold of significance is less absolute in that there is more variability from one person to another. Nevertheless, the

indication from several studies is that the noise threshold for significant occurrence of sleep disruption is higher than for speech interference.

One of the choices involved with setting interior noise level criteria is deciding the appropriate noise metric to apply. As apparent from the preceding paragraph, speech interference and sleep disruption are usually measured in terms of either constant or single-event noise metrics. However, for the purposes of land use or building design criteria, cumulative noise exposure metrics are the easiest to implement in that exterior noise is most often measured in these terms. Additionally, once any two of the variables— interior noise level, exterior noise level, or the NLR value of the structure—are known, the third can be directly calculated through simple addition or subtraction. The problem which arises is that, although there is a general relationship between single-event and cumulative noise metrics, it is not constant from one airport to another.

Some ALUCs have adopted peak noise level criteria for intermittent noises. However, as with any single-event metrics, application of these criteria poses questions in defining the number of events considered to be significant.

Regardless of these issues, cumulative noise exposure metrics are the most commonly used for interior noise level standards, at least for residential uses. In particular, an interior noise level standard of 45 dB CNEL is typical; though it does not guarantee that aircraft noise will not be heard indoors (loud single events may still be audible). Allowing for at least 20 dB of noise level reduction from the structure with windows closed, this standard equates to an exterior noise level of 65 dB CNEL. Of particular significance within California, the California Building Code sets a CNEL of 45 dB as the maximum acceptable interior noise level for residential uses (other than detached single-family dwellings). Although guidelines for other uses exist, there are no other federal or state interior noise level regulations.

Given the noise level reduction provided by standard residential construction, interior noise level standards can generally be satisfied without the need for special sound insulation measures in locations where the exterior noise exposure is less than 60-65 dB CNEL.

Problems arise with developing interior standards for other building uses because some are used only occasionally and others (such as concert halls) are especially sensitive to peak noises. Once again, the issue is whether a cumulative noise exposure metric is the most appropriate basis for compatibility standards.

As noted previously, one such guideline for the classroom environment is an aircraft Leq of 45 dB during normal schools hours, which the FAA considers as the "usual design objective" for sound insulation of schools. (FAA Order 5100.38C)

The objectives of sound insulation programs are to provide a meaningful reduction in aircraft noise inside homes and schools and to satisfy the interior noise standard of 45 dB CNEL. For schools, the interior noise standard is usually assumed to be an hourly Leq of 45 dB during the

peak period of aircraft operations during school hours. Schools are encouraged to meet the American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools (ANSI/ASA S12.60-2010), published by the American National Standard Institute and Acoustical Society of America.

Interior Noise Level Criteria in Land Use Compatibility Planning

Installation of special sound insulation in structures is often thought to be broadly suitable as a land use compatibility measure for highly noise-impacted locations. It should not be viewed that way, however.

> *Rather than accepting the use of sound insulation as a mitigation action, ALUCs' primary objective should be to prevent development of land uses that are basically incompatible with the noise conditions.*

The most appropriate application for structural sound insulation is for existing land uses. It is a method of improving existing incompatible conditions when changing the land use to something less noise sensitive is not practical. Even then, though, there are limitations. Sound insulation is not effective for land uses in which noise-sensitive activities take place outdoors. Unlike the case with ground-based noise sources, sound walls and other such devices do nothing to block noise from aircraft while they are in the air.

> *Installation of sound insulation—whether funded by airports as mitigation for noise impacts or set by ALUCs as a condition for approval of new development— should be accompanied by dedication of an avigation easement for aircraft noise to the airport.*
>
> *Also important to remember is that, even where sound insulation may make a high level of noise exposure acceptable, high-intensity land uses may be unacceptable because of safety factors. This topic is addressed further below.*

With regard to new development, sound insulation should be regarded as a measure of last resort. It is not a substitute for good land use compatibility planning in the first place. Exterior noise levels should generally be the primary consideration in evaluation of proposed land uses, especially residential development and other land uses where noise-sensitive outdoor activities are normal and important features.

For those airports where noise exposure levels and the demands for land use development dictate the use of sound insulation, ALUCs have the authority to establish definitive policies. Public Utilities Code (PUC) Section 21675(a) specifically notes that ALUCs may "determine building standards, including soundproofing" when developing ALUCPs. ALUCs have mostly steered clear of setting detailed building standards, however.

> *The California requirements for, and FAA funding of, sound insulation programs apply only to civilian airports. Although similar measures might be appropriate with respect to military airfields, the U.S. military does not have legal authority to insulate civilian structures.*

Those that deal with the question of acceptable indoor noise levels typically use one of two approaches. One method is to indicate the noise level standards for various indoor building uses and

require project proponents to show how those standards will be met. Another common approach is for the ALUC to establish criteria specifying the amount of NLR a building in a particular noise environment must provide. Again, the details of how the criterion is met are left to the proponent.

In light of these factors, ALUCs contemplating establishment of interior noise level criteria are advised to:

- Consider whether such criteria are necessary (in general, standard construction will provide adequate noise level reduction in areas where exterior noise levels are below 60 to 65 dB CNEL and when doors and windows will remain closed);
- Limit the applicability to residences, schools, and other noise-sensitive land uses; and
- Base the criteria on the CNEL metric unless data to support other measures can be documented.

4.2.5 Summary

Table 4C summarizes the concepts and issues involved with establishing noise compatibility criteria, and present sample policies based on the concepts discussed above. The sample policies are intended as *examples only*, and should be tailored to fit the needs of a specific airport or community.

TABLE 4C: NOISE COMPATIBILITY SUMMARY

Objective:	Minimize the number of people exposed to frequent and/or high levels of aircraft noise capable of disrupting noise-sensitive activities.
Measurement:	Noise generated by the operation of aircraft is primarily measured in terms of the cumulative noise levels of all aircraft operations to, from, and around an airport. In California, the cumulative noise level metric established by state regulations is the CNEL (see Chapter 3, pg.3-3).
Strategies:	Limit development of land uses which are particularly sensitive to noise.
Basis:	The basic state guidance sets a CNEL of 65 dB as the maximum noise level normally compatible with urban residential land uses. For airports not located in an urban environment, 65 dB CNEL may be too high, and adjustments to noise compatibility criteria may be guided by local standards or an adjustment that reflects ambient sound levels around the airport (e.g., “normalization”).
Sample Policies:	Policy 1: New land use development shall be restricted in accordance with the following criteria. a. New residential uses shall be considered incompatible within the CNEL contour determined by the ALUC. b. New nonresidential uses shall be considered incompatible in locations where the airport-related noise exposure would be highly disruptive to the specific land use. Policy 2: Land uses for which interior activities may be easily disrupted by noise shall be required to comply with the following interior noise level criteria. a. For residential uses, 45 dB CNEL in any habitable room of single- or multi-family residences. b. For nonresidential uses, 50 dB in: 1. Offices; 2. Restaurants; and 3. Retail stores.

4.3 OVERFLIGHT

In a pure sense, the acceptability of a given noise level with respect to a particular type of land use should solely be a function of the noise level and the land use. In practice, however, judgments of acceptability are easier to make at high noise exposure levels than at lower ones. At high noise levels, clear evidence exists that human activities associated with certain land uses will be disrupted and many people will be highly annoyed. Accordingly, community policies can be adopted to preclude these land uses under most circumstances.

At lower noise levels, the variability in how people react becomes more of a factor. In these lower noise environments—whether the threshold is at 65, 60, or even 55 dB CNEL—relatively few people are expected to be highly annoyed and the majority will probably not be even moderately annoyed. More important is to give people who may be annoyed by airport noise timely information with which to assess how living in the vicinity of an airport would affect them. In this respect, developing overflight compatibility policies becomes less about restricting land uses, and more focused on informing prospective property owners of the presence of an airport and making them aware of the potential for noise impacts associated with overflying aircraft.

See Chapter 3 for methods on developing overflight zones.

4.3.1 Buyer Awareness Measures

Some aspects of airport land use compatibility go beyond direct restrictions on the manner in which airport area property is developed and used. Particularly with respect to aircraft overflight annoyance concerns, compatibility between airports and surrounding land uses also can be improved through actions intended to enhance the public's knowledge and understanding of airport impacts. These actions focus on informing prospective buyers of property within the vicinity of an airport about the airport's impact on the property. Collectively, they are referred to as buyer awareness measures.

> *ALUCs are encouraged to adopt policies regarding the use of recorded deed notices and real estate disclosure statements where appropriate within the influence area of each airport.*

Although variations are sometimes created, measures designed specifically for the purpose of promoting buyer awareness fit mostly into two categories:

- Recorded deed notices; and
- Real estate disclosure statements.

Recorded Deed Notices

A deed notice is an official statement that is recorded in county records as part of a tentative or final subdivision map prepared at the time a parcel is subdivided. As a form of buyer awareness measure, recorded deed notices have broad applicability within an AIA. They can be used to disclose that the property is subject to routine overflights, associated noise, and other impacts by aircraft operating at a nearby airport. Because this information becomes part of the deed to each

An example of a deed notice is included in Appendix H.

property in the subdivision, it should show up in a title report prepared when individual parcels are sold.

> *ALUCs should require recordation of deed notices describing airport impacts as a condition for development approval anywhere in the AIA where avigation easements are not obtained. Avigation easements are not appropriate where buyer awareness is the sole objective.*

In one sense, deed notices are similar to avigation easements in that they become part of the title to a property and thus are a permanent form of buyer awareness. The distinguishing difference between deed notices and avigation easements is that deed notices only serve as a disclosure of potential overflights (and the fact that the property is located within an AIA), whereas avigation easements convey an identified set of property rights. In locations where height limitations or other land use restrictions are unnecessary, deed notices have the advantage of being less cumbersome to define and establish. Also, they give less appearance of having a negative effect on the value of the property. An ideal application of deed notices is as a condition of approval for development of residential land uses in proximity to an airport where neither noise nor safety are major concerns, but frequent aircraft overflights might be annoying to some people.

> *A potential shortcoming of deed notices as a buyer awareness measure is that some county recorders reportedly will not record them because they do not affect title to the land. In such cases, the information would be given to the initial purchaser of a new development, but may not be passed along to subsequent buyers (by comparison, avigation easements can always be recorded). According to the State Department of Real Estate, this problem can be overcome if the county board of supervisors adopts an ordinance indicating that such notices should be recorded.*

Real Estate Disclosure Statements

Another important form of buyer awareness measures represented in ALUC policies is a real estate disclosure statement.

> *Airport proprietors also can carry out a real estate disclosure program on their own.*

As discussed in Chapter 3 (pg. 3-10), Business and Professions Code Section 11010(a) and (b)(13) requires that any person intending to sell or lease subdivided land within the influence area of an airport shall include with their notice of intention (filed with the Department of Real Estate) a notice that their property is located in the vicinity of an airport. (Also see Civil Code, Sections 1102.6, 1103.4, and 1353.)

By establishing an AIA, ALUCs create the boundary within which disclosure is deemed appropriate. ALUCs are encouraged to work cooperatively with the local real estate community, including brokers and title companies, to disseminate information regarding these disclosure requirements.

The sole purpose for ALUC adoption of a policy such as this is to help to ensure that information regarding airport impacts will be disclosed as a normal part of real estate transactions. ALUCs have no authority to mandate disclosure of airport-related information. This status applies not only to individual sellers of real property, but to local land use jurisdictions.

Although achievement of buyer awareness objectives are less certain with real estate disclosure policies than with recorded deed notices, an advantage of disclosure is that it is more all-encompassing. Real estate disclosure policies are the only form of buyer awareness measure available to ALUCs that apply to previously existing land uses as well as to new development.

Summary Table 4D summarizes the concepts and issues involved with establishing overflight compatibility criteria, and present sample policies based on the concepts discussed above. The sample policies are intended as *examples only*, and should be tailored to fit the needs of a specific airport or community.

TABLE 4D: OVERFLIGHT COMPATIBILITY SUMMARY

Objective:	Notify people near airports of the presence of overflights in order to minimize or avoid annoyance associated with these conditions.
Measurement:	Recorded flight tracks; information on standard operations and traffic patterns of the airport (see Chapter 3, pg.3-12).
Strategies:	Buyer awareness measures.
Basis:	Experience and information from airport proprietors and ALUCs on the noise concerns of the community; state law.
Sample Policies:	Policy 1: California state statutes require that, as part of many residential real estate transactions, information be disclosed regarding whether the property is situated within an AIA. When disclosure is required, state law dictates that the following statement be provided: NOTICE OF AIRPORT IN VICINITY: This property is presently located in the vicinity of an airport, within what is known as the airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Policy 2: As a condition for agency approval of residential land use development, an overflight notification shall be recorded. a. The notification shall contain language as dictated by state law with regard to real estate transfer disclosure (see Policy 1). b. The notification shall be evident to prospective buyers or renters of a property. c. A separate recorded overflight notification is not required where an avigation easement is required. d. An overflight notification is not required for nonresidential development.

4.4 SAFETY

Ideally, to minimize the risk that aircraft accidents pose to people and property on the ground near airports, no development would be allowed in the airport vicinity. For most airports, however, this is clearly not a practical approach to land use compatibility planning. The question thus becomes one of deciding which land uses are acceptable and which are unacceptable in

various portions of airport environs. The resulting policies are normally portrayed in the form of a set of compatibility criteria applicable within each of the previously defined safety zones.

A point to again emphasize is that delineation of safety compatibility zones and definition of criteria applicable within those zones are closely intertwined. The process is usually an iterative one: initial zones and criteria are drafted and then each is fine tuned as necessary in recognition of the peculiarities of the specific airport and its environs. (This process is particularly applicable when compatibility zones and criteria are formulated to take into account a combination of noise and safety compatibility concerns.)

While the material presented here is intended to represent Caltrans guidance, it is not the intent or expectation that the methodologies or examples constitute the only acceptable approaches to the issue of airport land use safety compatibility. In development of policies for a specific airport, careful attention must be made to the characteristics of that airport's design and use. Characteristics of the airport environs are potentially factors as well. The safety zones and/or compatibility criteria appropriate at one airport may be inappropriate at a different airport. This process is no different from that necessary in calculation of noise contours and establishment of noise compatibility policies.

4.4.1 General Approach

Three components of physical risks—spatial distribution, potential consequences, and frequency—provide the conceptual basis for setting safety compatibility policies. Each of these components needs to be considered either in the delineation of safety compatibility zones or in the definition of the criteria applicable within the zones.

- The spatial distribution component is accounted for by the shape and size of safety compatibility zones.
- Potential consequences are addressed through the compatibility criteria— the limitations on usage intensity and other land use characteristics that affect the potential severity of an accident.
- The frequency component can be accounted for either way—through adjustment of zone sizes or the criteria applicable within each zone. Frequency is primarily a factor at airports (or on r unways) with very low activity. For most airports, the potential consequences component dominates the overall risk.

The choice of safety criteria appropriate for a particular zone is largely a function of risk acceptability. Land uses that result in intolerable risks usually must be prohibited. Where the risks of a particular land use are considered significant but tolerable, establishment of restrictions may reduce the risk to an acceptable level. Uses that are intrinsically acceptable generally require no limitations.

One of the important goals of an ALUC is to try to minimize the exposure of persons to the potential risk of aviation accidents. The most common way of doing this is to encourage low density development in critical safety zones, namely zones 1, 2, 3 and 4. When reviewing local actions, ALUCs consider if the proposed numbers of persons living or working in critical safety zones is reasonable for a given airport's operation. ALUCs consider the appropriateness of

high-density residential, as well as industrial and commercial developments using higher number of people, in relation to the safety zones.

Finally, to reiterate the point, it is the potentially severe consequences of aircraft accidents that are the driving concern in setting safety compatibility policies. Only where the likelihood of an accident occurrence is so infrequent as to be considered extraordinary does the acceptability of potentially severe consequences reach a level that usually does not warrant some type of compatibility action.

4.4.2 Basic Safety Compatibility Criteria

By emphasizing adjustments to the shape and size of safety zones as necessary to reflect the geographic pattern of aircraft accident risks, the compatibility criteria applicable to each zone can be held relatively constant among most airports within an ALUC's jurisdiction. The types of variables not fully accounted for in the safety zones, though, are ones involving existing land use characteristics of the airport environs. These variables are best addressed via the safety compatibility criteria.

Several factors make it reasonable and even appropriate to set safety compatibility criteria differently for urban areas than for rural locations.

- A basic distinction is that urban areas are, by definition, more heavily developed than rural communities. Because ALUCs do not have authority over existing land uses, the opportunity to achieve an ideal level of safety compatibility is less in urban locations.
- The comparatively higher land values in urban areas are also worthy of recognition in setting safety compatibility criteria. Allowing only agricultural or other very-low-intensity uses near airports may be quite feasible in rural areas, but not in urban areas.
- The established character of land uses in urban places may limit the options for future development. Sometimes all that can be achieved is to hold new development to intensities similar to those that exist. This concept falls under the heading of "infill" (see page 4-44).
- From the perspective of potential risk consequences, rural areas may be less equipped to deal with an aircraft accident than urban places. Compared to city units, rural emergency response units probably have farther to travel and would have a longer response time to reach an accident site. Treating injuries or fighting fires would be delayed.
- Finally, a greater societal tolerance for risks—or at least different types of risks—seems to accompany the typically faster pace and higher intensity of life in urban places compared to that of outlying locations.

> *Note that this urban versus rural distinction is not limited just to differences between one airport and another, it may also be true between various portions of individual airport's environs. Consequently, it may be reasonable for compatibility criteria to allow comparatively intensive development and/or infill development in one part of an airport's vicinity, but not in another. If an ALUC chooses to take this approach, however, sufficient reasoning should be provided.*

Figures 4B through 4G outline some of the qualitative differences in compatibility criteria suitable for each safety zone that was identified in Chapter 3. The basic compatibility criteria for each safety zone are delineated in the following ways:

- Normally Allow—Typical examples of the use are acceptable.
- Limit—Use is acceptable with limitations on density or intensity.
- Avoid—Use generally should be permitted only if an alternative site outside the zone would not serve intended public function.
- Prohibit—Use should not be permitted under any circumstances.

As discussed above, the suitability of certain densities and intensities may vary by the level of development. The following development characteristics are used in Figures 4B through 4G:

- Rural—Areas where the predominant land uses are natural or agricultural; buildings are widely scattered.
- Suburban—Areas characterized by low-rise (1-2 story) development and surface parking lots.
- Urban—Areas characterized by mid-rise (up to 5 stories) development; generally surface vehicle parking, but potentially some parking structures.
- Dense Urban—City core areas characterized by extensive mid- and high-rise buildings, often with 100 percent lot coverage and limited surface parking.

Recommended intensities for each zone are minimum standards that are not intended to take precedence over specific criteria in currently adopted ALUCPs.

Other terms used in Figures 4B through 4G are defined as follows:

- Children's Schools—Kindergarten through Grade 12. It should be remembered that school districts and community college districts are local agencies subject to Article 3.5 of the State Aeronautics Act.
- Large Day Care Centers—A facility licensed by the State of California to provide non-medical care and supervision for infant to school age children. Family Child Care Homes are allowed residential uses and do not fall under this category.
- Aboveground Bulk Fuel Storage—Tank size greater than 6,000 g allons (this suggested criterion is based on Uniform Fire Code criteria).

Relationship of Compatibility Policies to Local Zoning

While the *Handbook* categorizes land use uses into four compatibility headings (discussed on the previous page and used in Figures 4b through 4G), local zoning usually relies on only three categories: allowed (or allowed by right), conditionally allowed (through a conditional use permit), and not allowed. "Normally Allow" corresponds with uses allowed by right in a particular zoning district, while "prohibit" includes those uses not allowed in a particular zoning district.

"Limit" and "Avoid" are more nuanced than "allowed" and "prohibited" in terms of potential zoning consistency. "Limit" refers to density and intensity, and may be allowed by right if they

fall within a particular range, or may be controlled by conditional use permit. Two examples: (1) for a given safety zone, the *Handbook* recommends a range of 1 unit per 1 to 2 acres, and the local zoning is rural residential, 1-acre minimum lot, therefore the zoning would be consistent with the compatibility criteria; (2) the *Handbook* recommends low-intensity light industrial with a range of 25 to 40, the local zoning allows all industrial uses except hazardous or explosive materials by right, therefore the zoning is potentially inconsistent as there is no way to control the intensity of the allowed use.

Uses identified as "avoid" should either be identified as conditional in a zoning district (with very strict criteria identified), or identified as not allowed (if the local agency has identified suitable alternative sites and is willing to prohibit such uses within that area).

The issue of local plan and zoning consistency is explored further in Chapter 5.

Establishing Nonresidential Compatibility Standards

The primary focus when establishing nonresidential compatibility criteria should be on determining the types of land uses that are and are not acceptable within each safety zone. Among planners and others involved with airport land use compatibility, there is general agreement as to certain types of land uses that are or are not compatible with airports from a safety standpoint: a school near the end of a runway is incompatible, but a typical single-story office or light industrial use is normally fine. It is among the myriad of uses that lie between these two ends of the spectrum that a judgment of compatibility or incompatibility may be less obvious. To set the line between compatible and incompatible, planners have turned to the concept of usage intensity—the number of people per acre— as the best common denominator by which to compare the safety compatibility of most land use types.

Table 4E indicates typical ranges of intensities for a variety of nonresidential uses. The numbers are based upon a relatively small survey sample and thus may differ from community to community. A major factor is the manner in which parking is accommodated: surface lots; multi-level garage; or underground or off-site.

Note that these numbers represent typical busy period usage, not necessarily the absolute maximum. For compatibility planning purposes, this is typically the measure used. Also, it is consistent with the way requirements for numbers of automobile parking spaces are normally set. However, the resulting numbers are generally lower than are produced by using the occupancy level standards found in building and fire codes, which are based upon the absolute peak usage.

TABLE 4E: AVERAGE INTENSITIES FOR NONRESIDENTIAL USES

Type of Use	Typical Intensity (people/acre)
Small retail shops (not shopping center)	20 – 30
Local retail centers (grocery/drug store anchor)	65 – 85
"Big Box" centers (single story, surface parking)	90 – 120
Major retail centers / malls (1-2 stories)	150 – 250
Fast food dining	120 – 150
Restaurants	90 – 120
Offices / banks (1-2 stories)	60 – 120
Motels	40 – 60
Light Industrial	20 – 50
Warehouses	10 – 20

Note: Numbers here assume surface parking.

Nature of Risk

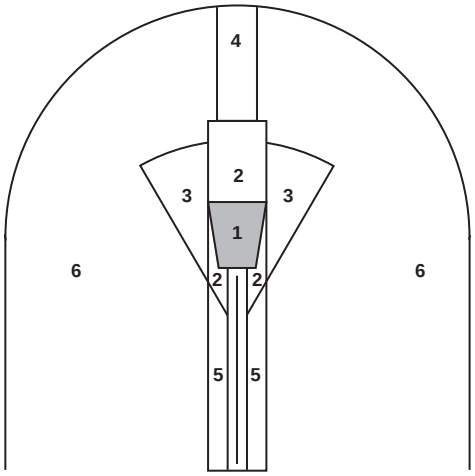
- Normal Maneuvers:
  - Aircraft on very close final approach or departure – very high risk
- Altitude
  - Less than 200 feet above runway
- Common Accident Types
  - Arrival: Downdrafts and wind gusts. Low glide paths
  - Departure: Runway overruns, aborted takeoffs and engine failures
- Risk Level
  - Very high
- Percentage of near-runway accidents in this zone: 20% - 21%



SHORT FINAL

Basic Compatibility Policies

- Normally Allow
  - None
- Limit
  - None
- Avoid
  - Nonresidential uses except if very low intensity in character and confined to the outer sides
  - Parking lots, streets, roads
- Prohibit
  - All new structures and residential land uses
- Other Factors
  - Airport ownership of property encouraged
  - Uses on airport property subject to FAA standards



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	2x the Average number of people per gross acre
Rural	0	0 – See Note A	0
Suburban	0	0 – See Note A	0
Urban	0	0 – See Note A	0
Dense Urban	0	0 – See Note A	0

Note A: Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that FAA criteria are satisfied.

FIGURE 4B

Safety Zone 1 – Runway Protection Zone

Nature of Risk

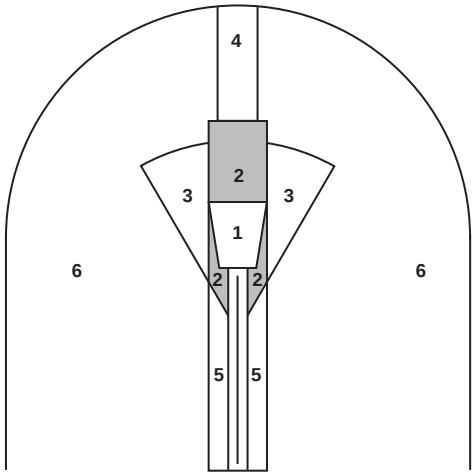
- Normal Maneuvers
  - Aircraft overflying at low altitudes on final approach and straight-out departures
- Altitude
  - Between 200 and 400 feet above runway
- Common Accident Types
  - Arrival: Similar to Zone 1, aircraft under-shooting approaches, forced short landings
  - Departure: Similar to Zone 1, emergency landing on straight-out departure
- Risk Level
  - High
  - Percentage of near-runway accidents in this zone: 8% - 22%



FINAL APPROACH

Basic Compatibility Policies

- Normally Allow
  - Agriculture; non-group recreational uses
  - Low-hazard materials storage, warehouses
  - Low-intensity light industrial uses; auto, aircraft, marine repair services
- Limit
  - Single-story office buildings
  - Nonresidential uses to activities that attract few people
- Avoid
  - All residential uses except as infill in developed areas
  - Multi-story uses; uses with high density or intensity
  - Shopping centers, most eating establishments
- Prohibit
  - Theaters, meeting halls and other assembly uses
  - Office buildings greater than 3 stories
  - Labor-intensive industrial uses
  - Children's schools, large daycare centers, hospitals, nursing homes
  - Stadiums, group recreational uses
  - Hazardous uses (e.g. aboveground bulk fuel storage)



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	2x the Average number of people per gross acre
Rural	See Note A	10 – 40	50 – 80
Suburban	1 per 10 - 20 ac.	40 – 60	80 – 120
Urban	0	60 – 80	120 – 160
Dense Urban	0	See Note B	See Note B

Note A: Maintain current zoning if less than density criteria for suburban setting.
Note B: Allow infill at up to average intensity of comparable surrounding uses.

FIGURE 4C

Safety Zone 2 – Inner Approach/Departure Zone

Nature of Risk

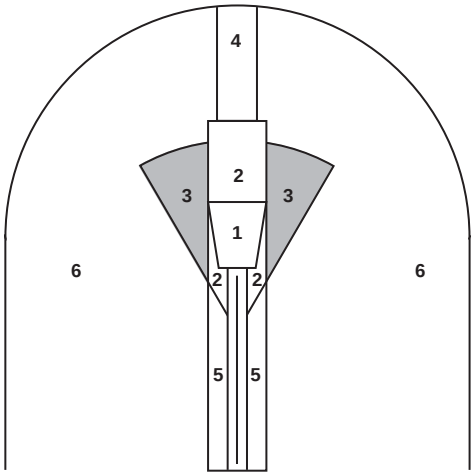
- Normal Maneuvers
  - Aircraft—especially smaller, piston-powered aircraft— turning base to final on landing approach or initiating turn to en route direction on departure
- Altitude
  - Less than 500 feet above runway, particularly on landing
- Common Accident Types
  - Arrival: Pilot overshoots turn to final and inappropriately cross controls the airplane rudder and ailerons while attempting to return to the runway alignment causing stall, spin, and uncontrolled crash
  - Departure: Mechanical failure on takeoff; low altitude gives pilot few options on emergency landing site; or, pilot attempts to return to airport and loses control during tight turn
- Risk Level
  - Moderate to high
  - Percentage of near-runway accidents in this zone: 4% - 8%



TURNING TO FINAL

Basic Compatibility Policies

- Normally Allow
  - Uses allowed in Zone 2
  - Greenhouses, low-hazard materials storage, mini-storage, warehouses
  - Light industrial, vehicle repair services
- Limit
  - Residential uses to very low densities
  - Office and other commercial uses to low intensities
- Avoid
  - Commercial and other nonresidential uses having higher usage intensities
  - Building with more than 3 aboveground habitable floors
  - Hazardous uses (e.g., aboveground bulk fuel storage)
- Prohibit
  - Major shopping centers, theaters, meeting halls and other assembly facilities
  - Children's schools, large daycare centers, hospitals, nursing homes
  - Stadiums, group recreational uses



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	3x the Average number of people per gross acre
Rural	See Note A	50 – 70	150 – 210
Suburban	1 per 2 - 5 ac.	70 – 100	210 – 300
Urban	See Note B	100 – 150	300 – 450
Dense Urban	See Note B	See Note B	See Note B

Note A: Maintain current zoning if less than density criteria for suburban setting.
Note B: Allow infill at up the average of surrounding residential area.

FIGURE 4D

Safety Zone 3 – Inner Turning Zone

Nature of Risk

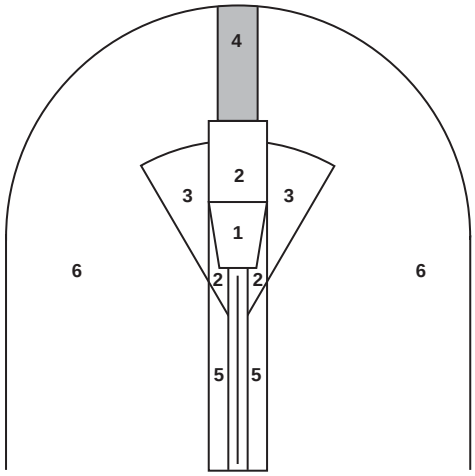
- Normal Maneuvers
  - Approaching aircraft usually at less than traffic pattern altitude. Particularly applicable for busy general aviation runways (because of elongated traffic pattern), runways with straight-in instrument approach procedures, and other runways where straight-in or straight-out flight paths are common
- Altitude
  - Less than 1,000 feet above runway
- Common Accident Types
  - Arrival: Pilot undershoots runway during an instrument approach, aircraft loses engine on approach, forced landing
  - Departure: Mechanical failure on takeoff
- Risk Level
  - Moderate
  - Percentage of near-runway accidents in this zone: 2% - 6%



LONG FINAL

Basic Compatibility Policies

- Normally Allow
  - Uses allowed in Zone 3
  - Restaurants, retail, industrial
- Limit
  - Residential uses to low density
- Avoid
  - High-intensity retail or office buildings
- Prohibit
  - Children's schools, large daycare centers, hospitals, nursing homes
  - Stadiums, group recreational uses
- Other Factors
  - Most low to moderate intensity uses are acceptable. Restrict assemblages of people
  - Consider potential airspace protection hazards of certain energy/industrial projects



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	3x the Average number of people per gross acre
Rural	See Note A	70 – 100	210 – 300
Suburban	1 per 2 - 5 ac.	100 – 150	300 – 450
Urban	See Note B	150 – 200	450 – 600
Dense Urban	See Note B	See Note B	See Note B

Note A: Maintain current zoning if less than density criteria for suburban setting.
Note B: Allow infill at up average density/intensity of comparable surrounding users.

FIGURE 4E

Safety Zone 4 – Outer Approach/Departure Zone

Nature of Risk

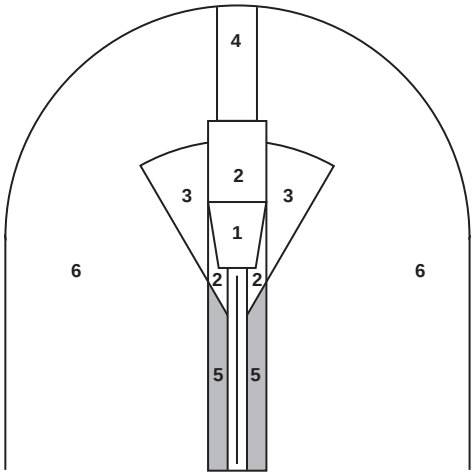
- Normal Maneuvers
  - Area not normally overflown; primary risk is with aircraft (especially twins) losing directional control on takeoff, excessive crosswind gusts or engine torque
- Altitude
  - Runway elevation
- Common accident types
  - Arrival and Departure: Aircraft losing directional control and veering off the side of the runway
- Risk Level
  - Low to moderate
  - Percentage of near-runway accidents in this zone: 3% - 5%



INITIAL LIFT-OFF OR LANDING TOUCHDOWN

Basic Compatibility Policies

- Normally Allow
  - Uses allowed in Zone 4 (subject to height limitations for airspace protection)
  - All common aviation-related activities provided that FAA height-limit criteria are met
- Limit
  - Nonresidential uses similarly to Zone 3
- Avoid
  - Residential uses unless airport related (noise usually also a factor)
  - High-intensity nonresidential uses
- Prohibit
  - Stadiums, group recreational uses
  - Children's schools, large daycare centers, hospitals, nursing homes



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	3x the Average number of people per gross acre
Rural	See Note A	50 – 70	150 – 210
Suburban	1 per 1 - 2 ac.	70 – 100	210 – 300
Urban	See Note B	100 – 150	300 – 450
Dense Urban	See Note B	See Note B	See Note B

Note A: Maintain current zoning if less than density criteria for suburban setting.
Note B: Allow infill at up the average of surrounding residential area.

FIGURE 4F

Safety Zone 5 – Sideline Zone

Nature of Risk

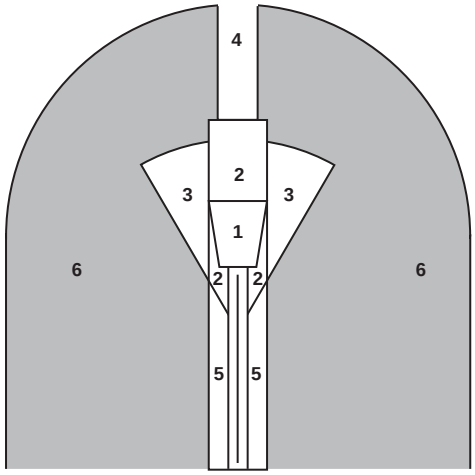
- Normal Maneuvers
  - Aircraft within a regular traffic pattern and pattern entry routes
- Altitude
  - Ranging from 1,000 to 1,500 feet above runway
- Common Accident Types
  - Arrival: Pattern accidents in proximity of airport
  - Departure: Emergency landings
- Risk Level
  - Low
  - Percentage of near-runway accidents in this zone: 18% - 29% (percentage is high because of large area encompassed)



IN TRAFFIC PATTERN

Basic Compatibility Policies

- Normally Allow
  - Residential uses (however, noise and overflight impacts should be considered where ambient noise levels are low)
- Limit
  - Children's schools, large day care centers, hospitals, and nursing homes
  - Processing and storage of bulk quantities of highly hazardous materials
- Avoid
  - Outdoor stadiums and similar uses with very high intensities
- Prohibit
  - None



Refer to Chapter 3 for dimensions.

	Maximum Residential Densities	Maximum Nonresidential Intensities	Maximum Single Acre
	Average number of dwelling units per gross acre	Average number of people per gross acre	4x the Average number of people per gross acre
Rural	No Limit – See Note A	150 – 200	600 – 800
Suburban	No Limit – See Note A	200 – 300	800 – 1,200
Urban	No Limit – See Note A	No Limit – See Note B	No Limit – See Note B
Dense Urban	No Limit – See Note A	No Limit – See Note B	No Limit – See Note B

Note A: Noise and overflight should be considered.
Note B: Large stadiums and similar uses should be avoided.

FIGURE 4G

Safety Zone 6 – Traffic Pattern Zone

When picking a specific intensity limit, it is important to look back to the qualitative evaluations of whether a particular use is or is not compatible in a given part of the airport environs. For example, if single-story offices are judged to be an acceptable use in a certain safety zone, but Big Box and major retail is not, then the intensity limit should be set at approximately 80 to 90 people per acre.

Determining Usage Intensities for Specific Land Uses

Table 4E serves as a general guide regarding the usage intensities that can be expected to be found with these common land uses. They are presented here as an aid in setting the safety criteria within an ALUCP. As individual projects come forward for ALUC review, more exact numbers may be required for a thorough consistency analysis. There are several methods by which intensity numbers can be calculated. These methods are briefly described below and discussed in more detail in Appendix G. The appendix also includes specific numbers related to each calculation method and various land use types.

- Building and Fire Codes: These sources indicate the number of square feet per person (occupancy level) that each person in a building will occupy when the space is filled to its maximum capacity. Except for uses having fixed seating, the occupancy levels used for code purposes do not represent what would be considered a comfortable or normal amount of space per person. Even doubling the square footage (halving the intensity) results in intensities somewhat higher than typical. Nevertheless, reviewing a proposed project relative to this data source is worthwhile for determining the upper limit of expected intensities.

- Facility Management Industry: More realistic numbers for building occupancy levels can be found in various facility management industry sources. These are the numbers used when a particular business is looking for building space and needs an estimate of how much total space will be required given the type of business and staff size.

- Local Parking Standards: Most communities have a fairly comprehensive list of land use types and the number of parking spaces that need to be provided for each type of development. By coupling these numbers with estimates of the number of persons per vehicle for each use, the total number of occupants and the usage intensity can be calculated. In using this method, consideration needs to be given to urban areas and other uses where many persons arrive by means other than personal automobile (i.e., transit, drop-off, bicycle, and walk). The resulting intensity numbers are usually lower than found by using building and fire codes, even when the latter numbers are cut in half, but they represent a good estimate for compatibility planning purposes.

- Survey of Comparable Uses: This method is similar to and effectively underlies the facility management industry data. However, by conducting surveys of similar uses in the same or nearby community, more refined numbers can be derived for use in safety compatibility evaluations.

4.4.3 Other Intensity Calculation Issues

Beyond the matter of setting basic intensity criteria numbers and determining how to measure compliance, several nuances often arise with respect to both processes. The discussion below provides some guidance on these topics.

Gross versus Net Acreage

The basic difference between these two terms is that gross acreage includes roadway and other public facilities, while net acreage does not. For calculating the density of proposed development projects, gross acreage is commonly used in the planning field, and is appropriate for airport compatibility planning purposes. Local jurisdictions may differ in how gross acreage is applied (for example, are schools and parks subtracted from the gross acreage to determine the net acreage). For developed or partially developed areas, particularly smaller parcels, net acreage may be a more useful number. This is because parcel size is the data readily available and adding a portion of adjacent public streets may cause confusion. Whatever method an ALUC uses, they should apply it consistently in their plan and in subsequent project reviews.

Roads

Except in the case of major thoroughfares running through runway protection zones and inner safety zones, the number of people in vehicles can generally be ignored in usage intensity calculations. Roads where traffic is frequently stopped in locations immediately beyond runway ends deserve attention. Note, however, that current FAA stance with regard to runway protection zones is that new roads should not run through these areas and any changes to the runway configuration should be designed so that existing roads do not remain. Regardless of these considerations, unless the road is newly planned, ALUCs are unlikely to have the opportunity to review these conditions.

Average versus Peak Usage Intensities

Limitations on the numbers of people per acre sometimes are stated as a never-to-exceed maximum and sometimes as an average measured over an indicated period (typically 2, 8, or even 24 hours). A combination of the two also is possible (e.g., an average of "x" people per acre over an 8-hour period, not to exceed two times at any time).

It is recommended that usage intensities be calculated based upon the normal maximum use of a site or building. This concept recognizes that higher occupancies may occasionally occur, but not under normal circumstances. This differs from the building and fire code methodology and is more parallel to how parking space standards are set. Nevertheless, if a particular use has a high occupancy during a shift change for example and this activity occurs every day, then the intensities should be calculated on this basis. Averaging the occupancy numbers over an 8 or 24-hour period is not recommended.

Clustering Versus Spreading of Development

Rarely is the usage intensity of a development spread equally throughout the site. Buildings, for example, normally will have more occupants than the adjacent parking lots. Also, for large developments, most of the buildings and other facilities are sometimes concentrated in one portion of the site, leaving other areas as open space because of terrain, environmental, or other considerations. The latter practice is often referred to as clustering. The issues for ALUCs are whether to place limits on clustering or to encourage the practice. Some of the tradeoffs between clustered and spread-out development are as follows.

- Clustered Development—The premise behind the concept of clustering is that, in a significant percentage of off-airport mishaps, the aircraft are under some degree of control when forced to land. (The reference here to mishaps is intentional—if a forced landing succeeds with no serious injuries or major damage to the aircraft, it would be categorized as an incident and thus not appear in accident records.) If the area remaining undeveloped is relatively level and free of large obstacles, clustering potentially allows a greater amount of open land toward which a pilot can aim. In situations where a parcel is split by two or more safety zones, clustering development can also be an effective means by which to avoid development in a higher risk safety zone. The disadvantage of clustering is that it allows an increased number of people to be in the potential impact area of an uncontrolled crash.

- Spread-Out Development—By comparison, a uniform spreading of development may provide fewer emergency landing spots and increase the chance of someone on the ground being injured. On the plus side, a uniform distribution of development limits the maximum number of people who could possibly be in an impact area.

A compromise between these two strategies represents the optimum approach in most cases. This approach entails limiting the maximum occupancy level of a small area, but otherwise clustering development so as to provide the greatest amount of large open areas. For a small area (one acre is a good guideline), a limitation of two or three times the overall criterion is typical with the lower number applying in safety zones closest to the runway ends.

The nonresidential intensity criteria listed in Figures 4B through 4G indicate maximums both averaged over an entire site and for any single acre.

Uses in Structures versus Uses Not in Structures

Some ALUCPs make a distinction between the acceptable number of people per acre in land uses where people are outdoors versus those where the people are in a building or other enclosed area.

- Outdoor Uses—One theory is that people outdoors have more of a chance to see a plane coming as well as more directions in which they can move to vacate the impact area. A greater concentration of people thus is sometimes considered acceptable for such land uses. An important exception, however, is for open stadiums and other similar uses where a large number of people are confined in a small area with limited exits. Such facilities can represent equal or higher risks than similar uses in buildings.

  Taking both of these factors into account, the suggested strategy is to set the acceptable number of people in a given area equal for uses either outdoors or in structures. Additionally, restrictions on stadiums and other open facilities occupied by large numbers of people are appropriate.

- Uses in Buildings—Buildings provide substantial protection from the crash of a small airplane, particularly when the aircraft is still under control as it descends. If a building fire subsequently ensues—historically, a relatively infrequent occurrence—it is unlikely to engulf the entire building instantly.

4.4.4 Safety Criteria for Other Types of Land Uses

While usage intensity (people per acre) measures provide the best overall criteria by which to evaluate the safety compatibility of various land uses, certain uses involve risks which either cannot be measured on this scale or it would be inappropriate to do so. Different criteria need to be established for these types of uses. Primary examples are outlined here.

Residential Uses

Among land uses for which intensity is not a valid measure of safety compatibility, residential land uses are no doubt the most important. The usage intensity of residential uses clearly can be calculated if data on the number of occupants per dwelling is available or an estimate can be made. Potentially, some allowance can even be made for guests. The resulting numbers, though, would almost always be much lower than for most nonresidential uses, especially if the residential uses are single-family dwellings.

Disregarding noise factors for the moment, this sort of analysis would suggest that residential uses should be considered more acceptable than nonresidential uses in areas at most risk of aircraft accidents. However, society does not generally look at residential uses in this manner. We generally want our homes to be safer than other places. The usage intensities of residential uses thus cannot be directly equated to those of nonresidential uses. Significantly greater protection should be afforded to residential uses with a preference towards low density structures near airports. To clearly reflect these differences, residential uses should be evaluated on a dwelling-unit-per-acre (density) basis. This methodology has the added advantage of being consistent with how residential uses are normally measured. For a discussion of mixed-use development, and calculating density/intensity, see Section 4.6, later in this Chapter.

Uses with Vulnerable Occupants

Other types of land uses also tend to be given special deference by the community. These are uses for which risk acceptability cannot be measured simply in terms of the number of occupants. The vulnerability of the occupants to the risks of aircraft accidents must also be considered. In many instances, the appropriate policy may be outright prohibition of new instances of these uses and expansion of existing facilities.

Perhaps the most significant uses on this list are schools. This status is reflected in building codes and other regulations that set higher standards for school buildings. Even with respect to aviation-related impacts, the California Education Code (Section 17215(a)) requires special attention be given to new school sites, dictating that Caltrans review and approve sites within two miles of an airport runway. In general, the community gives special attention to protection of children. Similarly, special consideration should also be given, when formulating safety policies, to other facilities that cater to children such as recreation/after-school centers and sports facilities.

Two other segments of the population whom are often afforded special consideration and protection are the elderly and disabled. As with children, both groups include individuals who may not know how to respond to an emergency or maybe physically unable to do so.

Hospitals, nursing homes, assisted living facilities, and other such uses are ones that usually should be avoided in locations near runways.

Other High-Risk Uses

Two other categories of high-risk uses may not have many occupants, but the consequences of an aircraft accident at the site could nonetheless be elevated. Of particular concern is that these consequences may extend beyond the immediate location of the accident.

Manufacturing, storage, or use of hazardous materials may warrant special consideration depending upon the specific materials and quantities. The concern is whether an aircraft accident could cause an explosion or release of toxic materials, thus posing dangers to the nearby population. Uses that involve the storage of hazardous materials (e.g., gas stations) should be avoided in locations where aircraft may be operating at low altitudes, or where data has shown the risk of accidents to be greater. Specifically, locations where the manufacturing or bulk storage of hazardous materials should be avoided include safety zones one through five.

Public infrastructure represents the other category of uses for which the consequences of damage may extend beyond an accident location. Loss or disruption of facilities, such as power plants, fire or police stations, and emergency communications facilities, can effect wide areas and put many people in jeopardy. Avoiding these uses near runways, providing redundancy at other locations, or designing the facilities to reduce their vulnerability are all appropriate compatibility measures.

4.4.5 Minimizing Injury to Aircraft Occupants

The preceding discussion primarily addresses risks that aircraft accidents pose for people and property on the ground. Obviously, aircraft accidents also put the occupants of aircraft at risk. To some extent, especially for small aircraft, the characteristics of the terrain and land uses into which an aircraft descends can play a part in the survivability of an accident for those on board. This is particularly true when the aircraft is under the pilot's control while descending—in other words, gliding downward without power. Small aircraft can glide a considerable distance under these circumstances—as much as 10 feet per foot of altitude when going straight ahead, but much less if turning. When their aircraft is in distress, pilots will naturally aim for a relatively flat, open piece of land if such areas are available. This tendency also benefits people and property on the ground by reducing the likelihood that occupied buildings will be struck.

Although terrain is a critical factor in the survivability of emergency landings, it is not a factor over which ALUCs have any influence. At airports in mountainous or densely forested locations, little open land useful for an emergency landing may exist even if no development is present. For such airports, policies to preserve open land may be pointless. Similarly, open space policies for airports located in densely urbanized locations might be less helpful for compatibility planning purposes. The discussion here is thus directed at airports in less developed, flat, or moderately hilly environs.

Characteristics of Open Land

Ideal emergency landing sites are ones which are long, level, and free of obstacles, much like a runway. Certainly, the closer that open land areas around airports can fit these criteria the better. For small aircraft, however, successful (meaning survivable irrespective of the damage to the aircraft) emergency landings can be accomplished in much less space. Data from the general aviation aircraft accident database indicates that the median swath length for accidents in which the aircraft was under at least some control is less than 150 feet.

As a general guideline, open land sites should be at least 300 feet long by 75 feet wide (about 0.5 acre or the size of a football field) to be considered useful. This is a minimum size and presumes that tall objects do not exist along the approach to the site, thus precluding an aircraft from reaching it. Open land sites should be relatively level and free of objects such as structures, overhead lines, and large trees and poles that can send the plane out of control at the last moment. Parking lots or recreation areas, while not ideal, also can be considered as acceptable open lands in urbanized settings.

Guidelines for Extent of Open Land Near Airports

Determining the desirable number of open land sites or the percentage of open land in an airport's vicinity is a complex proposition. To assist in this decision, the following three observations are offered:

- The accident location patterns illustrated in Appendix E reveal that accidents in which aircraft are under control are bunched relatively close to the runway ends—mostly within about 3,000 feet—both for arrivals and departures.

- The number of takeoff accident sites located a short distance laterally from the departure (climb-out) end of the runway may indicate that pilots have either headed for an open spot in that location or have attempted to turn around and land on the runway from the opposite direction, but not quite succeeded.

- A pilot's discretion in selecting an emergency landing site is reduced when the aircraft is at low altitude. Particularly at low altitude, the chance of a pilot seeing and successfully landing in a small open area is increased if there are more such spots from which to choose. At traffic pattern altitude (800 to 1,000 feet above the runway), a small airplane should, in the event of engine failure, normally be able to reach the runway from anywhere within the pattern. On takeoff, a small plane generally must have reached an altitude of at least 400 to 500 feet above the runway for a return to the runway to be narrowly possible following engine failure.

Each of these observations speaks to the need for preserving more and preferably larger open areas in locations near runways than in other portions of airport environs. On this basis, the following guidelines are suggested.

- Runway Protection Zones—Maintain all undeveloped land clear of objects in accordance with FAA standards.

- Inner Approach/Departure Zones—Seek to preserve 25% to 30% of the overall zone as usable open land. Particular emphasis should be given to preserving as much open land as possible in locations close to the extended runway centerline.
- Inner Turning Zone—At least 15% to 20% of the zone should remain as open land.
- Outer Approach/Departure Zones—Maintain approximately 15% to 20% open land within the overall zone, again with emphasis on areas along the extended runway centerline.
- Sideline Zone—Adjacent to the runway ends and runway protection zones, 25% to 30% usable open land is a desirable objective.
- Traffic Pattern Zone—Elsewhere within the airport environment, approximately 10% usable open land or an open area approximately every ¼ to ½ mile should be provided.

Open land areas need to meet minimum size criteria to be of value. Therefore, the above guidelines are only practical when applied with respect to land use patterns proposed in general plans, specific plans, or large developments (generally 20 acres or more), not to individual smaller parcels. Both public and private lands should be counted. If the indicated amount of open land can be provided totally on public property, individual private parcels may not need to have any.

See the discussion of inverse condemnation in Chapter 3 on page 3-57.

4.4.6 Summary

Table 4F summarizes the concepts and issues involved with establishing safety compatibility criteria, and presents sample policies based on the concepts discussed above. The sample policies are intended as *examples only*, and should be tailored to fit the needs of a specific airport or community.

TABLE 4F: SAFETY COMPATIBILITY SUMMARY

Objective:	Minimize the risks associated with potential aircraft accidents by providing for the safety of people and property on the ground and enhancing the chances of survival of the occupants of aircraft involved in an accident.
Measurement:	Measuring the degree of safety concerns around an airport involves determining the potential for an accident to occur. To do this, the variables of *where* and *when* must be considered. *Spatial Element*: The spatial element describes *where* aircraft accidents can be expected to occur. Of all the accidents which occur in the vicinity of airports, what percentage occurs in any given area? *Time Element*: the time element adds a *when* variable to the assessment of accident frequency. In any given location around a particular airport, what is the chance that an accident will occur in a specified period of time?
Strategies:	Safety compatibility strategies focus on the consequences of risk assessment. In essence, land use planning measures should be utilized to try and reduce the severity of an aircraft accident for both people on the ground and in an aircraft. The primary strategy to achieve this goal is to limit the intensity of the use (the number of people concentrated on a site) in locations most susceptible to an off-airport aircraft accident. This can be accomplished by: *Density and Intensity Limitations:* Establishment of criteria limiting the maximum number of dwellings or people in areas close to the airport is the most direct method of reducing the potential severity of an aircraft accident. *Highly Risk-Sensitive Uses*: Certain critical types of land uses—particularly schools, hospitals, and other uses in which the mobility of occupants is effectively limited—should be avoided near the ends of runways regardless of the number of people involved. Critical public infrastructure should be avoided. Aboveground storage of large quantities of highly flammable or hazardous materials also should be avoided near airports.

TABLE 4F: SAFETY COMPATIBILITY SUMMARY

	Open Land Requirements: Creation of requirements for open land near an airport addresses the objective of enhancing safety for the occupants of an aircraft forced to make an emergency landing away from a runway.
Basis:	Setting safety compatibility criteria presents the fundamental question of "what is safe." Expressed in another way: what is an *acceptable risk*? In one respect, it may seem ideal to reduce risks to a minimum by prohibiting most types of land use development from areas near airports. However, there are usually costs associated with such high degrees of restrictiveness. In practice, safety criteria are set on a progressive scale with the greatest restrictions established in locations with the greatest potential for aircraft accidents. *Established Guidance*: Little established guidance is available to ALUCs regarding how restrictive to make safety criteria for various parts of an airport's environs. Unlike the case with noise, there are no formal federal or state laws or regulations which set safety criteria for airport area land uses for civilian airports except within *runway protection zones* (and with regard to airspace obstructions as described in the next section). FAA safety criteria primarily are focused on the runway and its immediate environment. Runway protection zones—then called clear zones—were originally established mostly for the purpose or protecting the occupants of aircraft which overrun or land short of a runway. Now, they are defined by the FAA as intended to enhance the protection of people and property on the ground. *Research*: Extensive research into the distribution of general aviation aircraft accident locations was conducted in conjunction with the 2002 edition of this *Handbook*. Research was performed in preparation of this edition to determine if the conclusions reached in the research for the 2002 *Handbook* is still valid. The results of the 2002 analysis, and the conclusions for the research associated with this edition are contained in Appendix E.
Sample Policies:	Policy 1: Mixed-Use Development – For projects involving a mix of residential and nonresidential uses, the following should apply. a. In cases where residential and nonresidential uses are proposed to be situated on separate parts of the same project site, the project should be evaluated as separate developments. The residential density should be calculated with respect to the area(s) to be devoted to this type of land use, and the nonresidential intensity calculated with respect to the area(s) proposed for nonresidential use. If multiple nonresidential uses are proposed, each shall be calculated as occupying a proportion of the total project, with respective allowed intensities. As such, the residential density cannot be averaged over the entire project site when nonresidential uses will occupy some of the area. The same limitation applies to nonresidential uses as well. b. Development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or nearby buildings on the same site must meet both residential density and nonresidential intensity criteria. The number of dwelling units shall not exceed the density limits established for each safety zone. Furthermore, the normal occupancy of the residential portion shall be added to the nonresidential portion, and the total shall be evaluated with respect to the nonresidential usage intensity criteria for this airport. Policy 2: Clustering – For clustering (concentrating development into a portion of a project site), the following should act as a guide. a. Clustering of new residential uses in the airport's AIA is limited as follows: 1. Clustering is not allowed in zones where new residential uses are usually prohibited—typically zones 1, 2, or 5. 2. In zones where the risk of an aircraft accident is considered high—typically zones 2 or 3—the density of clustered new residential uses should be kept low, relative to the jurisdiction (e.g., 1 dwelling unit per 1 to 5 acres). 3. In zone 4, where the risk of an aircraft accident is lessened but still substantial given its location relative to the runway centerline, the density of clustered new residential uses should be in the mid to mid-low range, relative to the jurisdiction (e.g., 3 to 5 dwelling units per acre). 4. Zone 6 typically has no limitations on site wide or single-acre new residential development density. b. Clustering of nonresidential uses on a single 1.0-acre site should not exceed single-acre intensity limits defined for the particular safety zone the development would be located in. Clustering is discouraged in zones 1, 2, and 3. Policy 3: Parcels Located Within Two or More Safety Zones – shall be considered as if it were multiple parcels divided at the safety zone boundary line. a. If no part of the building(s) proposed on the parcel fall within the more restrictive safety zone, the criteria for the safety zone where the proposed building(s) are located shall apply

TABLE 4F: SAFETY COMPATIBILITY SUMMARY

for the purposes of evaluation.

b. If the building(s) proposed on the parcel fall within multiple safety zones, the criteria for the most restrictive safety zone where the building(s) proposed are located shall apply for the purposes of evaluation.

Policy 4: Infill – Where land uses not in conformance with the criteria set forth in the ALUCP exist at the time of the plan's adoption, infill of similar land uses may be allowed to occur in that area even if the proposed new land use is otherwise incompatible with respect to the compatibility criteria for that location.

a. Infill development should not be allowed in the following locations:

   1. Any safety zone where residential development has been deemed incompatible (e.g., Safety Zone 1 – Runway Protection Zone).
   2. Residential infill should not be allowed where the dwelling units would be exposed to noise levels higher than the 65 dB CNEL associated with the airport.

b. In other locations within the AIA, a site can be considered for infill development as long as it is located in an area identified by the local agency as suitable for infill development, and the area meets the following conditions.

   1. Identify the appropriate maximum size of the project site considered for infill—relative to jurisdiction (e.g., no larger than 5, 10, 15, or 20 acres).
   2. At least 65% of the infill area, together with lands lying within 1,000 feet of the perimeter of the infill area, was developed prior to adoption of the ALUCP with uses not in conformance with the plan.
   3. Development of the infill area would not extend the perimeter of the area defined by the existing, incompatible land uses.
   4. Land uses proposed for the infill area are consistent with the local agency general plan and zoning regulations.

c. A not-to-exceed limit should be established for residential or nonresidential infill projects. Development of the site should not exceed the lesser of:

   1. The median density/intensity represented by all existing residential/nonresidential lots that lie within 1,000 feet from the boundary of the infill area; or
   2. Double the density/intensity permitted within the safety zone in which the proposed infill project is located.

4.5 AIRSPACE PROTECTION

Compatibility strategies for the protection of airport airspace are relatively simple and are directly associated with the individual types of hazards:

- Airspace Obstructions: Buildings, antennas, other types of structures, and trees should be limited in height so as not to pose a potential hazard to flight.
- Wildlife and other Hazards to Flight: Land uses that may create other types of hazards to flight near an airport should be avoided or modified so as not to include the offending characteristic.

4.5.1 Hazards to Flight

Unlike the preceding discussion, which addressed how different land use characteristics can affect the severity of an aircraft accident (for better or worse), hazards to flight can be the cause of an accident. Hazards to flight fall into three basic categories:

See Chapter 3 for a summary of established federal regulations regarding these types of hazards.

- Obstructions to the airspace required for flight to, from, and around an airport;
- Wildlife hazards, particularly bird strikes; and
- Other forms of interference with safe flight, navigation, or communication.

Airspace Obstructions

Limiting the heights of structures to the heights indicated by the FAR Part 77 surfaces provides an ample margin of safety for normal aircraft operations. The guidance provided by FAR Part 77 is not absolute, however. Moreover, deviation from FAR Part 77 standards does not necessarily mean that a hazard to flight exists; instead, deviation requires that the offending objects be evaluated by the FAA and that mitigation, such as marking or lighting, be applied if appropriate.

In some locations, such as adjacent to a runway, objects exceeding the FAR Part 77 height limits may not be regarded as a hazard. On the other hand, tall objects in the approach corridors—especially along instrument approach routes—may pose risks even though they do not penetrate the defined FAR Part 77 surfaces. Such objects also can adversely affect the minimum instrument approach altitudes allowed in accordance with the U.S. Standard for Terminal Instrument Procedures (TERPS). TERPS is particularly likely to be more restrictive than FAR Part 77 when:

- The approach is not aligned with a runway;
- The procedure includes a circle-to-land option with low minimums;
- The missed approach segment has a low minimum altitude and requires a turning movement; and/or
- High terrain is present beneath portions of the approach procedure which lie beyond the limits of the FAR Part 77 surfaces.

The airspace surfaces defined by TERPS are typically complex and not easily mapped. Nevertheless, ALUCPs would benefit by including this information if possible. At a minimum, the plans should note the general locations where TERPS surfaces may be critical. ALUCs should request FAA analysis of tall objects proposed for construction in these areas.

Wildlife Hazards

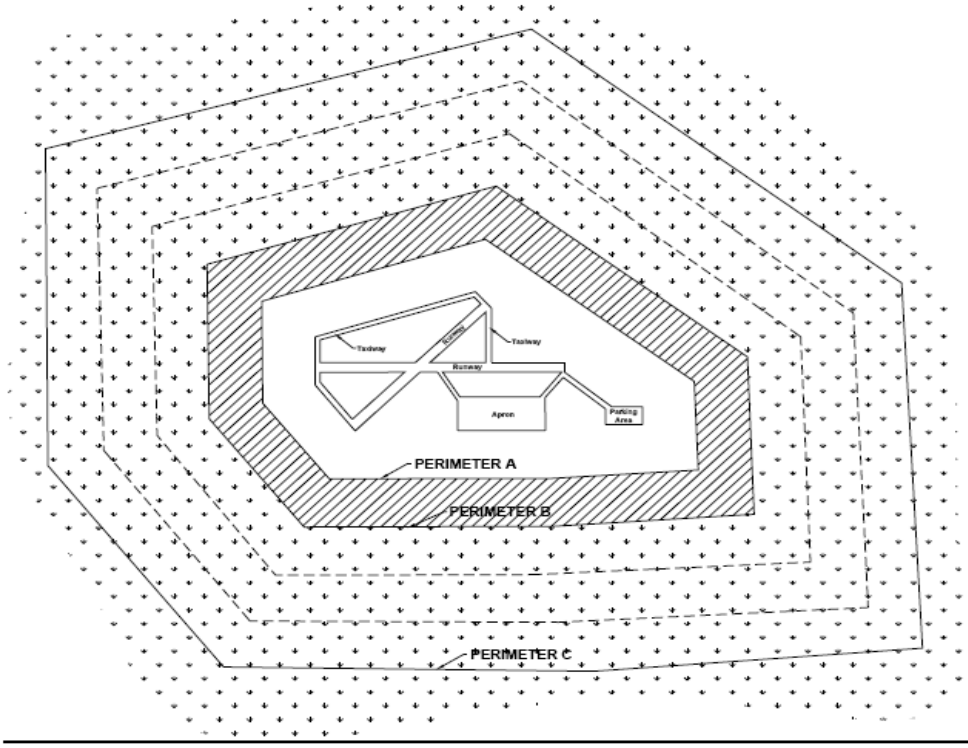
A variety of land uses, facilities, and structures on and near airports can create wildlife hazard attractants that pose a threat to aircraft operations. Examples of these include; sanitary landfills, water management facilities (e.g., drinking water intake and treatment facilities, storm water and wastewater treatment facilities, and ponds built for recreational use), wetlands, agricultural areas, natural areas, and landscaping. Airport owners are encouraged by the FAA to assess potential wildlife hazard attractants on and near airports and to work with local land use planners to avoid the establishment of non-compatible land uses.

The FAA provides guidance on separation criteria for potential wildlife hazard attractants (non-compatible land uses and facilities) within FAA Advisory Circular 150/5200-33B, "Wildlife Hazard

Attractants on and near Airports." This guidance provides a graphic that identifies a 5,000-foot separation distance from an airport operation area serving piston-powered aircraft, a 10,000-foot separation distance from an airport operation area servicing turbine-powered aircraft, and a 5-mile radius for approach, departure, and aircraft operating in a standard traffic pattern (see Figure 4H).

Though the separation criteria described above in Figure 4H is recommended by the FAA, it may be infeasible for many ALUCs to adopt such far-reaching review boundaries (particularly Perimeter C) in their ALUCPs. However, airport operators, and local land use planners and decision makers should build into their ALUCPs, considerations for the review of land uses, development plans, and conservation plans proposed within an airport's AIA, on a case-by-case basis to determine their potential for attracting hazardous wildlife. The following sections provide examples of land uses that typically possess features that act as attractants for hazardous wildlife.

Figure 4H. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

PERIMETER B: For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

PERIMETER C: 5-mile range to protect approach, departure and circling airspace.

Source: FAA AC 150/5200-33B (2007)

Sanitary Landfills

Sanitary landfills can create wildlife hazard attractants. Federal regulations and guidance apply to locating and/or expanding these types of facilities near airports.

- Code of Federal Regulation (CFR), Title 40, Part 258, Subpart 10 – These regulations provide criteria for the location of existing, new, and laterally expanding municipal solid waste landfills (MSWLF) within 10,000 feet of a public-use runway end that services jet aircraft and 5,000 feet of a public-use runway end that services piston aircraft. MSWLF facilities within these separation distances must show that they do not create a wildlife attractant that create a hazard to aircraft. This section also states that new MSWLF facilities or proposed lateral expansion of existing facilities within a 5-mile radius of a public-use airport must notify the airport and the FAA.

- FAA Advisory Circular 150/5200-34-A, Construction or Establishment of Landfills near Public Airports – Provides FAA guidance on compliance with federal statutes regarding construction or establishment of a new municipal solid waste landfill (MSWLF) near a public airport.

Sanitary Sewer Systems

Open water sanitary sewer systems may create a wildlife hazard attractant due to the aquatic environment that is created with such facilities. New open sanitary sewer systems should be strongly discouraged within the separation distances described in Figure 4H above. If new facilities are proposed within the separation distances, the airport operator should be notified prior to approval.

Stormwater Management Facilities

A variety of stormwater management facilities are utilized to retain and treat stormwater run-off. Aboveground stormwater facilities may consist of open water features, canal or water conveyance structures, marsh areas, dry detention, and littoral zone areas. Due to the aquatic and vegetative environments associated with these structures, jurisdictions should avoid placement of these features within airport operations area as a minimum measure to decrease potential wildlife hazard attractants. However, it may not be practical to avoid the use of stormwater facilities within the separation criteria described in Figure 4H.

If an airport operator or other land owner within the separation criteria proposes to develop new stormwater management facilities or they have existing stormwater facilities, best management practices be put in place to decrease the potential for wildlife hazard attractants should a stormwater management facility be proposed within the AIA. Potential best management measures could include steep-slope, rip-rapped lined stormwater detention areas (littoral zone planting is strongly discouraged), and vegetation management to control emergent plants in canals, conveyance systems, dry detention areas, and side slopes of detention areas.

Local land use planners, decision makers, and agencies involved in regulating stormwater management in the State of California should be active participants in developing solutions to meet water quantity and quality regulations in conjunction with preventing the development of wildlife hazard attractants on and near airports.

Wetlands

Wetlands are often used as forms of mitigation for projects on or near airports. However, wetlands are typically considered wildlife hazard attractants. According to FAA AC 150/5200-33B, wetland conservation, preservation, or mitigation is strongly discouraged on airport property and is recommended to remain outside the separation areas identified in Figure 4H for property owners within an AIA. Local land use planners, decision makers, and agencies involved in regulating wetlands in California should be active participants in developing solutions to meet wetland regulation requirements in conjunction with preventing the development of wildlife hazard attractants on and near airports. Consideration should be given to developing off-site wetland mitigation strategies where applicable and the possibility of utilizing wetland mitigation banks that are, at the very least located outside the approach/departure paths of runways, if not the entire AIA.

Agricultural Areas

Many types of agricultural areas are considered wildlife hazard attractants due to the presence of livestock and an available food source for wildlife. According to AC 150/5200-33B, the FAA discourages agricultural activities, including hay crops, on airport property. If an agricultural area off airport property is determined to create a wildlife hazard attractant, airport operators, land owners, and local land use planners should work collaboratively to develop a strategy to decrease the potential risk to aircraft safety.

Parks, Golf Courses, Natural Resources, and Natural Areas

According to AC 150/5200-33B, parks, golf courses, natural resources, and natural areas have the potential to create wildlife hazard attractants on or near airports. These areas may provide wildlife corridors, roost sites, rookeries, migratory flyway stop over sites or numerous other functions that may benefit wildlife but, due to their location, may create situations where wildlife are crossing airspace for approach, departing, or training aircraft. These activities may occur well above ground level and out of reach for airport operators to deter the activity.

Safety related guidance on restricting wildlife and birds in the airport environs and on the location of landfills is contained in the following publications:

- *FAA Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports*
- *FAA Advisory Circular 150/5200-34-A, Construction or Establishment of Landfills near Public Airports*
- *Wildlife Hazard Management at Airports: A Manual for Airport Personnel, 2nd Edition, July 2005, prepared by the FAA and USDA*
- *FAA CertAlert No. 98-05: Grasses Attractive To Hazardous Wildlife*
- *FAA CertAlert No. 04-16: Deer Hazard to Aircraft and Deer Fencing*
- *FAA CertAlert No. 06-07: Requests by State Wildlife Agencies to Facilitate and Encourage Habitat for State-Listed Threatened and Endangered Species and Species of Special Concern on Airports*
- *FAA provides a web-site with information on management, regulations, and guidance related to wildlife hazards at airports: http://wildlife-mitigation.tc.faa.gov/public_html/index.html*

ALUCs should work with local land use planners, decision makers, and regulatory agencies to discourage the location of new protected or conservation lands that have the potential to create wildlife hazard attractants within an AIA. An ALUC should be notified prior to the approval of any conservation or protected natural areas being proposed within the airport influence area of an airport. Furthermore, parks or golf courses, which often possess features that act as attractants to hazardous wildlife (e.g., open sources of garbage, water features, etc.), should be avoided in the approach/departure paths of an airport; particularly in close proximity to the runway ends.

Alternatively, parks, golf courses, and certain types of natural areas are, in most cases, preferable to intensive development in the vicinity of airports. In order to prevent the creation of hazardous wildlife attractants, it is recommended that ALUCs build into their ALUCPs provisions requiring the creation of wildlife hazard management plans, if a land use of this type is proposed within an AIA.

Landscaping

Certain types of landscaping materials and designs may create wildlife hazard attractants on and near airports. Though it is not required, ALUCPs could include guidance on appropriate plants to be used for landscaping of new land uses within an AIA in order to prevent of limit the attraction of hazardous wildlife. This landscape palette could be used to provide guidance to new developments proposed within an AIA.

Other Flight Hazards

In addition to the physical hazards to flight posed by tall objects and wildlife, other land use characteristics can present visual or electronic hazards.

- Visual Hazards—Visual hazards include distracting lights (particularly lights which can be confused with airfield lights), glare, and sources of smoke.

- Electronic Hazards—Electronic hazards include any uses that interfere with aircraft instruments or radio communication. Additionally, wind-turbine farms have been known to interfere with air traffic control (ATC) or military air defense radar.

- Thermal Hazards—Thermal plumes, including steam, from cooling towers, even when not a visual hazard, may be a hazard to flight by causing air turbulence.

There are no specific FAA standards for these hazards. Potential hazards are evaluated on a case-by-case basis. ALUCs can request an FAA evaluation of proposed development when certain features appear to be potentially hazardous. Also, ALUC policies should require that outdoor lights are shielded so that they do not aim above the horizon. Additionally, for projects near the airport, outdoor lighting should be flight checked at night to ensure that it does not blind pilots during landings and takeoffs.

Energy Projects

Energy projects that may otherwise be considered compatible uses (due to their low density and high noise tolerance) may require additional review to consider the issues presented above. It

should be kept in mind that California, as well as other states, has laws that encourage the development of alternative energy sources (including wind, solar, and geothermal) where appropriate. Airport land use compatibility should be one of the factors considered in the appropriate placement of these facilities.

4.5.2 Summary

Table 4G summarizes the concepts and issues involved with establishing airspace protection compatibility criteria, and present sample policies based on the concepts discussed above. The sample policies are intended as *examples only*, and should be tailored to fit the needs of a specific airport or community.

TABLE 4G: AIRSPACE PROTECTION COMPATIBILITY SUMMARY

Objective:	Avoid development of land use conditions which, by posing hazards to flight, can increase the risk of an accident occurring.
Measurement:	*Airspace Obstructions:* The acceptable height of objects near an airport is most commonly determined by application standards set forth in FAR Part 77 of the Federal Aviation Regulations (see Chapter 3, pg. 3-45). *Wildlife and Other Hazards to Flight*: The significance of other potential hazards to flight is principally measured in terms of the hazards' specific characteristics and their distance from the airport and/or its normal traffic patterns (see Chapter 3, pg. 3-50).
Strategies:	*Airspace Obstructions*: Buildings, antennas, other types of structures, and trees should be limited in height so as not to pose a potential hazard to flight. *Wildlife and Other Hazards to Flight*: Land uses that may create other types of hazards to flight near an airport should be avoided or modified so as not to include the offending characteristic.
Basis:	Criteria for determining airspace obstructions and other hazards to flight are established in FAR Part 77 and other FAA regulations and guidelines. California's regulation of obstructions under the State Aeronautics Act (PUC Section 21659) is also based on FAR Part 77 criteria. Guidelines on the avoidance of developing wildlife attractants near airports derives from Advisory Circular 150/5200-33B: Hazardous Wildlife Attractants on or Near Airports.
Sample Policies:	Policy 1: Criteria for determining compatibility of a project as it relates to height shall be based on the standards set forth in FAR Part 77: *Objects Affecting Navigable Airspace* and applicable airport design standards published by FAA. a. Except as indicated in subpart (b) of this policy, no object shall have a height that would penetrate the airspace protection surface of the airport. Any object that penetrates one of these surfaces is, by FAA definition, considered an obstruction. b. A proposed object having a height that exceeds the airport's airspace protection surface shall be allowed only if all the following apply: 1. Upon conclusion of the FAA's 7460 review process, the FAA determines that the object would not be a hazard to air navigation. 2. Marking and lighting of the object will be installed as directed by the FAA aeronautical study (or Caltrans Division of Aeronautics) in a manner consistent with FAA standards (Advisory Circular 70/7460-1J, *Obstruction Marking and Lighting*). 3. It is determined that the proposed land use is consistent with the other compatibility standards applicable to the zone in which it is proposed. c. An avigation easement shall be dedicated to the airport owner. Policy 2: Land uses that may cause visual, electronic or wildlife hazards to aircraft in flight or taking off or landing at the airport shall be considered compatible within the airport influence area only if the uses are consistent with FAA rules and regulations. a. Characteristics to be avoided: 1. Sources of glare (e.g. mirrored or highly reflective building features) or bright lights; 2. Lights that could be mistaken for airport lights; 3. Sources of steam, dust, or smoke that may impair a pilot's vision; 4. Sources of steam or other emissions that cause thermal plumes or other forms of

TABLE 4G: AIRSPACE PROTECTION COMPATIBILITY SUMMARY

unstable air that is not visible to pilots;

5. Sources of electrical interference with aircraft communications or navigation; and
6. Any proposed use that creates an increased attraction for wildlife and that is inconsistent with FAA rules and regulations as set forth in, but not limited to, AC 150/5200-33B and FAA Order 5200.5A: *Waste Disposal Sites on or Near Airports*. Of particular concern are landfills and certain recreational uses or agricultural uses that attract flocks of birds which can pose as bird strike hazards to aircraft in flight.

4.6 OTHER COMPATIBILITY POLICY CONSIDERATIONS

While policies establishing criteria for development densities and intensities, height limits, and so forth are the core elements of an ALUCP, policies addressing a variety of other issues also should be considered. Clear delineation of ALUC policies on these matters helps to minimize subsequent disputes regarding specific development proposals.

4.6.1 Policies for Special Situations

The following are situations which warrant special attention in determining the compatibility or incompatibility of a land use development.

Expansion, Conversion, or Redevelopment of Existing Uses

The limitation on ALUC authority over existing land uses applies only to the extent that the use remains constant. Merely because a land use exists on a property does not entitle the owner to expand the use, convert it to a different use, or otherwise redevelop the property if new or increased compatibility conflicts would result. To the extent that such land use changes require ministerial or discretionary approval on the part of the county or city, they fall within the authority of the ALUC to review.

Infill Development

Another special situation that ALUCs should consider when formulating compatibility policies is how to deal with infill development. By definition, infill areas are parcels that are vacant or underutilized. The areas thus are subject to ALUC review authority, provided that their development is a part of a general or specific plan amendment or zoning change. The chief issue with regard to infill occurs when the surrounding existing uses are, and proposed new development would be, inconsistent with the ALUC's compatibility criteria. The question which ALUCs need to address is whether it is realistic to attempt to prevent technically incompatible development of a small area surrounded by similar existing development.

ALUCs are not obligated to allow infill development when such development would otherwise be considered incompatible. Nevertheless, infill is a topic that should be discussed with local jurisdictions when ALUCP policies are being drafted.

ALUCs clearly can determine nonconforming infill uses to be inconsistent with their adopted ALUCP. However, local agencies are particularly likely to disagree with such determinations and potentially to overrule them. From a broader community planning perspective, creating

incompatibility with airport activities may be judged as less of a concern than causing incompatibility between adjacent land uses—for example, by placing commercial or industrial uses in the midst of a residential area.

As discussed in the next section, easement dedication and acoustical treatment of structures are particularly important factors with regard to infill and other conditionally compatible development.

In these circumstances, a pragmatic approach may be for ALUCs to allow infill in locations not highly critical to airport activities and require local plans to designate compatible uses in the most important areas closest to the runways. Criteria outlining the conditions qualifying a parcel for infill development should be established. These criteria should address such factors as:

The portions of the AIA within which infill is to be permitted (infill within the runway protection zone might be prohibited, for example):

- The maximum size of a parcel or parcels on which infill is to be allowed;
- The extent to which the site must be bounded by similar uses (and not extend the perimeter of incompatible uses);
- The density and/or intensity of development allowed relative to that of the surrounding uses and the otherwise applicable compatibility criteria; and
- Other applicable development conditions (such as easement dedication requirements or special structural noise level attenuation criteria) which must be met.

Mixed Use

As compatibility is typically expressed in terms of allowable land uses, and associated density/intensity, mixed use development may create some difficulties for ALUCs. Mixed use is often associated with urban infill, and therefore the issues discussed above will also be factors in considering proposed mixed use development. While mixed use may mean any combination of uses separated in traditional zoning (such as commercial and industrial), the most common application of mixed use is housing in combination with commercial development. ALUCPs typically describe the allowable level of such development differently (residential density versus non-residential intensity). One recommendation is to convert residential densities into intensity levels (persons per acre). Such conversion can be done using "persons per household" data from state and regional planning agencies, or to analyze the capacity of the housing unit (such as number of bedrooms).

The applicability of noise criteria may also be different for mixed use. While mixed-use residential development is typically "attached" and thus afforded a certain level of protection from higher noise levels, there is also an assumption that residents of urban mixed-use development will have more tolerance for higher noise levels.

Reconstruction

Reconstruction of existing nonconforming land uses destroyed by fire or other calamity can be treated in a manner similar to infill development. That is, areas where it is acceptable should be defined and appropriate conditions should be set. The conditions—such as limitations on the extent of destruction that can be rebuilt or time within which reconstruction must occur—could be based upon those followed by local agencies in their own plans and zoning. Policies also should indicate whether a reconstructed building must be limited to the same size and usage intensity as the original or can be slightly greater. Lastly, different policies on reconstruction may be appropriate for residential versus nonresidential land uses. Notably, state law allows for the reconstruction of multi-family dwellings involuntarily damaged or destroyed by fire or other catastrophic event (Government Code Section 65852.25). This right does not extend to situations where the health, safety, or general welfare of the neighborhood would be harmed (which could certainly be the case in certain airport compatibility zones).

4.6.2 Conditional Compatibility

Under certain circumstances—such as with infill development as discussed above—ALUCs may find that a proposed land use is potentially consistent, but only under certain conditions. Two important examples where such conditions may be required prior to implementation of a project are avigation easement dedication and acoustical treatment of structures.

Requirements for avigation easement dedication and acoustical treatment of structures often go hand in hand. If special acoustical treatment is warranted, an avigation easement for aircraft noise should also be dedicated. Similarly, if noise impacts are a primary reason for requiring avigation easement dedication, then an acoustical analysis to determine the need for special construction measures should be required.

Avigation Easement Dedication

As with any type of easement on real property, avigation easements convey certain enumerated property rights from the property owner to the holder of the easement. In this case, the easement holder is usually the airport owner. Easements continue in place as the underlying property is bought and sold (they "run with the land"). Moreover, their existence is documented during the title search conducted at the time of a property transfer. As commonly applied in the aviation industry, avigation easements convey the set of property rights listed in the sidebar below. Easements which establish only the first two of these rights, but do not restrict the height of objects, are often referred to as overflight easements.

Standard avigation easement provisions include the following:

- A right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above an imaginary surface specified in the easement (usually set in accordance with FAR Part 77 criteria).

- A right to subject the property to noise, vibration, fumes, dust, and fuel particle emissions associated with normal airport activity.

- A right to prohibit the erection or growth of any structure, tree, or other object that would enter the acquired airspace.
- A right-of-entry onto the property, with appropriate advance notice, for the purpose of removing, marking or lighting any structure or other object that enters the acquired airspace.
- A right to prohibit electrical interference, glare, misleading lights, visual impairments, and other hazards to aircraft flight from being created on the property.

A sample avigation easement is included in Appendix H.

Historically, many airports have acquired avigation easements—often by purchasing them—on property where noise impacts are substantial or where limitations on the height of structures and trees is essential to protection of runway approaches. Airports also have obtained easements as a condition for airport-financed installation of noise insulation in structures. These continue to be highly appropriate functions for avigation easements.

Many ALUCs have taken the concept a step further by requiring property owners to dedicate an avigation or overflight easement as a condition for obtaining ALUC approval for proposed development. In locations where high noise levels and/or the need for significant restrictions on the height of objects are present, avigation easement dedication requirements are generally warranted and desirable. However, ALUCs should exercise caution in adopting policies which make dedication of an avigation or overflight easement a condition for development approval in less impacted portions of the AIA. In locations where easements would serve primarily as a buyer awareness tool, other mechanisms, as discussed below, are usually more suitable.

No precise standards are available by which ALUCs can decide where avigation easement dedication is or is not appropriate. Nevertheless, useful guidance can be found in both statutory and case law.

California Airport Noise Regulations (California Code of Regulations, Section 5000 et seq.), for example, explicitly support avigation easements as an important land use compatibility tool, albeit under a narrowly defined set of circumstances. Specifically, the regulations deem new development of residential and certain other sensitive uses within the 65 dB CNEL contour of a noise problem airport to be incompatible unless the airport obtains an avigation easement for aircraft noise. Within this noise environment, an increase in incompatible uses without attached avigation easements for aircraft noise would be contrary to two of the fundamental purposes of ALUCs, those being "to promote the overall goals and objectives of the California airport noise standards… and to prevent the creation of new noise and safety problems" (PUC Section 21670(a)(1)).

Although the state regulations explicitly apply only to those few airports deemed to have a noise problem under the regulatory definition of the term, a similar approach is appropriate for ALUCs to adopt in their own policies. That is, wherever ALUC policies indicate that residential land uses are normally incompatible—whether the standard is 65 dB CNEL or a lower level—approval for such development should reasonably be conditioned upon the developer's dedication of an avigation easement for aircraft noise to the airport.

Another way to view the issue is to consider the circumstances under which the flight of an aircraft over private property—together with the noise and other impacts generated by that overflight—could be deemed a trespass on the land. If a trespass would take place, then an avigation easement should be obtained. Federal law on the limits of air navigation is not clearly delineated, however. Navigable airspace is defined as the airspace above the minimum altitudes of flight prescribed by federal regulations, including airspace needed to ensure safety in the takeoff and landing of aircraft (U.S. Code, Title 49, Section 40102). The best, although not very precise, summary of when an aircraft overflight would be a trespass is outlined in the Restatement of Torts, a document heavily relied upon by lawyers and judges as a synopsis of law. Section 159(2) reads:

> "Flight by aircraft in the airspace above land of another is trespass if, but only if, (a) it enters into the immediate reaches of the airspace next to the land, and (b) it interferes substantially with the other's use and enjoyment of his land."

Applying these rules, a requirement for dedication of an avigation easement may be reasonable where any of the following conditions exist:

- Aircraft are expected to be relatively low to the ground (such as where they are below traffic pattern altitude); or
- Zoning does not adequately restrict the heights of objects in the airport's environs; or
- Aircraft noise exceeds the level established as being of local significance.

Requirements for avigation easement dedication which go beyond these conditions risk being deemed inverse condemnation—a violation of the U.S. Constitution's prohibition on taking of private property for public use without just compensation. See Chapter 3 for a discussion on inverse condemnation.

Beyond these issues, two practical matters regarding avigation easement dedication need to be recognized. First is the fundamental fact that *avigation easements do not change the noise environment*. They are legal instruments which document that a property is subject to aircraft noise, as well as other impacts. Consequently, ALUCs should not use avigation easement dedication as a principal factor in determining whether a proposed land use is compatible with airport activity. *Unless no feasible alternatives exist, noise-sensitive land uses should be prohibited in high-noise locations regardless of whether an easement is dedicated*.

A second practical consideration is one which arises in more limited circumstances concerning privately owned and military airports. For private airports, the normal arrangement in which the airport owner is the holder of the easement means that a government entity is requiring a transfer of property rights from one private party to another. Even for privately owned airports which are public-use facilities, the legitimacy of this outcome is open to question. For military airports, the problem is more explicit: federal law prohibits federal acceptance of dedicated avigation easements. In both of these circumstances, an alternative which may be feasible is for the county or city in which the airport is situated to be the easement holder.

Acoustical Treatment of Structures

Another requirement which ALUCs should establish as a condition for development in special circumstances is acoustical treatment of structures. State law requires that "interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room" (California Building Code, Section 1207.11.2). The code applies this standard only to new hotels, motels, dormitories, apartment houses, and dwellings other than single-family residential. However, many local jurisdictions—usually as a policy in the noise element of their general plan—have extended the requirement to single-family residences. ALUCs should do likewise.

Any time an ALUC requires special acoustical treatment of a structure as a condition for development approval, dedication of an aviation easement for aircraft noise should also be required.

The code indicates that an acoustical analysis is necessary anywhere the annual CNEL exceeds 60 dB. However, given the normal noise level reduction provided by present-day construction standards, special measures are usually not necessary unless the noise level exceeds 65 dB CNEL.

CHAPTER 5
RESPONSIBILITIES OF LOCAL AGENCIES









Chapter 5

Responsibilities of Local Agencies

5.1 OVERVIEW

Effective airport land use compatibility planning is not and cannot be solely a function of airport land use commissions (ALUCs). Ideally, airport land use compatibility planning recognizes the objectives of the local municipal agency which has ultimate authority for land use planning and regulation, the airport operator which has responsibility for airport operations planning, and the ALUC which has statutory authority for preparation of airport land use compatibility plans (ALUCPs) and review of local land use plans and actions. Indeed, as outlined in Chapter 1 (pg. 1-2), state law specifically limits ALUC authority over various actions that directly affect compatibility. Much of the responsibility for airport land use compatibility clearly remains with local agencies whether in the role of controlling land use or operating an airport.

Topics in this chapter include:

- **Consistency of local plans and ordinances with ALUC plans;**
- **Submitting land use actions for ALUC review;**
- **Compatibility planning in counties that do not have an ALUC;**
- **Overruling an ALUC action;**
- **The role of airport proprietors in airport land use compatibility planning.**

Local agency responsibility for airport land use compatibility planning is particularly critical in counties that have chosen to utilize the designated agency. As indicated in Chapter 1, establishment of the designated agency in a county only eliminates the requirement for formation of an airport land use commission, not the obligation to plan for and achieve compatible land uses surrounding airports. The obligation for preparation, adoption, and implementation of an ALUCP remains and rests directly and more fully upon local jurisdictions when an ALUC does not exist than when it does.

5.2 LOCAL PLANS CONSISTENCY WITH ALUCP

5.2.1 Requirements

State statutes require that, once an airport land use commission has adopted or amended an ALUCP, general plans and any applicable specific plans be amended, as necessary, in order to be consistent with the ALUCP (Government Code [Gov. Code] Section 65302.3(a)-(b)). Alternatively, local agencies have the option of taking the special steps necessary to overrule all or part of the ALUCP (*id*. at (c)). If a local agency fails to take either action (i.e., amend local plans to be consistent with the ALUCP *or* overrule), then it is required to submit all land use development actions involving property within the airport influence area to the ALUC for review (Public Utilities Code [PUC] Section 21676.5(a)).

Counties, cities, special districts, school districts, and community college districts are collectively referred to in this Chapter as "local agencies." Additionally, all plans adopted or implemented by any of the referenced local agencies are collectively referred to in this Chapter as "local plans."

This section addresses the options available to local agencies when revising their plans to be consistent with the ALUCP. The latter two topics—requirements for overruling of the ALUC and submitting actions for ALUC review—are examined later in this chapter.

5.2.2 General Plan Review and Amendment Process

Two key facets of the process by which a local agency modifies its general plan and any specific plans for consistency with the ALUCP are important to highlight.

Preliminary Review by ALUC

In conjunction with an action to prepare or amend an ALUCP, ALUCs may conduct a preliminary review of affected local plans. The review should focus on identifying any obvious direct conflicts between the plans, to the extent feasible. Equally important to note are significant omissions from the local plans with respect to compatibility criteria and review procedures. These preliminary reviews are necessary when completing an initial study or environmental impact report during the CEQA process. With this information in hand, local agencies can better understand the implications of a proposed ALUCP with respect to their own plans. Furthermore, the preliminary review may enable local agencies to be more focused in their efforts to modify their plans. The process of making the necessary changes to general plans and specific plans can thus be eased.

It is important for all parties to recognize, however, that any such reviews are preliminary. Ultimately, the onus for revising a local plan to be consistent with an ALUCP plan rests with the local agency. And, local agencies still must go through the steps of submitting the specific policy language, maps, and other plan components to the ALUC for formal review and approval.

180-Day Time Limit

State law provides that a local agency must either modify its local plan(s) or to take the steps necessary to overrule the ALUC within 180 days of when an ALUC adopts or amends its ALUCP (Gov. Code Section 65302.3(b)-(c)). As a practical matter, this time limit can be difficult to accomplish. Unless the necessary changes to the local plan(s) are minor, the time required to draft, circulate, and adopt the modifications together with essential environmental review can easily exceed 180 days. This fact notwithstanding, it is incumbent upon local agencies to move forward as expeditiously as possible to meet the deadline.

The chief consequence of not meeting this deadline is that the ALUC can begin requiring—if it is not already doing so—that all of the jurisdiction's land use actions, regulations, and permits be submitted to the commission for review (PUC Section 21676.5(a)). This requirement can continue until such time as the local agency amends its plan(s) or overrules the ALUC, which may cost more time and money on the part of applicants and local jurisdictions.

5.2.3 Means of Achieving Consistency

Making a local plan consistent with the ALUCP involves more than elimination of direct conflicts. Other aspects of compatibility planning also must be addressed. In particular, local

agencies must establish procedures that implement and ensure compliance with compatibility policies. To do this, local plans and/or policies must:

- Delineate the compatibility criteria to be applied to individual development actions;
- Identify the mechanisms to be used to ensure that applicable compatibility criteria are incorporated into site specific development projects; and
- Indicate the procedures to be followed in review and approval of development actions affecting lands within the airport influence area, recognizing that certain types of land uses are not subject to discretionary approvals (but can be subject to appropriate ministerial development standards).

As widely applied in airport land use planning, "consistency" does not require being identical. It means only that the concepts, standards, physical characteristics, and resulting consequences of a proposed action must not conflict with the intent of the law or the ALUCP to which the comparison is being made.

An expanded list of the various factors to be considered by local agencies when modifying their plans and policies is included in Table 5A. This checklist is not necessarily all-encompassing. Depending upon the nature of the policies adopted by the ALUC, other factors may need to be addressed and some of those listed may not be applicable.

The primary purpose of the checklist provided in Table 5A is to assist local agencies with necessary modifications and additions to their plans and policies. The checklist is also designed to facilitate ALUC reviews of local plans. The list will need to be modified to reflect the policies of each individual ALUC and is not intended as a state requirement.

Local plans can be made consistent with an ALUCP through various methods. The method that is most suitable to a particular local agency depends in part upon the manner in which the ALUCP criteria and maps are formatted, but even more upon choices to be made by each individual local agency as to the structure of its planning programs, policies, development regulations and review processes. As discussed in Chapter 3 (pg. 3-42), some ALUCPs rely primarily upon composite, performance-type criteria, while others use list-oriented criteria. The first key decision to be made by each affected local agency is whether to fully incorporate compatibility criteria and procedures into their land use plans, ordinances, and regulations and thus mostly internalize the project review process or to defer review of major land use actions to the ALUC. Next, the local agency needs to decide whether to incorporate compatibility criteria into its plans and ordinances in the same format (e.g., performance criteria, prescriptive regulations, or mapping) as the airport land use plan, or to adapt the format of the airport plan's compatibility criteria to better fit with the format of the local agency's plans, ordinances, and development review processes.

TABLE 5A: GENERAL PLAN CONSISTENCY CHECKLIST

For additional guidance see:	COMPATIBILITY CRITERIA
This checklist is intended to assist local agencies with modifications necessary to make their local plans and other local policies consistent with the ALUCP. It is also designed to facilitate ALUC reviews of these local plans and policies. The list will need to be modified to reflect the policies of each individual ALUC and is not intended as a state requirement.	
	General Plan Document The following items typically appear directly in a general plan document. Amendment of the general plan will be required if there are any conflicts with the ALUCP
Page 6-17	• **Land Use Map**—No direct conflicts should exist between proposed new land uses indicated on a general plan land use map and the ALUC land use compatibility criteria. - Residential densities (dwelling units per acre) should not exceed the set limits. - Proposed nonresidential development needs to be assessed with respect to applicable intensity limits (see below). - No new land uses of a type listed as specifically prohibited should be shown within affected areas.
Pages 3-8	• **Noise Element—**General plan noise elements typically include criteria indicating the maximum noise exposure for which residential development is normally acceptable. This limit must be made consistent with the equivalent ALUCP criteria. Note, however, that a general plan may establish a different limit with respect to aviation-related noise than for noise from other sources (this may be appropriate in that aviation-related noise is sometimes judged to be more objectionable than other types of equally loud noises).
	Zoning or Other Policy Documents The following items need to be reflected either in the general plan or in a separate policy document such as a combining zone ordinance. If a separate policy document is adopted, modification of the general plan to achieve consistency with the ALUCP may not be required. Modifications would normally be needed only to eliminate any conflicting language which may be present and to make reference to the separate policy document.
Page 4-26, Appendix G	• **Intensity Limitations on Nonresidential Uses—**ALUCPs may establish limits on the usage intensities of commercial, industrial, and other nonresidential land uses. This can be done by duplication of the performance-oriented criteria—specifically, the number of people per acre—indicated in the ALUCP. Alternatively, ALUCs may create a detailed list of land uses which are allowable and/or not allowable within each compatibility zone. For certain land uses, such a list may need to include limits on building sizes, floor area ratios, habitable floors, and/or other design parameters which are equivalent to the usage intensity criteria.
Pages 3-11, 4-29, Figures 4B - G	• **Identification of Prohibited Uses**—ALUCPs may prohibit schools, day care centers, assisted living centers, hospitals, and other uses within a majority of an airport's influence area. The facilities often are permitted or conditionally permitted uses within many commercial or industrial land use designations.
Page 4-31	• **Open Land Requirements**—ALUCP requirements, if any, for assuring that a minimum amount of open land is preserved in the airport vicinity must be reflected in local policies. Normally, the locations which are intended to be maintained as open land would be identified on a map with the total acreage within each compatibility zone indicated. If some of the area included as open land is private property, then policies must be established which assure that the open land will continue to exist as the property develops. Policies specifying the required characteristics of eligible open land should also be established.
Page 3-56, 4-18, 4-42	• **Infill Development**—If an ALUCP contains infill policies and a jurisdiction wishes to take advantage of them, the lands that meet the qualifications must be shown on a map.
Pages 3-29, 4-35	• **Height Limitations and Other Hazards to Flight**—To protect the airport airspace, limitations must be set on the height of structures and other objects near airports. These limitations are to be based upon FAR Part 77. Restrictions also must be established on other land use characteristics which can cause hazards to flight (specifically, visual or electronic interference with navigation and uses which attract birds). Note that many jurisdictions have already adopted an airport-related hazard and height limit zoning ordinance which, if up to date, will satisfy this consistency requirement.

TABLE 5A: GENERAL PLAN CONSISTENCY CHECKLIST

For additional guidance see:	COMPATIBILITY CRITERIA
Pages 3-9, 4-14	• **Buyer Awareness Measures**—Besides disclosure rules already required by state law, as a condition for approval of development within certain compatibility zones, some ALUCPs require either dedication of an avigation easement to the airport proprietor or placement on deeds of a notice regarding airport impacts. If so, local agency policies must contain similar requirements.
Page 4-42	• **Nonconforming Uses and Reconstruction**—Local agency policies regarding nonconforming uses and reconstruction must be equivalent to or more restrictive than those in the ALUCP, if any.
	REVIEW PROCEDURES In addition to incorporation of ALUC compatibility criteria, local agency implementing documents must specify the manner in which development proposals will be reviewed for consistency with the compatibility criteria.
Page 6-1	• **Actions Always Required to be Submitted for ALUC Review**—PUC Section 21676 identifies the types of actions that must be submitted for airport land use commission review. Local policies should either list these actions or, at a minimum, note the local agency's intent to comply with the state statute.
Page 6-5	• **Other Land Use Actions Potentially Subject to ALUC Review**—In addition to the above actions, ALUCPs may identify certain major land use actions for which referral to the ALUC is dependent upon agreement between the local agency and ALUC. If the local agency fully complies with all of the items in this general plan consistency check list or has taken the necessary steps to overrule the ALUC, then referral of the additional actions is voluntary. On the other hand, a local agency may elect not to incorporate all of the necessary compatibility criteria and review procedures into its own policies. In this case, referral of major land use actions to the ALUC is mandatory. Local policies should indicate the local agency's intentions in this regard.
Pages 5-10, 6-13	• **Process for Compatibility Reviews by Local Agencies**—If a local agency chooses to submit only the mandatory actions for ALUC review, then it must establish a policy indicating the procedures which will be used to assure that airport compatibility criteria are addressed during review of other projects. Possibilities include: a standard review procedure checklist which includes reference to compatibility criteria; use of a geographic information system to identify all parcels within the airport influence area; etc.
Page 6-9	• **Variance Procedures**—Local procedures for granting of variances to the zoning ordinance must make certain that any such variances do not result in a conflict with the compatibility criteria. Any variance that involves issues of noise, safety, airspace protection, or overflight compatibility as addressed in the ALUCP must be referred to the ALUC for review.
Page 5-10	• **Enforcement**—Policies must be established to assure compliance with compatibility criteria during the lifetime of the development. Enforcement procedures are especially necessary with regard to limitations on usage intensities and the heights of trees. An airport combining district zoning ordinance is one means of implementing enforcement requirements.

Four general strategies for fully achieving consistency are outlined below.

- Incorporate policies into one or more existing general plan elements—One method of achieving the necessary planning consistency is to modify existing general plan elements. For example, (1) airport land use compatibility policies could be inserted into the land use element or (2) noise policies could be inserted into the noise element, safety policies could be placed into a safety element, and the primary compatibility criteria and associated maps plus the procedural policies might fit into the land use element. With this approach, direct conflicts would be eliminated and the majority of mechanisms and procedures to ensure compliance with compatibility criteria could be fully incorporated into a local agency's general plan.[1] The primary limitation with this approach is that ministerial development project approvals might not be specifically reviewed for consistency with the agency's General Plan, relying instead on the presumption that a ministerial project that meets the development standards set forth in its development code is consistent with the General Plan. Thus, using this approach needs to be followed up with ordinance requirements that would ensure implementation of applicable policies for ministerial development approvals.

> *Local agencies cannot simply ignore the need to respond to an ALUC's adoption of an ALUCP. If a local agency neither amends its plans as necessary nor overrules the ALUC, it must cooperate with any commission request that all or selected land use actions, regulations, and permits affecting the airport influence area be submitted for review.*

- Adopt a General Plan Airport Element—Another approach is to prepare a separate airport element of the general plan. Such a format may be advantageous when a community's general plan also needs to address on-airport development and operational issues. Modification of other plan elements to provide cross-referencing and eliminate conflicts would still be necessary.[2] As with incorporating airport compatibility policies into existing General Plan elements, care should be taken to ensure that the policies are applied to both discretionary and ministerial development reviews.
- Adopt ALUCP as Stand-Alone Document—Local agencies selecting this option could simply adopt as a local policy document the relevant portions of the ALUCP. Changes to the community's existing plan(s) would be minimal. Policy reference to the separate ALUCP document would need to be added and any direct land use or other conflicts with compatibility planning criteria would have to be removed from local plan(s). Limited discussion of compatibility planning issues could be included in the local plan(s), but the substance of most compatibility policies would appear only in the stand-alone ALUCP. The key to this method lies is ensuring that the provisions of the stand-alone document carry over to discretionary and ministerial development project approvals.
- Adopt Airport Combining District or Overlay Zoning Ordinance—Local agency adoption of an airport combining district or overlay zoning ordinance is a way to codify airport compatibility criteria identified only in concept in the local plan(s). Other than where direct conflicts need to be eliminated from the local plans, implementation of the compatibility policies would essentially be accomplished solely through the zoning ordinance. Policy reference to airport compatibility in the local plan(s) could be as simple as mentioning support for the airport land use commission and its ALUCP, stating that policy implementation is by means of the combining zone.

[1] This approach could equally apply to a specific plan, area plan, community plan or other similar land use planning document.

[2] This approach could equally apply to a specific plan, area plan, community plan or other similar land use planning document.

5.2.4 Land Use Compatibility Strategies

Beyond the issue of achieving mandated consistency between local plans and an ALUCP is the broader question of what local agencies can do to preserve and enhance compatibility between airport activities and the land uses around the airport. Several strategies are available to help attain this objective. If the local agency takes land use actions such as the ones discussed here, any inconsistencies between its local plan(s) and the ALUCP are likely to be few. These strategies also are appropriate for jurisdictions in counties using the alternative compatibility planning process.

If airport land use compatibility objectives are to be obtained, local agencies must take direct actions such as those described here.

Land Use Designations

If compatibility between an airport and its surroundings is to be achieved, designation of appropriate land uses in local plans is essential. This is particularly true in developing areas—good planning today can avoid significant conflicts later. The value of designating compatible land uses in built-up areas should not be overlooked, however. Appropriate designations can serve to identify already incompatible uses as nonconforming and thus limit the potential for expansion or modification of the uses to worsen the incompatibility. Designating compatible uses also can facilitate redevelopment and economic development activities and encourage eventual change of currently incompatible uses to ones that are better suited to the environs of an airport.

Overlay Zones or Combining Districts

For purposes of airport land use compatibility planning, land use plan and zoning designations as commonly adopted by local agencies have a notable shortcoming. Specifically, such plans and designations are generally intended to identify types of permitted land use and development intensities in terms of numbers of units or building area, as well as set general purpose development standards. Seldom do such plans and designations have an aviation orientation or address the specific issue of compatibility with aviation activities (i.e., noise and safety). The Table 5A checklist of factors is essential to making a local plan consistent with an ALUCP and highlights many of the reasons why consistency is seldom achieved without explicit consideration of aviation issues.

One way local agencies can address the need for an aviation orientation in basic land use designations within airport influence areas is to adopt an airport compatibility overlay zone or combining district ordinance. A combining district can supplement local land use designations by adding specific noise and, often more importantly, safety criteria (e.g., maximum number of people permitted on the site, site design and open space criteria, height restrictions, etc.) applicable to future development in the airport vicinity. Project review procedures and other implementation mechanisms specific to airport area development proposals can also be defined. Geographically, the combining district should cover at least the entire airport influence area as defined by the ALUC in its ALUCP.

Possible components of an airport compatibility combining zoning ordinance are listed in Table 5B. The compatibility concerns which form the basis for these components are described as well.

An airport overlay zoning ordinance has several important benefits. Most importantly, it permits the continued utilization of the majority of the design and use guidelines contained in the existing local plan and zoning ordinance. At the same time, it provides a mechanism for implementation of airport area related restrictions and conditions that may apply to only a few types of land uses within a given land use category or zoning district. This avoids the need for a large number of discrete zoning districts. It also enables local plans to attain consistency with an ALUCP through reference to basic compatibility criteria rather than through redefinition of existing land use designations.

Buyer Awareness Measures

Buyer awareness measures serve to alert prospective airport vicinity residents about the airport and its impacts. Three basic forms of buyer awareness measures are most common in airport land use compatibility practice:

- Recorded deed notices;
- Real estate disclosure statements; and
- Avigation easements (not recommended if intended *only* as a buyer awareness measure).

While ALUCs may define policies establishing how and where each of these measures should be used, the effectiveness of each is enhanced by actions that local agencies can take. Chapter 3 contains a discussion of the applicability of each of these measures to accomplishment of airport land use compatibility planning objectives.

5.3 SUBMITTING PROJECTS FOR REVIEW

5.3.1 Reviews by Airport Land Use Commissions

In counties where an ALUC exists, the obligations of local agencies with regard to submitting land use projects and other actions for the commission's review are well defined in state law. If local agencies choose to ignore the legal requirement for such review, ALUCs can initiate the review process on their own and seek a writ of mandate to force the local agency to provide the necessary project information.

Note that local agencies that also are airport proprietors are obligated to submit certain airport plans for ALUC review.

The types of land use projects to be submitted depend upon:

- Whether an ALUCP has been adopted by the ALUC;
- What action the local agency has taken with regard to making its local plan(s) consistent with the ALUCP;
- Whether the project requires an amendment to the local plan; and
- Whether voluntary agreements for the review of projects have been established.

TABLE 5B: POSSIBLE AIRPORT COMBINING ZONE COMPONENTS

An airport compatibility combining zoning ordinance might include some or all of the following components:

Airspace Protection—A combining district can establish restrictions on the height of buildings, antennas, trees, and other objects as necessary to protect the airspace needed for operation of the airport. These restrictions should be based upon the current version of FAR Part 77, Objects Affecting Navigable Airspace, Subpart C. Additions or adjustment to take into account TERPS surfaces should be made as necessary. Provisions prohibiting smoke, glare, bird attractions, and other hazards to flight should also be included.

FAA Notification Requirements—Combining districts also can be used to ensure that project developers are informed about the need for compliance with the notification requirements of FAR Part 77. Subpart B of the regulations requires that the proponent of any project which exceeds a specified set of height criteria submit a Notice of Proposed Construction or Alteration (Form 7460-1) to the Federal Aviation Administration prior to commencement of construction. The height criteria associated with this notification requirement are lower than those spelled out in FAR Part 77, Subpart C, which define airspace obstructions. The purpose of the notification is to determine if the proposed construction would constitute a potential hazard or obstruction to flight. Notification is not required for proposed structures that would be shielded by existing structures or by natural terrain of equal or greater height, where it is obvious that the proposal would not adversely affect air safety.

State Regulation of Obstructions—State law prohibits anyone from constructing or altering a structure or permitting an object of natural growth to exceed the heights established by FAR Part 77, Subpart C, unless the FAA has determined the object would not or does not constitute a hazard to air navigation (PUC Section 21658 and 21659).

Designation of High Noise-Impact Areas—California state statutes require that multi-family residential structures in high-noise exposure areas be constructed so as to limit the interior noise to a Community Noise Equivalent Level of no more than 45 dB. A combining district could be used to indicate the locations where special construction techniques may be necessary in order to ensure compliance with this requirement. The combining district also could extend this criterion to single-family dwellings.

Maximum Densities/Intensities—Airport noise and safety compatibility criteria are frequently expressed in terms of dwelling units per acre for residential uses and people per acre for other land uses. While general plans typically use these measures of maximum density/intensity for land uses, zoning ordinances generally use minimum lot sizes and setbacks, along with building height restrictions. These standards often supplement, but do not translate directly into general plan density/intensity standards. Incorporation of airport area-related density/intensity standards measured in the same manner as a General Plan can either be directly included in a combining zone or used to modify the underlying land use designations. For residential land uses, the correlation between the compatibility criteria and land use designations is direct. For other land uses, the method of calculating the intensity limitations needs to be defined. Alternatively, a matrix can be established indicating whether each specific type of land use is compatible with each compatibility zone. To be useful, the land use categories need to be more detailed than typically provided by general plan or zoning ordinance land use designations.

Open Areas for Emergency Landing of Aircraft—In most circumstances in which an accident involving a small aircraft occurs near an airport, the aircraft is under control as it descends. When forced to make an off-airport emergency landing, pilots will usually attempt to do so in the most open area readily available. To enhance safety both for people on the ground and the occupants of aircraft, ALUCPs often contain criteria requiring a certain amount of open land near airports. These criteria are most effectively carried out by planning at the general or specific plan level, but may also need to be included in a combining district so that they will be applied to development of large parcels. Adequate open areas can often be provided by clustering of development on adjacent land.

Areas of Special Compatibility Concern—A significant drawback of standard general plan and zoning ordinance land use designations is that they can be changed. Uses that are currently compatible are not assured of staying that way in the future. Designation of areas of special compatibility concern would serve as a reminder that airport impacts should be carefully considered in any decision to change the existing land use designation. [A legal consideration that supports the value of this concept is that down-zoning of a property to a less intensive use is becoming more difficult. It is much better not to have inappropriately up-zoned the property in the first place.]

Real Estate Disclosure Policies—The geographic extent and specific language of recommended real estate disclosure statements can be described in an airport combining zone ordinance (Business and Professions Code Section 11010(a) and (b)(13) and Civil Code, Sections 1102.6, 1103.4, and 1353).

The requirements for project review can be summarized as follows:

> *Any environmental documents prepared in conjunction with these actions affecting lands inside the AIA also should be provided to the ALUC during public review periods and submitted concurrent with submittal of the project for ALUC review.*

- Local Plans, including General Plans and Specific Plans—As discussed in the preceding chapter, local agencies must refer any proposal to adopt or amend a local plan to the ALUC for review if the proposal involves land within an airport influence area defined by the ALUC (PUC Section 21676(b)). This requirement applies regardless of whether the proposal has community-wide applicability or affects only a single parcel (unless the parcel is not in the airport influence area). It also applies both to actions initiated by the local agency or a property owner or other applicant, and to amendments proposed for the purpose of making a local plan consistent with an ALUCP.

- Ordinances and Regulations—Proposed zoning ordinances and building regulations also must be submitted for ALUC review before being acted upon by the local agency if they affect the compatibility of land uses located within an airport influence area (PUC Section 21676(b)).

> *For example, proposed ordinances or regulations involving allowable land uses, densities, building heights, or sound insulation must be submitted for ALUC review. Other matters that clearly do not have airport land use implications need not be submitted.*

- Individual Development Projects—Once an ALUC has adopted an ALUCP, requirements for local agencies to submit individual development proposals for review depends upon whether the local agency either has made its plans consistent with the ALUCP or overruled the commission. Prior to when the local agency takes a consistency or overruling action, all individual development projects must be submitted for review (PUC Section 21676.5(a)). This requirement includes referral of actions that are ministerial unless the ALUC has indicated it does not want to receive them (see discussion in Chapter 6). Referral of all project proposals also continues to be mandatory if the local agency has opted not to fully incorporate essential compatibility criteria and procedures into local plans and policies, but has only eliminated the direct conflicts with the ALUCP.

  Submittal of individual development projects becomes voluntary only when: (1) the local plans have been made fully consistent with the ALUC's plan or the local agency has overruled the ALUC; and (2) the action does not involve a general plan, specific plan, or zoning amendment previously reviewed by the ALUC. Even in these circumstances, however, local agencies are encouraged to form an agreement with the airport land use commission for review of major land use development project proposals—those which could have airport land use compatibility implications. A factor to be borne in mind with voluntary project-review agreements is that the ALUC's review is advisory only; the overrule procedures, which must be followed with respect to mandatory reviews, are not in effect.

- Airport Plans—Proposed airport master plans, expansion of an existing airport, and plans for construction of a new airport (or heliport) must be submitted to the ALUC for review in accordance with PUC Sections 21676(c), 21664.5, and 21661.5, respectively. This referral

requirement is independent of whether the ALUC has previously adopted an ALUCP or the local agency has taken action with regard to the consistency of its local plan(s).

A project requiring ALUC review must be submitted to the ALUC prior to approval by the local agency. Though the State Aeronautics Act does not specify when in the planning process this should occur, agencies should, at a minimum, submit projects 60 days prior to approval in order to allow the fully allotted amount of time for ALUC review (PUC Section 21675.2(a)).

5.3.2 Reviews by other Agencies

In addition to being reviewed by the airport land use commission, certain airport-vicinity development actions also must be submitted to other agencies for review. Local agencies should be aware of the extent to which these review requirements apply within their jurisdictions and inform project proponents accordingly.

Federal Aviation Administration

The FAA's involvement in the review of local projects derives both from its authority over navigable airspace and its function as a funding agency for airport planning studies and airport improvement projects.

- Aeronautical Studies—FAR Part 77 requires that anyone proposing to construct an object that could affect the navigable airspace submit information about the proposed construction to the FAA. The FAA then conducts an aeronautical study, the outcome of which is a determination as to whether the object would be a potential hazard to air navigation. If the proposed object is concluded to pose a hazard, the FAA may object to its construction, examine possible revisions of the proposal to eliminate the problem, require that the object be appropriately marked and lighted as an airspace obstruction, and/or initiate changes to the aircraft flight procedures for the airport so as to account for the object.

  The FAA's review does not consider the type of land use involved. Neither does the FAA approve or disapprove the proposal; it merely evaluates and recommends.

- Airport Improvement Program Grants—Through its Airport Improvement Program (AIP) grants, the FAA currently funds a vast majority of the cost of most planning studies and eligible improvement projects at airports in California. As a condition for receipt of a grant, an airport project sponsor must assure the FAA that it will take appropriate actions to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. The FAA also reviews airport layout plans and plans for federally funded construction to ensure compliance with Federal Aviation Regulations and airport design standards.

California Department of Transportation

Through its Division of Aeronautics, the California Department of Transportation has review and, in certain cases, permitting authority with respect to several types of airport and airport-related land use actions. These include:

- Airport Permits—The Department of Transportation has authority under the State Aeronautics Act to issue permits for the approval of airport sites and the operation of airports (Section 21662). Moreover, other than for a few limited exceptions (a personal-use facility, for example), it is unlawful for any political subdivision or any person to operate an airport unless the airport has a valid state permit (Section 21663). The law spells out the conditions for issuance or amendment of an airport permit.

- Regulation of Obstructions—A state permit is also required for construction of objects that would affect the navigable airspace. These objects include:

  - Any structure taller than 500 feet above ground level, unless the height of the structure is required to be approved by the Federal Communications Commission or the Federal Aviation Administration (Section 21656).
  - Any structure or object of natural growth which would exceed the height limits specified in FAR Part 77, Subpart C, unless the FAA has determined that the object's construction, alteration, or growth would not constitute a hazard to air navigation or otherwise create conditions unsafe for air navigation (Sections 21658-21659).

- School Site Reviews—Two sections of the Education Code (17215 and 81033) require that the Department of Transportation investigate and make recommendations regarding acquisition of property for school and community college sites near airports. Specifically, before a district can acquire property for a school or community college site that would be within two miles of an airport runway or potential runway included in an airport master plan, the Department must investigate and submit a report of its findings regarding that acquisition. This requirement also applies to additions to an existing site. The primary factors considered in the analysis of a site by the Department's Division of Aeronautics are aircraft accident exposure and aircraft noise. Division staff will review the ALUCP, if one exists, and will ask for comments from the appropriate ALUC as a part of its investigation. Input from an ALUC and compatibility criteria established in an adopted plan weigh heavily in the Department's final report and recommendation about the suitability of the proposed acquisition for use as a school or community college.

- State Building Site Reviews—A review process similar to that for school sites is established by a section of the State Aeronautics Act (PUC Section 21655). This section requires that the Department of Transportation be notified of any state agency proposal to acquire a site for a state building (including state courthouses) if such site is within two miles of an airport runway. The Division of Aeronautics then investigates the site and reports its recommendations to the agency.

- California Environmental Quality Act (CEQA) Reviews—Another avenue through which the Division of Aeronautics becomes involved in local projects is through CEQA. As a responsible agency having permitting authority for airports, the Division of Aeronautics reviews and comments upon environmental impact documents prepared for airport master plans and airport improvement projects. The Division of Aeronautics also frequently comments upon e nvironmental documents associated with local general plans, specific plans, and individual development projects near airports.

Legislation enacted in 1994 requires lead agencies to use the Airport Land Use Planning Handbook as a "technical resource" when assessing the airport-related noise and safety impacts of projects in the vicinity of airports (Public Resources Code Section 21096).

Regional Planning Agencies

Some single- or multi-county regional planning agencies in the state have responsibilities for reviewing grant applications and setting regional priorities for the use of federal and state grant funds. These agencies also frequently review and comment upon a irport master plans and environmental documents for airport plans and improvements.

Airport Proprietors

No state laws require the participation of airport proprietors in the review of proposed land use development in the airport vicinity. These agencies are nevertheless often the most knowledgeable about the effects that nearby development would have upon the operation of their airports.

Proponents of major development projects and the local agencies that have land use jurisdiction over airport environs are urged to seek the input of airport management when preparing local plans and evaluating development proposals.

5.4 COMPATIBILITY PLANNING IN COUNTIES WITHOUT ALUCS

5.4.1 Requirements

As a result of either a special exemption or through establishment of a designated agency (alternative process), several counties in the state do not have an airport land use commission. As emphasized in Chapter 1, however, the lack of an ALUC does not eliminate, but increases the responsibilities of local agencies to engage in airport land use compatibility planning. The obligations of local agencies in a county without an ALUC extend both to preparation of ALUCPs and to the subsequent review of individual development proposals.

In accordance with state law (PUC Section 21670.1(c)(2)), establishment of this formation choice in a county requires the county and "the appropriate affected cities having jurisdiction over an airport" to designate an agency and adopt processes which provide for:

- Preparation, adoption, and amendment of an ALUCP for each public-use airport in the county and designation of an agency responsible for these actions;
- Public and agency notification regarding ALUCP preparation, adoption, or amendment;
- Mediation of disputes regarding preparation, adoption, or amendment of ALUCPs;
- Amendment of general plans and specific plans to be consistent with the ALUCPs.

Under the law, the Division of Aeronautics has the responsibility for reviewing and approving the processes by which a county and each affected city in the county establish and implement compatibility planning under the designated agency. To be acceptable, the process must, at a minimum, address all of the topics associated with making local plans consistent with an ALUCP.

5.4.2 Compatibility Policies

Jurisdictions within counties without ALUCs (other than counties that are exempt) still must adopt ALUCPs or policies for the portion of any public-use airport's environs which lies within their borders. Compatibility planning for airports not open to the general public is not required. Compatibility policies can be adopted as separate documents equivalent to ones adopted by ALUCs. Alternatively, compatibility planning policies can be folded into the general plan or other local policy documents as outlined earlier in this chapter with respect to making a general plan consistent with an ALUCP.

> *Irrespective of requirements of the State Aeronautics Act, state general plan requirements for noise and safety elements arguably require some level of airport compatibility planning by counties and cities through requirements for addressing noise compatible land use relationships and addressing hazard issues. The requirements for the noise element specifically identify airport operations and aircraft overflight (Gov. Code Section 65302(f)(4)).*

Whichever option is chosen, the same concerns as would be found in an ALUCP adopted by an ALUC must be explicitly addressed. Compatibility criteria must be established and any internal conflicts between the criteria and land use designations or other elements of the local plan(s) must be resolved.

5.4.3 Project Reviews

In addition to adoption of compatibility criteria and designation of appropriate land uses for the environs of each airport, jurisdictions in counties without ALUCs must adopt project review procedures and mechanisms necessary for ensuring compliance with the compatibility criteria. Specific attention should be given to the following:

- Special Review Process—Proposals for major land use development within the airport influence area should specifically be reviewed for consistency with the airport land use compatibility criteria. A list of the types of projects subject to this review should be established. When action on the proposal involves discretionary approval by the local agency, specific findings should be made that either (1) the proposal is consistent with the compatibility criteria or (2) other overriding land use factors are of higher priority to the community.

- Interagency Communication and Cooperation—Among the functions provided by ALUCs, a particularly important one is to facilitate coordination of planning between agencies having land use jurisdiction around airports and agencies which own and operate the airports. This function still needs to be accomplished when an ALUC does not exist. Formal interagency agreements should be established between the affected entities for each airport. These agreements should refer to the ALUCP and the project review process, as well as to any adopted airport plans. Information on land use development in the vicinity of an airport should be provided to the agency (or private party) owning the airport for review and comment. Also, airport operators should consult with surrounding jurisdictions prior to making changes in airport development or operation which could affect surrounding land. Methods for resolving conflicts also must be identified.

5.5 OVERRULING ALUC DECISIONS

5.5.1 Procedure

Various sections of the airport land use commission statutes provide for local agencies to overrule ALUC decisions on land use matters and airport master plans. The overruling process involves four mandatory steps:

The State Aeronautics Act primarily refers to the term "overrule," although "override" is used in some sections. In common practice, the two terms are often used interchangeably. The critical point is that any local agency overruling of an ALUC must include the four steps listed here.

- At least 45 days prior to any decision to overrule the commission, the local agency must provide the local ALUC and the Division a copy of the proposed decision and findings;[3]
- The holding of a public hearing (except when an ALUC disapproves a local agency action prior to having adopted an ALUCP);
- The making of specific findings that the action proposed is consistent with the State Aeronautics Act;
- Approval of the proposed action by a two-thirds vote of the agency's governing body.

Note that a 1992 opinion of the State Attorney General concluded that a two-thirds vote of the entire membership of a city council or board of supervisors is not necessary for an overruling; a two-thirds vote of the members constituting a quorum is sufficient.

Two particular aspects of the overruling process warrant further examination. One is the issue of what constitutes valid findings under the provisions of the law. The other involves the subsequent implications of an overruling action.

5.5.2 Findings

A requirement for a local agency to make specific findings in conjunction with a decision to overrule an airport land use commission determination is included in several sections of the ALUC statutes. In each case, the law provides that the findings must show that the proposed local agency action "is consistent with the purposes of this article stated in Section 21670." A local agency cannot simply overrule an ALUC determination without first documenting the basis for the overruling action and relating that basis directly to the purposes for which the ALUC statutes were adopted. The purpose of findings is to assure compliance with state law.

[3] The local ALUC and Division of Aeronautics may provide comments in response within 30 days of receiving the proposed decision and findings. Any comments, while advisory, shall be included by the local agency in the public record of any final decision. However, if the local ALUC or Division of Aeronautics' comments are not available within 30-days time, the local agency may act without them. (PUC Section 21676.)

Requirements for a government entity to make findings of fact when taking certain actions appear in many parts of state law. Also, numerous court cases have dealt with the issues of findings and their adoption. The most important case regarding the use of findings in local land use decisions was *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506. In its ruling on this case, the court defined findings, explained their purposes, and outlined when findings are needed in making local land use decisions.

Findings were defined in the decision as legally relevant conclusions that explain the decision-making agency's method of analyzing facts, regulations, and policies and the rationale for making the decisions based on the facts involved. In other words, findings provide the connection between the evidence in the record, and the decision reached. The *Topanga* court also outlined five purposes for making findings. Findings should:

- Provide a framework for making principled decisions, enhancing the integrity of the administrative process;
- Help make analysis orderly and reduce the likelihood that the agency will randomly leap from evidence to the conclusions;
- Enable the parties to determine whether and on what basis they may seek judicial review and remedy;
- Apprise a reviewing court of the basis for the agency's action; and
- Serve a public relations function by helping to persuade the parties that administrative decision making is careful, reasoned, and equitable.

The necessity for adequate findings to accompany a local agency's overrule of an ALUC was affirmed in a 1992 court case, *California Aviation Council v. City of Ceres* (1992) 9 Cal.App.4th 1384. In this case the court found that the city council had merely referred to the ALUC statutes and then concluded that the proposed land uses minimized public exposure to excessive noise and safety hazards in the airport area. The findings did not document the critical links between the facts surrounding the proposal the relevant policies, and the decision.

In contrast, an unpublished decision[4] of California's Third District Court of Appeal, in the case of *California Pilots Association v. County of Butte* (2003 WL 1871085), held that sufficient evidence supported the county's findings in support of its decision to overrule the ALUC. When affirming that the county's findings were adequate under Public Utilities Code section 21676 (b), the court stated:

> "The Board's findings were sufficient to explicate that the proposal was consistent with the purposes stated in section 21670. The Board issued 10 pages of detailed findings, divided into four areas of concern related to land use near public airports: safety, overflight, noise, and airspace protection. The findings demonstrated that noise and safety hazards affecting the development were

[4] While This decision in not published and, therefore, cannot be relied upon by a court or a party in any other action, the decision does provide useful insight on the factors that may be considered by courts in reviewing the adequacy of overrule findings. (See Cal. Rules of Court, rules 8.1105, 8.1110 and 8.1115.)

> minimal or had been mitigated by a development agreement with the property owners.
>
> The findings also were supported by substantial evidence. Each finding referred to relevant data, information, and guidelines, much of it taken from two sources prepared by professionals with expertise in airport land use planning: a state-published airport planning handbook and a federally-financed noise plan for the Chico Airport."

The *California Pilots Association* decision confirms the rule of law established by past precedent (e.g., the *California Aviation Council* decision), namely, that to overrule the ALUC, findings should be based on substantial evidence in the public record that the proposed project is consistent with the overall goal of the State Aeronautics Act to minimize incompatible land uses within the vicinity of airports. In order to demonstrate such consistency, the local planning jurisdiction should explicitly delineate the basis for its determination that the proposed project does not impact the public health, welfare and safety or airport operations.

Perhaps most basic in preparing appropriate findings is that *findings must be substantive*, not just bare conclusions or recitations of the law: Generally, findings must explain the reasoning behind conclusions and provide a bridge between raw data and ultimate conclusion and decision.

Findings must demonstrate that the proposed action "is consistent with the purposes…" of the statutes as set forth in the State Aeronautics Act (Section 21670). Examination of Section 21670(a) indicates that five separate purposes for the legislation are state:

"…to provide for the orderly development of each public use airport in this state…"

"…to provide for the orderly development of…the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards…"

"…to provide for the orderly development of…the area surrounding these airports so as…to prevent the creation of new noise and safety problems."

"…to protect the public health, safety, and welfare by ensuring the orderly expansion of airports…"

"…to protect the public health, safety, and welfare by…the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

5.5.3 Notifying an ALUC of an Action to Overrule

In 2003, Assembly Bill (AB) 332 was enacted amending those sections of the Public Utilities Code -- specifically Sections 21676, 21676.5 and 21677 -- dealing with the authority of local agencies to overrule ALUCs. The digest for the legislation provides, in part:

> "The bill would require the local or public agency governing body to provide the [ALUC] and the division [i.e., the California Department of Transportation, Division of Aeronautics; Caltrans] with the proposed decision and findings at

> least 45 days prior to the decision to overrule the [ALUC] and would authorize the [ALUC] or [Caltrans] to make advisory comments within 30 days of receiving the proposed decision and findings. The bill would require that the advisory comments from the [ALUC] or [Caltrans] be included in the final record of any final decision to overrule the [ALUC]."

As indicated above, AB 332 imposed new notification and recordkeeping requirements on local agencies. Specifically, local agencies are now required to:

- Provide the local ALUC and Division of Aeronautics with a copy of the proposed decision and findings at least 45 days in advance of any overrule decision; and
- Include any comments from the local ALUC and Division of Aeronautics in the final record of decision.

AB 332 also imposed new requirements on local ALUCs and Division of Aeronautics; specifically, these agencies may provide comments on any proposed overrule decision and findings within 30 days of receiving such documents from a local planning jurisdiction. If the local ALUC and Division of Aeronautics fail to act within that time frame, the local agency may proceed.

5.5.4 Implications of Local Agency Overruling an ALUC

The state law indicates several implications of a local agency's decision to overrule an ALUC determination:

- Action Approved—The most obvious outcome of a local agency's overruling is that the proposed action—approval of a plan, ordinance, project, or whatever—takes effect just as if the ALUC had approved it or found it consistent with the ALUCP.
- Subsequent Reviews—If a local agency adopts or amends a local plan for the airport area by overruling the ALUC, then subsequent ALUC review of individual development projects related to that overruling become voluntary (PUC Section 21676.5(b)).
- Airport Proprietor's Immunity—Two sections of the law establish that, if a local agency overrules an airport land use commission with respect to a publicly owned airport not operated by that local agency, the agency operating the airport "shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to override the commission's action or recommendation" (PUC Sections 21678 and, with slightly different wording, 21675.1(f)). The law does not indicate who will become liable under these circumstances.

5.6 ROLE OF AIRPORT PROPRIETORS

5.6.1 Introduction

Apart from their obligation to submit airport master plans, construction plans of new airports, and plans for airport expansion (when an amended airport permit is required) for airport land use commission review, airport proprietors also have a more basic role in airport land use compatibility matters. There are three facets to this role. One arises because of the relationship between the airport proprietor's actions and the substance of the ALUCP. A second is the

airport proprietor's direct responsibility for fostering compatibility between the airport and its environs. Lastly, airport proprietors have a community relations role which can have implications on land use compatibility issues.

5.6.2 Influence on ALUCP

By law, an airport land use commission cannot establish policies governing the operation of any airport. Nevertheless, because an ALUCP for an airport must be based upon the long-range plans for that airport, the manner in which the airport is or will be constructed and operated clearly has a major bearing on the ALUCP. The airport's ability to affect the location and magnitude of airport impacts can make development compatible in places where it would otherwise not be acceptable or to make existing or planned land uses that are compatible with airport operations no longer compatible.

Some examples of this relationship are obvious. The configuration and length of the existing and proposed airport runways is a major determinant of noise and safety compatibility zone locations. Other influences on the ALUCP are usually more subtle and may or may not be taken into account in the ALUC's formulation of the ALUCP. For example, one airport operational procedure that can have an important influence on an ALUCP is the location of traffic patterns. If a traffic pattern exists only on one side of a runway, whether for compatibility purposes or other reasons, fewer restrictions on land uses may be necessary on the non-traffic pattern side.

5.6.3 Actions to Enhance Land Use Compatibility

Most airport proprietors understand that they too have a responsibility for promoting airport land use compatibility. They cannot rely solely upon actions taken by the airport land use commission or the agency having jurisdiction over local land uses, nor should they undertake actions significantly affecting the compatibility of existing and future land uses surrounding the airport without consulting with the affected land use agency. In locations where the need for compatible land uses is particularly critical, airports should take direct action to prevent or mitigate problems.

Airports need direct control over lands critical to airport operations because of the limitations of land use planning and zoning measures for airport land use compatibility purposes. As essential as the designation of appropriate land uses is to airport land use compatibility, reliance on the normal form of these documents does not provide adequate long-term compatibility assurance. Among the important limitations which need to be recognized are:

- Ease of Change—Nothing permanently locks in a land use designation. Future local legislative bodies can change the established designations— by overruling the ALUC, if necessary. Such changes especially can occur if the land changes jurisdiction (e.g., as a result of annexation).

- Restrictiveness—Land use designations are limited as to how restrictive they can be. If they are deemed to eliminate all reasonable economic use of private property, they can be considered an unfair taking and result in inverse condemnation. Especially in areas near ends of runways, the restrictions may need to be more extensive or demanding than can be accomplished by land use designations.

- Not Retroactive—Designating an area for a different use than the one already existing may encourage change over the long run, but it does not directly eliminate existing incompatible uses[5]. The authority of the ALUCP addresses new development, not existing uses.

Given these limitations of land use planning and zoning measures, the only certain means available to airport proprietors for protecting against incompatible development in the airport vicinity is to directly control the property most critical to compatibility. In most instances, this means acquiring the property. The acquisition can be outright, fee simple title acquisition or the acquisition of an easement granting specified rights to the airport.

> *Among the assurances that an airport proprietor must give to the FAA before receiving a project grant is to take appropriate action to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations. When the agency owning the airport also has jurisdiction over surrounding land uses, zoning may suffice, especially for lands outside the runway protection zones. However, when the jurisdictions are different or where unprotected land is within a runway protection zone, direct acquisition may be the only effective means of carrying out the grant assurances.*

From the airport's perspective, the chief advantage of property acquisition is to provide long-term assurance of land use compatibility. If the airport owns the property or an easement, maintenance of compatibility is not dependent upon the success of ALUC actions or the understanding and cooperation of the local agency having land use powers. There are also disadvantages, however; cost being the major one.

Airport property ownership is most critical for the runway protection zones. These areas immediately beyond the runway ends should be clear of structures and be used only for agricultural or other low-intensity use. Airport land use commissions are limited as to how far they can go to restrict land uses without the restriction being legally deemed to be a taking. The zoning authority of local agencies is similarly constrained.

In noise- and/or safety-impacted locations beyond the runway protection zones, property or easement acquisition may also be the only effective means of land use control. This can be particularly true in situations where the local government having authority over land uses is not the same one that owns the airport. In such cases, the interests and objectives of the land use jurisdiction often differ from those of the airport agency.

[5] While some local agencies maintain provisions to "amortize" and eventually remove non-compatible uses, such provisions generally provide for a several year amortization period during which the use may remain.

CHAPTER 6
ALUC REVIEW OF LOCAL ACTIONS









Chapter 6

ALUC Review of Local Actions

6.1 OVERVIEW

Review of local jurisdictions' land use plans and airport plans, and certain other land use projects and actions, is one of the two specific duties of airport land use commissions (ALUCs), preparation of airport land use compatibility plans (ALUCPs) being the other. The process that should be followed by the ALUC in this review depends upon three factors: (1) the type of local action involved; (2) whether the ALUC has adopted an ALUCP; and (3) what action, if any, the local jurisdiction has taken with respect to making its local planning policies consistent with the ALUCP.

This chapter examines:

- **Types of local actions subject to ALUC review;**
- **Process for compatibility reviews;**
- **Compatibility factors considered in the reviews; and**
- **Judicial remedies.**

6.2 ALUC REVIEW REQUIREMENTS

6.2.1 Introduction

One of the fundamental responsibilities assigned to ALUCs by the State Aeronautics Act (SAA) is to review particular types of local actions for compliance with the criteria and policies set forth in the commissions' adopted ALUCPs (Public Utilities [PUC] Section 21674 (d).) The question of how an ALUC should evaluate the consistency of local actions with compatibility criteria and policies is examined later in this chapter.

The law specifies that local jurisdictions must refer certain actions to the ALUC for review. Land use actions in this category include the proposed adoption or amendment of general plans, specific plans, zoning ordinances, and building regulations affecting land within an airport influence area. Several types of airport development plans also must be submitted for ALUC review. Referral of other local actions—primarily individual development projects—is required in some instances, but voluntary in others. The following discussion outlines the ALUC review requirements and options for each of these action types.

6.2.2 Actions for which ALUC Review is Mandatory

General Plans and Specific Plans

Any proposal by a county or city to adopt a general plan and/or specific plan (collectively, local plan) must be referred to the ALUC for review if the boundaries of the local plan encompasses lands within an airport influence area as defined in an ALUCP. Amendments to such plans also must be

referred to the ALUC if the change affects locations within an airport influence area. Referral to the ALUC must take place prior to the local jurisdiction's action to adopt or amend the plan (PUC Section 21676(b)).

The impetus for referral of a local plan to the ALUC may arise from one of two situations:

- A proposal initiated by the local jurisdiction to adopt or amend an affected plan; or
- The requirement for the local jurisdiction's plans to be reviewed for consistency with an ALUC's newly adopted or amended ALUCP.

The requirement for submittal of local plans exists regardless of whether the ALUC has adopted an ALUCP for the airport. If an ALUCP has not been adopted, then the airport "vicinity" is defined to include "land that will be included or reasonably could be included within the ALUCP" *or*, if an airport influence area has not been designated, land within two miles of the airport boundary (PUC Section 21675.1(b)).

Where an ALUC's adoption or amendment of an ALUCP is the impetus for the local plan review, ALUC's are encouraged work with the local jurisdictions to identify where additions or changes to local plans may be required. There are several practical considerations for taking this step:

- Local jurisdictions may be less inclined to oppose an ALUCP if they understand the implications that its adoption will have on their plans and policies.
- Most ALUCs and their staff have the expertise with which to point out inconsistencies.
- The ALUC may have already started or even completed this analysis as part of the CEQA compliance process for the ALUCP.
- Proposed amendments to local plans are more likely to be complete in terms of meeting the requirements of being consistent with the ALUCP (i.e., conflicts will be eliminated and important procedural matters addressed).
- The amendment process can be accomplished more efficiently and quickly.

The last of the above factors is significant because state law not only requires that local jurisdictions either amend their plans to be consistent with the ALUC's plan or take the steps necessary to overrule the ALUC, but also that this action be taken within 180 days of when the ALUC adopted or amended its plan. (Government Code [Gov. Code] Section 65302.3.)

As a practical matter, many ALUCs consider the 180-day time limit to begin when printed copies of the final, adopted ALUCP or amendment thereto are formally distributed to the affected jurisdictions.

Preliminary ALUC review of the affected plans enables the 180-day time limit to more easily be met because part of the review process takes place before the clock begins running. Note, though, that even when the ALUC conducts a preliminary review, the specific county or city proposals for local plan modifications still must be submitted to the ALUC for formal review.

Additionally, as noted in Chapter 5, ALUCs should recognize that the 180-day schedule can be difficult for local jurisdictions to achieve, especially if extensive modifications to their plans are necessary. Although ALUCs do not

have the authority to change the 180-day time limit, ALUCs can decline to bring a judicial action against a local government for taking extra time.

Ordinances and Regulations

ALUC review of county or city proposals to adopt or amend zoning, building, and other land use ordinances and regulations is required in instances where those ordinances and regulations implicate compatibility criteria and policies.

The SAA explicitly requires ALUC review of these policy instruments during the period prior to when the local plan has been made consistent with the ALUCP or has been adopted by overruling the commission (PUC Section 21676(b)). Subsequent to when a county or city has taken action to amend its local plans, review of proposed new or revised zoning ordinances and building regulations remains mandatory because of their direct linkage to the local plans. Components of zoning ordinances and building regulations are normally essential to implementation of compatibility criteria and thus to the achievement of consistency between the local plans and the ALUCP. In effect, these instruments become extensions of the local plans and, with respect to ALUC review requirements, must be treated in the same manner.

As discussed later in this chapter, careful ALUC review of the relevant ordinances and regulations in conjunction with the assessment of local plans for consistency with the ALUCP is essential.

This review requirement especially applies when a proposed new or revised zoning ordinance or building regulation would have general applicability throughout the community or at least to lands within the airport influence area. ALUC reviews of parcel-specific changes to zoning or other regulations are also required when the parcels are within the airport influence area. This is true even when a local plan amendment is not involved. Again, the rationale for reviews being mandatory is that a determination that a local plan is consistent with the ALUCP almost always depends upon the details, including parcel-specific details, found in implementing zoning ordinances and building regulations.

Airport Plans

ALUC review of three categories of airport plans is mandatory under state law: (1) adoption or amendment of an airport master plan (AMP); (2) proposed construction and establishment of a new airport; and (3) adoption or amendment of airport expansion plan. This review requirement is not affected by, and is independent of, any previous action by the local jurisdiction regarding its local plans.

- Airport Master Plans—PUC Section 21676(c) mandates that "each public agency owning any airport within the boundaries of an airport land use commission plan shall, prior to modification of its airport master plan, refer such proposed change to the airport land use commission." The commission must then determine whether the proposed AMP is consistent or inconsistent with the adopted ALUCP for that airport.

Also sometimes subject to ALUC review are proposals for non-aviation development of airport property, which is discussed in the following section.

- Construction Plans for New Airports—The requirement for review of construction plans for new airports arises not out of the airport land use commission portion of the SAA (Chapter 4, Article 3.5), but from the regulation of airports portion of the law (Chapter 4, Article 3). Section 21661.5 of this article states that no application for the construction of a new airport may be submitted to any local, regional, state, or federal agency unless that plan has been both:

- Approved by the board of supervisors of the county, or the city council of the city, in which the airport is to be located; and
- Submitted to and acted upon by the appropriate airport land use commission.

As used in this section of the law and in the section (discussed below) applying to airport expansion, construction plans should be thought of as construction proposals. These sections are not intended to require ALUC review of the actual engineering construction drawings, but only the overall layout plan.

Also, in the context of aeronautics law, a heliport is considered to be a type of airport. Plans for the construction or expansion (as discussed below) of new heliports, including hospital heliports (a type of special-use facility), therefore, are subject to ALUC review.

◆ Airport Expansion Plans—PUC Section 21664.5 applies the above review requirements to any airport expansion project that entails amendment of an Airport Permit issued by the California Department of Transportation. Airport expansion is defined to include:

- The construction of a new runway;
- The extension or realignment of an existing runway; and
- The acquisition of runway protection zones or any interest in land for the purpose of the above.

Of note, state-issued airport permits are required only for public-use or special-use facilities. Agricultural and certain other restricted-use airports are exempt from permitting requirements (see California Code of Regulations Section 3533) and, therefore, not subject to ALUC review.

6.2.3 Other Actions Potentially Subject to ALUC Review

Individual Land Use Development Projects

Historically, state law required that all local plans, projects, and other actions affecting the vicinity of an airport be submitted to the responsible commission for review. For airports located in growing areas, this process proved to be burdensome. Therefore, the law was amended to place emphasis on general and specific plans as the levels of local planning at which compatibility between airports and their surroundings should primarily be addressed. The current law greatly limits the need for ALUC review of local actions once the ALUC has adopted an ALUCP and local plans have been made consistent with it.

Airport land use commissions can require the review of "all actions, regulations, and permits" involving the vicinity of a public airport under only two circumstances:

◆ Prior to ALUC adoption of an ALUCP for the airport (PUC Section 21675.1(b)); and

◆ When a local jurisdiction has neither revised its local plan(s) to be consistent with the ALUCP nor overruled the commission (PUC Section 21676.5(a)).

Beyond these two circumstances, the need for submittal of individual development proposals (assuming they do not involve amendment to local plans, or zoning changes) is subject to mutual agreement between the ALUC and the affected jurisdiction (PUC Section 21676.5(b)). Many ALUCs request that certain major land use actions continue to be submitted for review. Such actions might include very large developments where site design (the distribution and density of dwellings, areas of intensive use, open lands, etc.) and other factors, such as building height, have potential compatibility implications even when the overall development is basically acceptable. A full list of these types of development actions should be included in the ALUCP, local plans, or in some other policy document agreed upon by both entities.

Even when a local jurisdiction agrees to continue to submit major land use actions to the ALUC, project review is normally not necessary if related local plan amendments or zoning changes previously were reviewed. Exceptions to this limitation on subsequent reviews might apply if sufficient details regarding the project were not available when the first consistency determination was rendered, or if the project changes significantly.

Three very important points need to be emphasized with regard to the review of individual land use development proposals whether by the ALUC or the local jurisdiction.

- ALUC reviews are voluntary only if the applicable local planning policies *are fully consistent with the ALUCP*—The local plan or other supporting policies (e.g., zoning ordinance; development regulations), therefore, must contain sufficient detail regarding compatibility criteria and review procedures to assure compliance with policies set forth in the ALUC's compatibility plan. If this is not done, then the local planning policies are not fully consistent with the ALUCP and submittal of individual development projects for ALUC review would continue to be mandatory. In addition, if an individual development project requires a zoning variance or general plan/specific plan amendment, the review is not voluntary as changes in local plans and regulations require ALUC review.

- Local Jurisdiction Reviews Must Be Based on ALUCP Criteria—The failure of a local jurisdiction's local planning policies to restate or incorporate by reference ALUCP criteria and standards—even if that plan has been found consistent with the ALUCP—does not relieve the jurisdiction of the obligation to require individual development proposals to meet the ALUCP standards. Any exceptions require that the local jurisdiction take the special steps necessary to overrule the ALUC. A local jurisdiction's silence on these matters can be taken to indicate its acquiescence to the standards set by the ALUCP. If a land use development project were to be challenged under these circumstances, a court could be expected to hold the project to the ALUC's standards.

- Non-Mandatory ALUC Project Reviews Are Advisory—When local planning policies have been made fully consistent with the ALUCP, not only is submittal of most land use development proposals for ALUC review voluntary, but, when submitted, the reviews become advisory. Moreover, when ALUC review is advisory, the local jurisdiction does not need to take the special steps necessary to overrule the commission if it disagrees with the outcome of a review. (While the advisory nature of ALUC reviews under these circumstances is not spelled out in the SAA, it is clear that, if this were not the case, then the local jurisdiction could simply cancel the review agreement and proceed without any ALUC involvement.)

Ministerial Actions

A question which sometimes arises, primarily with regard to the review of individual development projects, concerns the appropriateness of ALUC review of projects for which local government approval is ministerial (administrative) as opposed to discretionary. In essence, the question is whether ALUC review of a p roject is appropriate or necessary if the local jurisdiction has no power to deny its approval in the first instance.

The important factor to remember in these cases is that, even though the local jurisdiction may not be able to deny the project, it can set design conditions. In terms of airport compatibility, such conditions might include site layout, height limits, noise insulation, etc. As such, ALUC review of ministerial actions is, at the very least, implicitly authorized and mandated by the SAA.

By way of example PUC Section 21675.1(g) implicitly indicates that ministerial permits are subject to ALUC review prior to the adoption of an ALUCP. This section allows ALUCs to exempt ministerial permits for single-family dwellings from review except where 25 percent or more of the parcels in a subdivision are undeveloped. After adopting an ALUCP, a commission has discretion to determine what type(s) of ministerial actions, if any, it wishes to review. Subsequent to local jurisdiction action that makes planning policies fully consistent with the ALUCP, ALUCs only review ministerial permitting actions if the local jurisdiction agrees to submit them.

Subsequent Review of Related Projects

When a local jurisdiction and the ALUC have agreed that selected land use actions will continue to be reviewed, efforts should be made to avoid duplicative reviews. For example, if a specific plan has been prepared to provide guidance for a major land use development proposal and the plan contains substantial detail regarding the development, subsequent review of the proposal itself likely would not be necessary. Similarly, if the ALUC reviews a proposed zone change related to a particular development project, then later review of the project itself can be avoided if site design and other significant information is provided with the initial review. The inverse of these scenarios is where sufficient design-level information is not available during the initial review, or where project design is modified following initial review in such a manner as to call into question the initial findings.

CEQA Documents

When a C alifornia Environmental Quality Act (CEQA) document, such as a negative declaration, mitigated negative declaration, or an environmental impact report, has been prepared in conjunction with an action submitted for ALUC review, a copy should be provided to the commission along with other information on the project. ALUC staff can then excerpt portions that might be relevant to a compatibility determination by the commission. CEQA specifies that a lead agency preparing an EIR for a project within the boundary of an ALUCP (or within two nautical miles of a public or public use airport if no such plan has been adopted) shall use this *Handbook* in consideration of airport-related safety hazards and noise problems (PUC Section 21096). Additionally, Appendix G of the CEQA Guidelines recommends that lead

agencies consider the following criterion when assessing the significance of a proposed project's environmental effects:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Because the preparation of a CEQA document is often one of the first public steps in the project review process, ALUCs should ask to be placed on the CEQA notification lists of all local jurisdictions within the ALUCs' planning jurisdiction to ensure that they are notified of projects in the vicinity of airports.

ALUCs are encouraged to comment on projects that might raise compatibility implications even when the projects are not required to be referred to the ALUC for a compatibility determination.

CEQA documents circulated to ALUCs when a compatibility determination is not required should be considered the same as other voluntary referrals. They provide an opportunity for ALUCs to offer guidance to ensure the highest level of compatibility. In these circumstances, ALUCs may offer comments on the CEQA document as an agency with expertise, but have no authority to disapprove the project.

Non-Aviation Development of Airport Property

State law does not specify whether ALUCs have authority to review projects involving non-aviation development on airport property (sometimes called "inside the fence" development). While the statutes give ALUCs the responsibility of reviewing AMPs and certain other airport development plans for consistency with the ALUCP, ALUCs are also explicitly precluded from having authority over operation of any airport. Most ALUCs maintain that they have the authority to review this type of development proposal (i.e., non-aviation development of airport property) because their review does not implicate the "operation" of the airport. For public relations purposes, if nothing else, airports probably should concede this point—it would be difficult to argue that certain non-aviation development should be allowed to occur on airport property when the same development in the same location would be judged incompatible if the property was privately owned.

The need for ALUC review of these projects should be treated much the same as with respect to individual development projects in the airport environs. That is, just as the focus for most off-airport development review is on local plans, reviews of on-airport projects should primarily take place at the time the AMP is reviewed. Only when important details regarding a proposed development have changes or were not available at the time of the initial review would subsequent review be necessary.

Special Districts, School Districts, and Community College Districts

Pursuant to PUC Section 21670(f), the State Legislature has clarified its intent that "special districts, school districts, and community college districts are included among the local agencies that are subject to airport land use laws and other requirements of this article." Accordingly, ALUCs shall review land use plans, master plans, individual development projects, and other comparable actions proposed by the three types of districts identified above.

For a discussion of review of school sites and state buildings, see Chapter 5, Section 5.3.2.

As described in this chapter, the adoption and amendment of land use plans (general and specific plans) and development ordinances form a basis for cities and counties to engage in airport land use compatibility planning. Special districts, school districts, and community college districts do not, as a general rule, prepare such plans and ordinances. They do, however, acquire land and build or lease facilities, which would be actions subject to review within the AIA (or within two miles of an airport in the absence of an adopted AIA). It is therefore recommended that the districts and the ALUC establish a procedure to review such actions. Where such actions are within an area subject to a general plan, and that plan has been found consistent with the ALUCP, there are several procedures within the Gov. Code relating to special districts and school districts which could form the basis for compatibility planning:

- Major public works projects undertaken by special districts and school districts shall be submitted to the county or city planning agency for review as to conformity with the adopted general plan (Gov. Code Section 65401).
- The acquisition of land for public purposes, and the construction of a public building shall be submitted to the county or city planning agency for review as to conformity with the general plan (Gov. Code Section 65402).
- A special district or school district may prepare a five-year capital improvement program. This program shall be referred to the county or city planning agency for review as to conformity with the general plan (Gov. Code Section 65403).

Other Government Actions

Unlike local agency actions, ALUCs have no mandatory duty or authority to review land use actions located on federal, tribal or state lands, or proposed by federal or state agencies or Native American tribes within the AIA. However, should a federal or state agency, or Native American tribe, request ALUC input on the compatibility of a proposed project with aeronautical operations and concerns, the ALUC may provide advisory determinations for the agency's or tribe's consideration.

It should be noted that while ALUCs have no mandatory duty or authority to review state actions, in some instances, the state agency may have an independent obligation to submit the proposed project to Caltrans for review. The Division of Aeronautics is required to evaluate the acquisition or expansion of certain proposed K–12 school sites (Education Code Section 17215), Community College sites (Education Code Section 81033), and state buildings (PUC Section 21655) within two miles of an airport runway.

6.3 PROCEDURAL CONSIDERATIONS

6.3.1 Information Required for Project Reviews

Most county and city planning departments have a form and/or defined list of information that a project applicant must submit when requesting zoning variances or other types of local development approvals. ALUCs should have a similar form or list of information to be included when a project is submitted for commission review because, without adequate information, the commission cannot fully assess whether a proposed land use action will be consistent with the commission's ALUCP. Missing information also can result in the ALUC review being delayed if questions arise during a public meeting. And, in any event, the ALUC's 60-day response deadline is not triggered until the project information submittal is complete, as discussed further below. The importance of having complete project data is emphasized in the ALUC statutes (PUC Section 21675.2(c)):

The referenced sections of the Government Code are included in Appendix A.

> "Failure of an applicant to submit complete or adequate information pursuant to Sections 65943 to 65946, inclusive, of the Government Code may constitute grounds for disapproval of actions, regulations, or permits."

Although this particular section applies to ALUC review of actions prior to the adoption of an ALUCP, the results can be the same with regard to actions submitted for a consistency review.

Many ALUCs encourage proponents of individual development projects to submit information on their proposals directly to the commission. These items are then placed on the commission agenda for "discussion purposes only." This process allows many compatibility issues to be resolved before the project is even submitted to the county or city for processing.

ALUC staff should conduct a preliminary review of the information submitted on a project to assess whether the project is subject to ALUC review and, if so, whether the information is sufficiently complete to enable a consistency determination to be made. If additional information is needed, the project proponent should be so notified without undue delay. Staff also should determine whether the applicant has already requested reviews by other agencies (for example, an aeronautical hazard review conducted by the Federal Aviation Administration in accordance with Part 77 of the Federal Aviation Regulations). If at all possible, a situation to be avoided is a delay in ALUC action on a project because insufficient information is available at the time of the commission meeting.

6.3.2 Time Factors

Time is a factor with regard to the project review process in two ways:

- Timing of Project Submittal—In order to avoid unnecessary delays in the overall processing of a plan or project, the timing of when a plan or project is submitted to an ALUC for review is an important consideration. In general, plans and projects should be referred to the ALUC at the earliest reasonable point in time so that the commission's review can be duly considered by the local jurisdiction prior to formalizing its actions. Depending upon the type of plan or project and the normal scheduling of meetings, ALUC review can be done before, after, or concurrently with review by the local planning commission and other advisory bodies, but must be accomplished before final action by the board of supervisors, city council, or, in the case of some airport projects, the airport district board.

Of note, the statutes do not specify a response time limit for actions submitted to ALUCs on the basis of mutual agreement with affected jurisdictions. Such time limits should be indicated in the agreement, but 60 days is generally a reasonable duration.

- Response Time Requirement—An airport land use commission must respond within 60 days of referral to a local jurisdiction's request for a consistency determination on plans or projects for which submittal is mandatory. However, this response period does not begin until such time as all information necessary for accomplishment of the project review has been submitted to the commission. The 60-day response time is specified in PUC Sections 21675.2(a) and 21676(d) of the SAA.

The consequence of the commission not acting within the statutorily-mandated 60-day time limit depends upon whether the commission has adopted an ALUCP:

- If the commission *has not* adopted an ALUCP, the proponent of a land use action, regulation, or permit may petition the court to compel the commission to act on the proposal (PUC Section 21675.2(a)).

- If the commission *has* adopted an ALUCP and the land use proposal involves a general plan, specific plan, zoning ordinance, or building regulation or is a proposed AMP, then the proposal is deemed consistent with the commission's plan (PUC Section 21676(d)).

6.3.3 Review Fees

A 1989 amendment to the SAA granted ALUCs the authority to charge fees for review of land use proposals and airport plans (PUC Section 21671.5(f)). However, a commission is only permitted to charge fees if it has adopted an ALUCP for the airport involved. The fees charged cannot exceed the estimated reasonable cost of providing the review.

Responses to a 2009 survey of ALUCs found that of the 26 respondents, only eleven ALUCs indicated that they charge fees. A majority of the respondents charge flat fees, depending on the type of project review, while three ALUCs charged by the hour (see Appendix H).

The fees charged for project reviews vary substantially from one ALUC to another. Some commissions charge small amounts that basically cover only the paperwork and other direct expenses. Other commissions base their fees on the typical number of staff hours involved in a project review and attempt to cover the full cost of the staff time.

6.3.4 ALUC Action Choices

Land Use Plans and Projects

An ALUC's choices of action on a land use plan or project submitted for review depends upon whether an ALUCP has or has not been adopted. In either case, the commission has just two basic choices of action available.

- Prior to Adoption of an ALUCP—If a commission has not yet adopted an ALUCP, the commission may *approve* or *disapprove* the matter submitted for review. This choice applies to any type of land use action, regulation, or permit, including general plans, specific plans, zoning ordinances, building regulations, and individual development projects. Absent having an adopted ALUCP, the commission's authority to approve a land use action, regulation, or permit is limited by the law (PUC Section 21675.1(c)). Approval requires that the commission find, based on substantial evidence in the record, that all of the following criteria are met:

- "The commission is making substantial progress toward completion of the plan."
- "There is a reasonable probability that the action, regulation, or permit will be consistent with the plan being prepared by the commission."
- "There is little or no probability of substantial detriment to or interference with the future adopted plan if the action, regulation, or permit is ultimately inconsistent with the plan."

If all of these criteria are not met, the commission legally cannot approve the proposal. However, only the first of these criteria is a significant procedural hurdle and very little is necessary to minimally satisfy it. ALUC adoption of a resolution setting an intended schedule for preparation of an ALUCP should suffice for this purpose. Adoption of preliminary compatibility criteria for the specific airport is not necessary, although the commission's resolution should at least refer to any generalized criteria it may have adopted or to this *Handbook* as the interim basis for project review. Once this test has been met, the characteristics of the project will determine whether the proposed action could be found to be consistent or inconsistent with the ALUCP.

If the ALUC concludes that it cannot take action because it does not have an ALUCP and is not making progress toward preparation of one, then approval of the land use proposal would be subject only to action by the local jurisdiction unless court proceedings are initiated by an interested party (in accordance with PUC Section 21679), as discussed later in this chapter.

◆ After Adoption of an ALUCP—After the commission has adopted an ALUCP for an airport, the nature of its review of land use matters changes because the commission now has—or should have—a set of policies and criteria by which to evaluate the proposal. The question then becomes one of determining whether the proposal is *consistent* or *inconsistent* with the ALUCP.

The SAA (PUC Sections 21676(a) and 21676.5(a)) mentions only these two choices of action. However, the PUC does not prescribe or limit the type of tools or documents an ALUC may use to arrive at and memorialize the outcome of negotiations between a project applicant and the ALUC. Due to the limits of determination options, ALUCs are advised to first return a determination of consistent or inconsistent. Following this action, they may append any instrument used to arrive at and memorialize the terms of an agreement that helped reach a 'consistent' determination. When a finding of consistency is contingent upon certain conditions, the conditions should be limited in scope and described in a manner which allows compliance to be clearly assessed (e.g., the height of a structure).

As a point of clarification, it has become common for determinations to use the terms 'compatible' and 'incompatible' interchangeably with 'consistent' and 'inconsistent' to describe the results of local plan or project reviews. To maintain conformity with the PUC, and clarity throughout the State, the terms consistent and inconsistent should be used to avoid unnecessary confusion.

Airport Plans

When an ALUC reviews an AMP, a plan for construction of a new airport (or heliport), or expansion of an existing airport, its basic choices of action are once again to determine whether

the proposal is consistent or inconsistent with the commission's plan. However, there are also associated actions that the commission may wish to take in conjunction with this determination.

- Airport Master Plans—When an inconsistency exists between a proposed AMP and an adopted ALUCP, the commission has the option of first modifying its plan to reflect the assumptions and proposals of the AMP. This is consistent with the concept that an ALUCP is based on a current AMP or ALP. Any such amendment to the ALUCP is limited to once per calendar year and must follow the procedures outlined in Chapter 2 of this *Handbook*.

- Plans for New Airports—Unless an AMP was previously prepared— which typically occurs only when the facility will be publicly owned, the ALUC will not have an adopted ALUCP for a proposed airport or heliport. As discussed later in this chapter, the consistency determination, therefore, must be based upon underlying noise, safety, airspace protection and overflight compatibility considerations.[1] If the commission concludes that the plan for the proposed facility is consistent with these compatibility factors, it should then decide whether to prepare an ALUCP for that facility to help protect it from incompatible land use development. If the proposed new airport or heliport will serve the general public (that is, if a State Airport Permit or Heliport Permit is required), then an ALUCP for the facility must be adopted.

Also see discussion in Chapter 2, page 2-3, regarding the types of airports for which ALUCPs are needed.

- Airport Expansion Plans—Plans for expansion of the runway system at a publicly owned airport normally will be based upon a long-range AMP previously reviewed by the commission. Therefore, the consistency review may require little more than a comparison of the proposed expansion project with the AMP. In cases where an AMP does not exist or the expansion project is not included in it, the consistency determination should be based upon factors similar to those for review of plans for new airports.

6.4 SUBSTANCE OF REVIEWS

6.4.1 General Plan and Specific Plan Consistency Reviews

When ALUCs evaluate county and city general plans and specific plans for consistency, a thorough review is essential for two reasons. First, these local plans are often large and complex, and policies and other matters that may be relevant for purposes of airport compatibility are usually scattered throughout many sections of the plan—land use, housing, transportation, noise, safety, and open space elements, as well as the land use map, being among the likely candidates. Second, and perhaps most critical, once the ALUC has deemed the local plan consistent with the ALUCP, most subsequent land use actions and development proposals will not be reviewed by the commission unless the local jurisdiction agrees to submit them. Therefore, of all the types of land use actions subject to ALUC review, general plans and specific plans require the most careful scrutiny.

Concept of Consistency

The Merriam-Webster dictionary defines *consistency* as "agreement or harmony of parts or features to one another or a whole." Legal definitions of the term depend upon the context in which it is used and have been the subject of numerous court cases. It is not a purpose of this

[1] If the ALUC has adopted a countywide plan, with sections focusing on individual airports (as described in Section 2.2.5 of this *Handbook*), the countywide policies may provide some guidance for new airports.

Handbook to attempt to establish a legal definition for the term. Rather the intent here is to describe what *consistency* generally means with respect to airport land use compatibility planning.

Most importantly, a local plan does not have to be *identical* to an ALUCP in order to be *consistent* with it. The fundamental objective is that these local plans, together with any implementing policies contained in ordinances or regulations, be capable of ensuring that future land use development will not conflict with ALUCP criteria. The two specific tests that need to be considered by ALUCs when assessing whether local planning policies are *fully* consistent with the ALUCP are:

- Whether any direct conflicts between the two plans have been eliminated; and
- Whether the local plan delineates a mechanism or process for ensuring that individual land use development proposals comply with the ALUC's adopted compatibility criteria.

Elimination of Direct Conflicts

Direct conflicts primarily involve local plan land use designations that do not meet the density (for residential uses) or intensity (for nonresidential uses) criteria specified in the ALUCP, although conflicts with regard to other policies (e.g., noise; airspace protection; overflight) also may exist. The elimination of direct conflicts may not be entirely straightforward where the ALUCP classifies *particular* land uses as compatible, conditionally compatible or incompatible because ALUCs and local jurisdictions do not always work from the same set of land use designations. Therefore, it is important for ALUC and local jurisdiction staff to discuss and reconcile potential definitional ambiguities when evaluating planning document consistency.

Note, however, that a local plan cannot be found inconsistent with the ALUCP because of land use designations that reflect existing land uses, even if those designations conflict with the ALUC's compatibility criteria. Because ALUCs have no authority over existing land uses, land use designations that merely reflect the existing uses for such parcels are, in effect, excluded from the consistency requirements.

Assurance of Compliance with Compatibility Criteria

Elimination of direct conflicts between a local plan and the ALUCP is not enough to guarantee that future land use development will adhere to the compatibility criteria. An implementation process must also be defined either directly in the local plan or by reference to a separately adopted ordinance, regulation, or other policy document. There are three facets to the process of ensuring compliance with airport land use compatibility criteria:

- Delineation of Compatibility Criteria—Airport land use compatibility criteria must be defined either in a policy document adopted by the county or city or through adoption of or reference to the ALUC's compatibility plan itself.
- Identification of Mechanisms for Compliance—The mechanisms by which applicable compatibility criteria will be tied to an individual development and continue to be enforced must be identified. Conditional use permits and development agreements are two

possibilities. For example, land uses that are potentially consistent, but only if limited in density/intensity, may be appropriately identified as conditional uses.

- Indication of Review and Approval Procedures—Lastly, the procedures for review and approval of individual development proposals must be defined. For example, at what level within a county or city are compatibility approvals made: staff, planning commission, or governing body? The types of actions that are to be submitted to the ALUC for review and the timing of such submittals relative to the internal review and approval process also must be indicated.

Before finding a local plan to be fully consistent with the ALUCP, ALUCs should check that all applicable topics listed in Table 5A are addressed either in the plan itself or in other implementing policy documents. Alternatively, as mentioned earlier in this chapter and further addressed in Chapter 5, local jurisdictions can elect to continue to refer all proposed land use actions within an airport influence area to the ALUC for review.

Further details regarding the essential steps to making local plans consistent with ALUCPs are discussed in Chapter 5. For example, a checklist of local plan consistency requirements is included in Table 5A. The list is not necessarily exhaustive, nor will every item be applicable to every ALUCP or every local plan. Rather, it is intended to provide basic guidance both to ALUCs in reviewing local plans and to counties and cities in preparing the necessary amendments and implementing actions.

6.4.2 Review of Zoning Ordinances and Building Regulations

ALUC review of zoning ordinances, building regulations, site design standards, and other implementing actions is particularly important because local plans often do not contain all of the policies necessary to be fully consistent with an ALUCP. Instead, zoning ordinances, building regulations, and other local policies become the mechanisms for specific implementation of airport land use compatibility policies and procedures.

When reviewing these policy instruments, the same topics outlined in Table 5A should be considered. The significant difference is that land use ordinances and regulations usually include criteria, standards, and other details that can be quantitatively compared with related criteria in the ALUCP. It is important, however, that the ALUC avoid becoming preoccupied with details that do not relate to airport compatibility concerns.

Review of Individual Development Projects

As previously noted, with some exceptions, ALUCs review individual development proposals only when they involve local plan or zoning changes or when the local jurisdiction agrees to submit these projects for review. That being said, the type and scope of an individual development proposal significantly affects the nature of the review. Many small details play a part in the consistency determination. Among these are:

- Residential Density—The proposed number of dwelling units per acre should be assessed for compliance with ALUCP criteria. When using gross acreage as the basis for calculating densities, care must be taken that portions of roads or open space on the edges of the development are not also included in the density or intensity calculations for an adjacent

development. In these cases, it may be easiest to use the same site description as used by the local agency for the proposed project; however, in mixed-use projects, the same open space should not be counted to the benefit of both residential and non-residential areas.

- Nonresidential Usage Intensity—The potential number of people per acre who could occupy a nonresidential land use needs to be evaluated relative to the applicable limits. This number may not be clear from the proposal and can be particularly uncertain for speculative development projects (ones where the tenant has not been determined in advance of the construction). However, an estimate can usually be made using data such as: the number of parking spaces required for the use; maximum occupancy levels prescribed by building and fire codes; and surveys of similar existing uses. Assurance needs to be provided by means of the use permit, building permit, or other local approval that the intensity limits will not be exceeded if a different tenant and/or different use occupy the facility at a later date.
- Site Plan—The site plan for a proposed development is essential to review, particularly when a large project site straddles more than one compatibility zone. Whether variations in noise impacts and risk levels on different parts of a large site have been taken into account should be examined. Also, the size, location, and design of open land areas should be examined if ALUC policies require these features.
- Height Limits—The planned height of buildings, antennas, and other objects should be checked with respect to Federal Aviation Regulations Part 77 criteria if the development is close to the airport, situated within the runway approach corridors, or on land higher more than 150 feet above the airport elevation. The potential height of trees also may be a factor. Shielding provided by terrain or existing structures should be considered when determining acceptable heights, however.

6.4.3 Airport Plan Reviews

The substance of the review of airport plans—AMPs, construction plans for new airports (and heliports), and expansion plans for existing airports— differs depending upon whether the commission has already prepared an ALUCP for the facility. Consistency is easier to evaluate when a plan for the specific airport has already been created.

Plans for Existing or New Airports Having Adopted ALUCPs

The review of an AMP, construction plan, or expansion plan for an airport for which an ALUCP has already been prepared should focus on differences between the plans. *Fundamentally, the question to be examined is whether any components of the airport plan would result in greater noise and safety impacts on surrounding land uses than are assumed in the adopted ALUCP.* This concept implies that the airport plan does not have to be identical with the ALUCP as long as the impacts are not increased or moved to previously less-impacted areas.

The airport plan review should focus on components of the plan that are associated with aircraft operations and have off-airport impact implications. These components and the questions that should be asked about them include:

- Forecasts—Are the activity forecasts substantially higher than those in the ALUCP or do they include a higher proportion of larger or noisier aircraft, including helicopters?

- Runway Layout—Are any new runways or helicopter takeoff and landing areas proposed? Are changes in runway length, landing threshold locations, or type of approach procedures planned? What effect do any of these changes have on height limits placed on nearby property for the purposes of airspace protection?

- Flight Tracks—Will new or modified facilities or aircraft operating procedures result in different aircraft traffic patterns or other changes in where or how high aircraft typically fly when approaching, departing, or flying near the airport?

- Noise Impacts—Will changes in any of the above items result in significantly increased noise impacts on surrounding lands?

Plans for any other airport facilities or activities associated with aircraft operations also can be considered in the ALUC review. Proposals for new taxiways or aircraft parking facilities near noise-sensitive land uses, for example, may warrant examination. In most cases, however, these facilities and their use pose no significant off-airport implications.

Noise associated with aircraft engine maintenance and testing is not an ALUC concern. These functions are not activities essential to the operation of aircraft at a particular airport. Rather, they are industrial activities and, as such, should be addressed by the local land use jurisdiction in the same manner as other industrial noise sources.

As noted earlier in this chapter, an additional component of airport plans that ALUCs should review is proposed non-aviation development of airport property. Such uses include office buildings, industrial facilities, hotels, and other such uses that do not have a direct aeronautical function (see Glossary for definition of aviation-related use). The criteria against which such uses should be evaluated are the same as if the use were located on adjacent private property.

Construction or Expansion Plans for Airports without Previous ALUCPs

When an ALUC reviews a plan for a new airport or heliport—or the expansion of an existing airport or heliport—in an existing land use setting, the basic issue is how will the airport fit into that setting. One way of looking at this issue is to ask: *Would the existing or planned land uses be considered compatible with the airport or heliport if the latter were already in existence?* If not, what features or mitigation measures are included in the airport or heliport proposal to mitigate the noise and safety impacts on surrounding land uses? Specific questions for ALUCs to consider might include:

- Runway Layout—Does the proposed layout of aircraft landing areas attempt to limit impacts on surrounding land uses to the extent practical?

- Flight Tracks—Will the aircraft traffic pattern be limited to a single side of the runway because of land use compatibility or other factors? Are any other flight track or operational restrictions proposed to minimize off-airport impacts?

- Aircraft Activity Characteristics—What type and volume of aircraft activity is projected for the facility over the next 20 years or more? Are these characteristics compatible with surrounding land uses?

- Property Acquisition—Will fee title and/or easements be acquired on highly impacted property?

When reviewing the plans for a new airport or airport expansion, it is important that ALUCs evaluate the adequacy of the facility design (in terms of federal and state standards) only to the extent that the design affects surrounding land use. Also, commissions must base their review on the proposed design. ALUCs do not have the authority to require alterations to the airport plan or to make different assumptions regarding the future airport role and airfield configuration than are indicated in the airport's plan.

6.5 JUDICIAL ACTION

6.5.1 Provisions under Aeronautics Law

The SAA (PUC Section 21679) explicitly provides for judicial action on ALUC matters only under very limited circumstances. Specifically, all of the following must apply:

- No ALUCP has been adopted for the airport by an ALUC (PUC Section 21679(a));
- The local general plan or any applicable specific plan does not accomplish the purposes of an ALUCP (PUC Section 21679(c));
    - The local jurisdiction action in question must be a zoning change, zoning variance, the issuance of a permit, or the adoption of regulation (PUC Section 21679(a));
    - The local action must affect the use of land within one mile of the boundary of a public airport in the county (PUC Section 21679(a));
    - The court proceedings must be initiated by an owner of land within two miles of the airport boundary or an organization with "a demonstrated interest in airport safety and efficiency" (PUC Section 21679(f)); and
    - The proceedings must be commenced within 30 days of the local jurisdiction action or as otherwise provided in state laws (PUC Section 21679(d)).

If all of these conditions prevail, the court may issue an injunction to postpone the effective date of the local action. The postponement remains in effect until the local jurisdiction does one of the following:

- Adopts a resolution finding that the action is consistent with the purposes of the ALUC statutes;
- Amends the action to make it consistent with the purposes of the article; or
- Rescinds the action.

APPENDICES









Appendix A

State Laws Related to Airport Land Use Planning

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Legislative History Summary

Airport Land Use Commission Statutes A-36

Note: The text of all California Codes used in this Handbook is from the Legislative Counsel of California, available at www.leginfo.ca.gov. The legislative history summary was prepared by the authors.

AERONAUTICS LAW
PUBLIC UTILITIES CODE
Division 9—Aviation
Part 1—State Aeronautics Act
Chapter 4—Airports and Air Navigation Facilities

Article 3.5
Airport Land Use Commission

(As of January 2011)

21670. Creation, Membership, Selection

(a) The Legislature hereby finds and declares that:

(1) It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.

(2) It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

(b) In order to achieve the purposes of this article, every county in which there is located an airport which is served by a sch eduled airline shall establish an airport land use commission. Every county, in which there is located an airport which is not served by a scheduled airline, but is operated for the benefit of the general public, shall establish an airport land use commission, except that the board of supervisors of the county may, after consultation with the appropriate airport operators and affected local entities and after a public hearing, adopt a resolution finding that there are no noise, public safety, or land use issues affecting any airport in the county which require the creation of a commission and declaring the county exempt from that requirement. The board shall, in this event, transmit a copy of the resolution to the Director of Transportation. For purposes of this section, "commission" means an airport land use commission. Each commission shall consist of seven members to be selected as follows:

(1) Two representing the cities in the county, appointed by a city selection committee comprised of the mayors of all the cities within that county, except that if there are any cities contiguous or adjacent to the qualifying airport, at least one representative shall be appointed therefrom. If there are no cities within a county, the number of representatives provided for by paragraphs (2) and (3) shall each be increased by one.

(2) Two representing the county, appointed by the board of supervisors.

(3) Two having expertise in aviation, appointed by a selection committee comprised of the managers of all of the public airports within that county.

(4) One representing the general public, appointed by the other six members of the commission.

(c) Public officers, whether elected or appointed, may be appointed and serve as members of the commission during their terms of public office.

(d) Each member shall promptly appoint a single proxy to represent him or her in commission affairs and to vote on all matters when the member is not in attendance. The proxy shall be designated in a signed written instrument which shall be kept on file at the commission offices, and the proxy shall serve at the pleasure of the appointing member. A vacancy in the office of proxy shall be filled promptly by appointment of a new proxy.

(e) A person having an "expertise in aviation" means a person who, by way of education, training, business, experience, vocation, or avocation has acquired and possesses particular knowledge of, and familiarity with, the function, operation, and role of airports, or is an elected official of a local agency which owns or operates an airport.

(f) It is the intent of the Legislature to clarify that, for the purposes of this article, that special districts, school districts, and community college districts are included among the local agencies that are subject to airport land use laws and other requirements of this article.

21670.1. Action by Designated Body Instead of Commission

(a) Notwithstanding any other provision of this article, if the board of supervisors and the city selection committee of mayors in the county each makes a determination by a majority vote that proper land use planning can be accomplished through the actions of an appropriately designated body, then the body so designated shall assume the planning responsibilities of an airport land use commission as provided for in this article, and a commission need not be formed in that county.

(b) A body designated pursuant to subdivision (a) that does not include among its membership at least two members having expertise in aviation, as defined in subdivision (e) of Section 21670, shall, when acting in the capacity of an airport land use commission, be augmented so that body, as augmented, will have at least two members having that expertise. The commission shall be constituted pursuant to this section on and after March 1, 1988.

(c)

(1) Notwithstanding subdivisions (a) and (b), and subdivision (b) of Section 21670, if the board of supervisors of a county and each affected city in that county each makes a determination that proper land use planning pursuant to this article can be accomplished pursuant to this subdivision, then a commission need not be formed in that county.

(2) If the board of supervisors of a county and each affected city makes a determination that proper land use planning may be accomplished and a commission is not formed pursuant to paragraph (1), that county and the appropriate affected cities having jurisdiction over an airport, subject to the review and approval by the Division of Aeronautics of the department, shall do all of the following:

(A) Adopt processes for the preparation, adoption, and amendment of the airport land use compatibility plan for each airport that is served by a scheduled airline or operated for the benefit of the general public.

(B) Adopt processes for the notification of the general public, landowners, interested groups, and other public agencies regarding the preparation, adoption, and amendment of the airport land use compatibility plans.

(C) Adopt processes for the mediation of disputes arising from the preparation, adoption, and amendment of the airport land use compatibility plans.

(D) Adopt processes for the amendment of general and specific plans to be consistent with the airport land use compatibility plans.

(E) Designate the agency that shall be responsible for the preparation, adoption, and amendment of each airport land use compatibility plan.

(3) The Division of Aeronautics of the department shall review the processes adopted pursuant to paragraph (2), and shall approve the processes if the division determines that the processes are consistent with the procedure required by this article and will do all of the following:

(A) Result in the preparation, adoption, and implementation of plans within a reasonable amount of time.

(B) Rely on the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations.

(C) Provide adequate opportunities for notice to, review of, and comment by the general public, landowners, interested groups, and other public agencies.

(4) If the county does not comply with the requirements of paragraph (2) within 120 days, then the airport land use compatibility plan and amendments shall not be considered adopted pursuant to this article and a commission shall be established within 90 days of the determination of noncompliance by the division and an airport land use compatibility plan shall be adopted pursuant to this article within 90 days of the establishment of the commission.

(d) A commission need not be formed in a county that has contracted for the preparation of airport land use compatibility plans with the Division of Aeronautics under the California Aid to Airports Program (Chapter 4 (commencing with Section 4050) of Title 21 of the California Code of Regulations), Project Ker-VAR 90-1, and that submits all of the following information to the Division of Aeronautics for review and comment that the county and the cities affected by the airports within the county, as defined by the airport land use compatibility plans:

(1) Agree to adopt and implement the airport land use compatibility plans that have been developed under contract.

(2) Incorporated the height, use, noise, safety, and density criteria that are compatible with airport operations as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, as part of the general and specific plans for the county and for each affected city.

(3) If the county does not comply with this subdivision on or before May 1, 1995, then a commission shall be established in accordance with this article.

(e)

(1) A commission need not be formed in a county if all of the following conditions are met:

(A) The county has only one public use airport that is owned by a city.

(i) The county and the affected city adopt the elements in paragraph (2) of subdivision (d), as part of their general and specific plans for the county and the affected city.

(ii) The general and specific plans shall be submitted, upon adoption, to the Division of Aeronautics. If the county and the affected city do not submit the elements specified in paragraph (2) of subdivision (d), on or before May 1, 1996, then a commission shall be established in accordance with this article.

21670.2. Los Angeles County Applicability to Counties Having over 4 Million Population

(a) Sections 21670 and 21670.1 do not apply to the County of Los Angeles. In that county, the county regional planning commission has the responsibility for coordinating the airport planning of public agencies within the county. In instances where impasses result relative to this planning, an appeal may be made to the county regional planning commission by any public agency involved. The action taken by the county regional planning commission on an appeal may be overruled by a four-fifths vote of the governing body of a public agency whose planning led to the appeal.

(b) By January 1, 1992, the county regional planning commission shall adopt the airport land use compatibility plans required pursuant to Section 21675.

(c) Sections 21675.1, 21675.2, and 21679.5 do not apply to the County of Los Angeles until January 1, 1992. If the airport land use compatibility plans required pursuant to Section 21675 are not adopted by the county regional planning commission by January 1, 1992, Sections 21675.1 and 21675.2 shall apply to the County of Los Angeles until the airport land use compatibility plans are adopted.

21670.3. San Diego County

(a) Sections 21670 and 21670.1 do not apply to the County of San Diego. In that county, the San Diego County Regional Airport Authority, as established pursuant to Section 170002, shall be responsible for the preparation, adoption, and amendment of an airport land use compatibility plan for each airport in San Diego County.

(b) The San Diego County Regional Airport Authority shall engage in a public collaborative planning process when preparing and updating an airport land use compatibility plan.

21670.4. Intercounty Airports

(a) As used in this section, "intercounty airport" means any airport bisected by a county line through its runways, runway protection zones, inner safety zones, inner turning zones, outer safety zones, or sideline safety zones, as defined by the department's Airport Land Use Planning Handbook and referenced in the airport land use compatibility plan formulated under Section 21675.

(b) It is the purpose of this section to provide the opportunity to establish a separate airport land use commission so that an intercounty airport may be served by a single airport land use planning agency, rather than having to look separately to the airport land use commissions of the affected counties.

(c) In addition to the airport land use commissions created under Section 21670 or the alternatives established under Section 21670.1, for their respective counties, the boards of supervisors and city selection committees for the affected counties, by independent majority vote of each county's two delegations, for any intercounty airport, may do either of the following:

(1) Establish a single separate airport land use commission for that airport. That commission shall consist of seven members to be selected as follows:

(A) One representing the cities in each of the counties, appointed by that county's city selection committee.

(B) One representing each of the counties, appointed by the board of supervisors of each county.

(C) One from each county having expertise in aviation, appointed by a selection committee comprised of the managers of all the public airports within that county.

(D) One representing the general public, appointed by the other six members of the commission.

(2) In accordance with subdivision (a) or (b) of Section 21670.1, designate an existing appropriate entity as that airport's land use commission.

21671. Airport Owned by a City, District, or County

In any county where there is an airport operated for the general public which is owned by a city or district in another county or by another county, one of the representatives provided by paragraph (1) of subdivision (b) of Section 21670 shall be appointed by the city selection committee of mayors of the cities of the county in which the owner of that airport is located, and one of the representatives provided by paragraph (2) of subdivision (b) of Section 21670 shall be appointed by the board of supervisors of the county in which the owner of that airport is located.

21671.5. Term of Office

(a) Except for the terms of office of the members of the first commission, the term of office of each member shall be four years and until the appointment and qualification of his or her successor. The members of the first commission shall classify themselves by lot so that the term of office of one member is one year, of two members is two years, of two members is three years, and of two members is four years. The body that originally appointed a member whose term has expired shall appoint his or her successor for a full term of four years. Any member may be removed at any time and without cause by the body appointing that member. The expiration date of the term of office of each member shall be the first Monday in May in the year in which that member's term is to expire. Any vacancy in the membership of the commission shall be filled for the unexpired term by appointment by the body which originally appointed the member whose office has become vacant. The chairperson of the commission shall be selected by the members thereof.

(b) Compensation, if any, shall be determined by the board of supervisors.

(c) Staff assistance, including the mailing of notices and the keeping of minutes and necessary quarters, equipment, and supplies shall be provided by the county. The usual and necessary operating expenses of the commission shall be a county charge.

(d) Notwithstanding any other provisions of this article, the commission shall not employ any personnel either as employees or independent contractors without the prior approval of the board of supervisors.

(e) The commission shall meet at the call of the commission chairperson or at the request of the majority of the commission members. A majority of the commission members shall constitute a quorum for the transaction of business. No action shall be taken by the commission except by the recorded vote of a majority of the full membership.

(f) The commission may establish a schedule of fees necessary to comply with this article. Those fees shall be charged to the proponents of actions, regulations, or permits, shall not exceed the estimated reasonable cost of providing the service, and shall be imposed pursuant to Section 66016 of the Government Code. Except as provided in subdivision (g), after June 30, 1991, a commission that has not adopted the airport land use compatibility plan required by Section 21675 shall not charge fees pursuant to this subdivision until the commission adopts the plan.

(g) In any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, the commission may continue to charge fees necessary to comply with this article until June 30, 1992, and, if the airport land use compatibility plans are complete by that date, may continue charging fees after June 30, 1992. If the airport land use compatibility plans are not complete by June 30, 1992, the commission shall not charge fees pursuant to subdivision (f) until the commission adopts the land use plans.

21672. Rules and Regulations

Each commission shall adopt rules and regulations with respect to the temporary disqualification of its members from participating in the review or adoption of a proposal because of conflict of interest and with respect to appointment of substitute members in such cases.

21673. Initiation of Proceedings for Creation by Owner of Airport

In any county not having a commission or a body designated to carry out the responsibilities of a commission, any owner of a public airport may initiate proceedings for the creation of a commission by presenting a request to the board of supervisors that a commission be created and showing the need therefore to the satisfaction of the board of supervisors.

21674. Powers and Duties

The commission has the following powers and duties, subject to the limitations upon its jurisdiction set forth in Section 21676:

(a) To assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.

(b) To coordinate planning at the state, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.

(c) To prepare and adopt an airport land use compatibility plan pursuant to Section 21675.

(d) To review the plans, regulations, and other actions of local agencies and airport operators pursuant to Section 21676.

(e) The powers of the commission shall in no way be construed to give the commission jurisdiction over the operation of any airport.

(f) In order to carry out its responsibilities, the commission may adopt rules and regulations consistent with this article.

21674.5. Training of Airport Land Use Commission's Staff

(a) The Department of Transportation shall develop and implement a program or programs to assist in the training and development of the staff of airport land use commissions, after consulting with airport land use commissions, cities, counties, and other appropriate public entities.

(b) The training and development program or programs are intended to assist the staff of airport land use commissions in addressing high priority needs, and may include, but need not be limited to, the following:

(1) The establishment of a process for the development and adoption of airport land use compatibility plans.

(2) The development of criteria for determining the airport influence area.

(3) The identification of essential elements that should be included in the airport land use compatibility plans.

(4) Appropriate criteria and procedures for reviewing proposed developments and determining whether proposed developments are compatible with the airport use.

(5) Any other organizational, operational, procedural, or technical responsibilities and functions that the department determines to be appropriate to provide to commission staff and for which it determines there is a need for staff training or development.

(c) The department may provide training and development programs for airport land use commission staff pursuant to this section by any means it deems appropriate. Those programs may be presented in any of the following ways:

(1) By offering formal courses or training programs.

(2) By sponsoring or assisting in the organization and sponsorship of conferences, seminars, or other similar events.

(3) By producing and making available written information.

(4) Any other feasible method of providing information and assisting in the training and development of airport land use commission staff.

21674.7. Airport Land Use Planning Handbook

(a) An airport land use commission that formulates, adopts, or amends an airport land use compatibility plan shall be guided by information prepared and updated pursuant to Section 21674.5 and referred to as the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation.

(b) It is the intent of the Legislature to discourage incompatible land uses near existing airports. Therefore, prior to granting permits for the renovation or remodeling of an existing building, structure, or facility, and before the construction of a new building, it is the intent of the Legislature that local agencies shall be guided by the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, to the extent that the criteria has been incorporated into the plan prepared by a commission pursuant to Section 21675. This subdivision does not limit the jurisdiction of a commission as established by this article. This subdivision does not limit the authority of local agencies to overrule commission actions or recommendations pursuant to Sections 21676, 21676.5, or 21677.

21675. Land Use Plan

(a) Each commission shall formulate an airport land use compatibility plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission's airport land use compatibility plan shall include and shall be based on a long-range master plan or an airport layout plan, as determined by the Division of Aeronautics of the Department of Transportation, that reflects the anticipated growth of the airport during at least the next 20 y ears. In formulating an airport land use compatibility plan, the commission may develop height restrictions on buildings, specify use of land, and determine building standards, including soundproofing adjacent to airports, within the airport influence area. The airport land use compatibility plan shall be reviewed as often as necessary in order to accomplish its purposes, but shall not be amended more than once in any calendar year.

(b) The commission shall include, within its airport land use compatibility plan formulated pursuant to subdivision (a), the area within the jurisdiction of the commission surrounding any military airport for all of the purposes specified in subdivision (a). The airport land use compatibility plan shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport. This subdivision does not give the commission any jurisdiction or authority over the territory or operations of any military airport.

(c) The airport influence area shall be established by the commission after hearing and consultation with the involved agencies.

(d) The commission shall submit to the Division of Aeronautics of the department one copy of the airport land use compatibility plan and each amendment to the plan.

(e) If an airport land use compatibility plan does not include the matters required to be included pursuant to this article, the Division of Aeronautics of the department shall notify the commission responsible for the plan.

21675.1. Adoption of Land Use Plan

(a) By June 30, 1991, each commission shall adopt the airport land use compatibility plan required pursuant to Section 21675, except that any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, shall adopt that airport land use compatibility plan on or before June 30, 1992.

(b) Until a commission adopts an airport land use compatibility plan, a city or county shall first submit all actions, regulations, and permits within the vicinity of a public airport to the commission for review and approval. Before the commission approves or disapproves any actions, regulations, or permits, the commission shall give public notice in the same manner as the city or county is required to give for those actions, regulations, or permits. As used in this section, "vicinity" means land that will be included or reasonably could be included within the airport land use compatibility plan. If the commission has not designated an airport influence area for the airport land use compatibility plan, then "vicinity" means land within two miles of the boundary of a public airport.

(c) The commission may approve an action, regulation, or permit if it finds, based on substantial evidence in the record, all of the following:

(1) The commission is making substantial progress toward the completion of the airport land use compatibility plan.

(2) There is a reasonable probability that the action, regulation, or permit will be consistent with the airport land use compatibility plan being prepared by the commission.

(3) There is little or no probability of substantial detriment to or interference with the future adopted airport land use compatibility plan if the action, regulation, or permit is ultimately inconsistent with the airport land use compatibility plan.

(d) If the commission disapproves an action, regulation, or permit, the commission shall notify the city or county. The city or county may overrule the commission, by a two-thirds vote of its governing body, if it makes specific findings that the proposed action, regulation, or permit is consistent with the purposes of this article, as stated in Section 21670.

(e) If a city or county overrules the commission pursuant to subdivision (d), that action shall not relieve the city or county from further compliance with this article after the commission adopts the airport land use compatibility plan.

(f) If a city or county overrules the commission pursuant to subdivision (d) with respect to a publicly owned airport that the city or county does not operate, the operator of the airport is not liable for damages to property or personal injury resulting from the city's or county's decision to proceed with the action, regulation, or permit.

(g) A commission may adopt rules and regulations that exempt any ministerial permit for single-family dwellings from the requirements of subdivision (b) if it makes the findings required pursuant to subdivision (c) for the proposed rules and regulations, except that the rules and regulations may not exempt either of the following:

(1) More than two single-family dwellings by the same applicant within a subdivision prior to June 30, 1991.

(2) Single-family dwellings in a subdivision where 25 percent or more of the parcels are undeveloped.

21675.2. Approval or Disapproval of Actions, Regulations, or Permits

(a) If a commission fails to act to approve or disapprove any actions, regulations, or permits within 60 days of receiving the request pursuant to Section 21675.1, the applicant or his or her representative may file an action pursuant to Section 1094.5 of

the Code of Civil Procedure to compel the commission to act, and the court shall give the proceedings preference over all other actions or proceedings, except previously filed pending matters of the same character.

(b) The action, regulation, or permit shall be deemed approved only if the public notice required by this subdivision has occurred. If the applicant has provided seven days advance notice to the commission of the intent to provide public notice pursuant to this subdivision, then, not earlier than the date of the expiration of the time limit established by Section 21675.1, an applicant may provide the required public notice. If the applicant chooses to provide public notice, that notice shall include a description of the proposed action, regulation, or permit substantially similar to the descriptions which are commonly used in public notices by the commission, the location of any proposed development, the application number, the name and address of the commission, and a statement that the action, regulation, or permit shall be deemed approved if the commission has not acted within 60 days. If the applicant has provided the public notice specified in this subdivision, the time limit for action by the commission shall be extended to 60 days after the public notice is provided. If the applicant provides notice pursuant to this section, the commission shall refund to the applicant any fees which were collected for providing notice and which were not used for that purpose.

(c) Failure of an applicant to submit complete or adequate information pursuant to Sections 65943 to 65946, inclusive, of the Government Code, may constitute grounds for disapproval of actions, regulations, or permits.

(d) Nothing in this section diminishes the commission's legal responsibility to provide, where applicable, public notice and hearing before acting on an action, regulation, or permit.

21676. Review of Local General Plans

(a) Each local agency whose general plan includes areas covered by an airport land use compatibility plan shall, by July 1, 1983, submit a copy of its plan or specific plans to the airport land use commission. The commission shall determine by August 31, 1983, whether the plan or plans are consistent or inconsistent with the airport land use compatibility plan. If the plan or plans are inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall have another hearing to reconsider its airport land use compatibility plans. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first

refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the public record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(c) Each public agency owning any airport within the boundaries of an airport land use compatibility plan shall, prior to modification of its airport master plan, refer any proposed change to the airport land use commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The public agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(d) Each commission determination pursuant to subdivision (b) or (c) shall be made within 60 days from the date of referral of the proposed action. If a commission fails to make the determination within that period, the proposed action shall be deemed consistent with the airport land use compatibility plan.

21676.5. Review of Local Plans

(a) If the commission finds that a local agency has not revised its general plan or specific plan or overruled the commission by a two-thirds vote of its governing body after making specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670, the commission may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. If, in the determination of the commission, an action, regulation, or permit of the local agency is inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall hold a hearing to reconsider its plan. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670. At least 45 days

prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Whenever the local agency has revised its general plan or specific plan or has overruled the commission pursuant to subdivision (a), the proposed action of the local agency shall not be subject to further commission review, unless the commission and the local agency agree that individual projects shall be reviewed by the commission.

21677. Marin County Override Provisions

Notwithstanding the two-thirds vote required by Section 21676, any public agency in the County of Marin may overrule the Marin County Airport Land Use Commission by a majority vote of its governing body. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the public record of the final decision to overrule the commission, which may be adopted by a majority vote of the governing body.

21678. Airport Owner's Immunity

With respect to a publicly owned airport that a public agency does not operate, if the public agency pursuant to Section 21676, 21676.5, or 21677 overrules a commission's action or recommendation, the operator of the airport shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to overrule the commission's action or recommendation.

21679. Court Review

(a) In any county in which there is no airport land use commission or other body designated to assume the responsibilities of an airport land use commission, or in which the commission or other designated body has not adopted an airport land use compatibility plan, an interested party may initiate proceedings in a court of competent jurisdiction to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, that directly affects the use of land within one mile of the boundary of a public airport within the county.

(b) The court may issue an injunction that postpones the effective date of the zoning change, zoning variance, permit, or regulation until the governing body of the local agency that took the action does one of the following:

(1) In the case of an action that is a legislative act, adopts a resolution declaring that the proposed action is consistent with the purposes of this article stated in Section 21670.

(2) In the case of an action that is not a legislative act, adopts a resolution making findings based on substantial evidence in the record that the proposed action is consistent with the purposes of this article stated in Section 21670.

(3) Rescinds the action.

(4) Amends its action to make it consistent with the purposes of this article stated in Section 21670, and complies with either paragraph (1) or (2), whichever is applicable.

(c) The court shall not issue an injunction pursuant to subdivision (b) if the local agency that took the action demonstrates that the general plan and any applicable specific plan of the agency accomplishes the purposes of an airport land use compatibility plan as provided in Section 21675.

(d) An action brought pursuant to subdivision (a) shall be commenced within 30 days of the decision or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever is longer.

(e) If the governing body of the local agency adopts a resolution pursuant to subdivision (b) with respect to a publicly owned airport that the local agency does not operate, the operator of the airport shall be immune from liability for damages to property or personal injury from the local agency's decision to proceed with the zoning change, zoning variance, permit, or regulation.

(f) As used in this section, "interested party" means any owner of land within two miles of the boundary of the airport or any organization with a demonstrated interest in airport safety and efficiency.

21679.5. Deferral of Court Review

(a) Until June 30, 1991, no action pursuant to Section 21679 to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, directly affecting the use of land within one mile of the boundary of a public airport, shall be commenced in any county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan.

(b) If a commission has been prevented from adopting the airport land use compatibility plan by June 30, 1991, or if the adopted airport land use compatibility plan could not become effective, because of a lawsuit involving the adoption of the airport land use compatibility plan, the June 30, 1991, date in subdivision (a) shall be extended by the period of time during which the lawsuit was pending in a court of competent jurisdiction.

(c) Any action pursuant to Section 21679 commenced prior to January 1, 1990, in a county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan, which has not proceeded to final judgment, shall be held in abeyance until June 30, 1991. If the commission or other designated body

adopts an airport land use compatibility plan on or before June 30, 1991, the action shall be dismissed. If the commission or other designated body does not adopt an airport land use compatibility plan on or before June 30, 1991, the plaintiff or plaintiffs may proceed with the action.

(d) An action to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, directly affecting the use of land within one mile of the boundary of a public airport for which an airport land use compatibility plan has not been adopted by June 30, 1991, shall be commenced within 30 days of June 30, 1991, or within 30 days of the decision by the local agency, or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever date is later.

AERONAUTICS LAW
PUBLIC UTILITIES CODE
Division 9, Part 1
Chapter 3—Regulations of Aeronautics
(excerpts)

21402. Ownership; Prohibited Use of Airspace

The ownership of the space above the land and waters of this State is vested in the several owners of the surface beneath, subject to the right of flight described in Section 21403. No use shall be made of such airspace which would interfere with such right of flight; provided, that any use of property in conformity with an original zone of approach of an airport shall not be rendered unlawful by reason of a change in such zone of approach.

21403. Lawful Flight; Flight Within Airport Approach Zone

(a) Flight in aircraft over the land and waters of this state is lawful, unless at altitudes below those prescribed by federal authority, or unless conducted so as to be imminently dangerous to persons or property lawfully on the land or water beneath. The landing of an aircraft on the land or waters of another, without his or her consent, is unlawful except in the case of a forced landing or pursuant to Section 21662.1. The owner, lessee, or operator of the aircraft is liable, as provided by law, for damages caused by a forced landing.

(b) The landing, takeoff, or taxiing of an aircraft on a public freeway, highway, road, or street is unlawful except in the following cases:

(1) A forced landing.

(2) A landing during a natural disaster or other public emergency if the landing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road, or street.

(3) When the landing, takeoff, or taxiing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road or street.

The prosecution bears the burden of proving that none of the exceptions apply to the act which is alleged to be unlawful.

(c) The right of flight in aircraft includes the right of safe access to public airports, which includes the right of flight within the zone of approach of any public airport without restriction or hazard. The zone of approach of an airport shall conform to the specifications of Part 77 of the Federal Aviation Regulations of the Federal Aviation Administration, Department of Transportation.

AERONAUTICS LAW

PUBLIC UTILITIES CODE
Division 9, Part 1
Chapter 4—Airports and Air Navigation Facilities

Article 2.7
REGULATION OF OBSTRUCTIONS
(excerpts)

21655. Proposed Site for Construction of State Building Within Two Miles of Airport Boundary

Notwithstanding any other provision of law, if the proposed site of any state building or other enclosure is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site, the state agency or office which proposes to construct the building or other enclosure shall, before acquiring title to property for the new state building or other enclosure site or for an addition to a present site, notify the Department of Transportation, in writing, of the proposed acquisition. The department shall investigate the proposed site and, within 30 working days after receipt of the notice, shall submit to the state agency or office which proposes to construct the building or other enclosure a written report of the investigation and its recommendations concerning acquisition of the site.

If the report of the department does not favor acquisition of the site, no state funds shall be expended for the acquisition of the new state building or other enclosure site, or the expansion of the present site, or for the construction of the state building or other enclosure, provided that the provisions of this section shall not affect title to real property once it is acquired.

21658. Construction of Utility Pole or Line in Vicinity of Aircraft Landing Area

No public utility shall construct any pole, pole line, distribution or transmission tower, or tower line, or substation structure in the vicinity of the exterior boundary of an aircraft landing area of any airport open to public use, in a location with respect to the airport and at a height so as to constitute an obstruction to air navigation, as an obstruction is defined in accordance with Part 77 of the Federal Aviation Regulations, Federal Aviation Administration, or any corresponding rules or regulations of the Federal Aviation Administration, unless the Federal Aviation Administration has determined that the pole, line, tower, or structure does not constitute a hazard to air navigation. This section shall not apply to existing poles, lines, towers, or structures or to the repair, replacement, or reconstruction thereof if the original height is not materially exceeded and this section shall not apply unless just compensation shall have first been paid to the public utility by the owner of any airport for any property or property rights which would be taken or damaged hereby.

21659. Hazards Near Airports Prohibited

(a) No person shall construct or alter any structures or permit any natural growth to grow at a height which exceeds the obstruction standards set forth in the regulations of the

Federal Aviation Administration relating to objects affecting navigable airspace contained in Title 14 of the Code of Federal Regulations, Part 77, Subpart C, unless a permit allowing the construction, alteration, or growth is issued by the department.

(b) The permit is not required if the Federal Aviation Administration has determined that the construction, alteration, or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Subdivision (a) does not apply to a pole, pole line, distribution or transmission tower, or tower line or substation of a public utility.

(c) Section 21658 is applicable to subdivision (b).

AERONAUTICS LAW
PUBLIC UTILITIES CODE
Division 9, Part 1, Chapter 4
Article 3
REGULATION OF AIRPORTS
(excerpts)

21661.5. City Council or Board of Supervisors and ALUC Approvals

(a) No political subdivisions, any of its officers or employees, or any person may submit any application for the construction of a new airport to any local, regional, state, or federal agency unless the plan for construction is first approved by the board of supervisors of the county, or the city council of the city, in which the airport is to be located and unless the plan is submitted to the appropriate commission exercising powers pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9, and acted upon by that commission in accordance with the provisions of that article.

(b) A county board of supervisors or a city council may, pursuant to Section 65100 of the Government Code, delegate its responsibility under this section for the approval of a plan for construction of new helicopter landing and takeoff areas, to the county or city planning agency.

21664.5 Amended Airport Permits; Airport Expansion Defined

(a) An amended airport permit shall be required for every expansion of an existing airport. An applicant for an amended airport permit shall comply with each requirement of this article pertaining to permits for new airports. The department may by regulation provide for exemptions from the operation of this section pursuant to Section 21661, except that no exemption shall be made limiting the applicability of subdivision (e) of Section 21666, pertaining to environmental considerations, including the requirement for public hearings in connection therewith.

(b) As used in this section, "airport expansion" includes any of the following:

(1) The acquisition of runway protection zones, as defined in Federal Aviation Administration Advisory Circular 150/1500-13, or of any interest in land for the purpose of any other expansion as set forth in this section.

(2) The construction of a new runway.

(3) The extension or realignment of an existing runway.

(4) Any other expansion of the airport's physical facilities for the purpose of accomplishing or which are related to the purpose of paragraph (1), (2), or (3).

(c) This section does not apply to any expansion of an existing airport if the expansion commenced on or prior to the effective date of this section and the expansion met the approval, on or prior to that effective date, of each governmental agency that required the approval by law.

PLANNING AND ZONING LAW
GOVERNMENT CODE
Title 7—Planning and Land Use
Division 1—Planning and Zoning
Chapter 3—Local Planning
Article 5
AUTHORITY FOR AND SCOPE OF GENERAL PLANS
(excerpts)

65302.3. General and Applicable Specific Plans; Consistency with Airport Land Use Plans; Amendment; Nonoccurrence Findings

(a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the plan adopted or amended pursuant to Section 21675 of the Public Utilities Code.

(b) The general plan, and any applicable specific plan, shall be amended, as necessary, within 180 days of any amendment to the plan required under Section 21675 of the Public Utilities Code.

(c) If the legislative body does not concur with any provision of the plan required under Section 21675 of the Public Utilities Code, it may satisfy the provisions of this section by adopting findings pursuant to Section 21676 of the Public Utilities Code.

(d) In each county where an airport land use commission does not exist, but where there is a military airport, the general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport.

PLANNING AND ZONING LAW
GOVERNMENT CODE
Title 7, Division 1
Chapter 4.5—Review and Approval of Development Projects
Article 3
APPLICATION FOR DEVELOPMENT PROJECTS
(excerpts)

65943. Completeness of Application; Determination; Submission of Additional Materials; Appeal; Extension of Time Limits; Fees

(a) Not later than 30 calendar days after any public agency has received an application for a development project, the agency shall determine in writing whether the application is complete and shall immediately transmit the determination to the applicant for the development project. If the written determination is not made within 30 days after receipt of the application, and the application includes a statement that it is an application for a development permit, the application shall be deemed complete for purposes of this chapter. Upon receipt of any re-submittal of the application, a new 30-day period shall begin, during which the public agency shall determine the completeness of the application. If the application is determined not to be complete, the agency's determination shall specify those parts of the application which are incomplete and shall indicate the manner in which they can be made complete, including a list and thorough description of the specific information needed to complete the application. The applicant shall submit materials to the public agency in response to the list and description.

(b) Not later than 30 calendar days after receipt of the submitted materials, the public agency shall determine in writing whether they are complete and shall immediately transmit that determination to the applicant. If the written determination is not made within that 30-day period, the application together with the submitted materials shall be deemed complete for purposes of this chapter.

(c) If the application together with the submitted materials are determined not to be complete pursuant to subdivision (b), the public agency shall provide a process for the applicant to appeal that decision in writing to the governing body of the agency or, if there is no governing body, to the director of the agency, as provided by that agency. A city or county shall provide that the right of appeal is to the governing body or, at their option, the planning commission, or both.

There shall be a final written determination by the agency on the appeal not later than 60 calendar days after receipt of the applicant's written appeal. The fact that an appeal is permitted to both the planning commission and to the governing body does not extend the 60-day period. Notwithstanding a decision pursuant to subdivision (b) that the application and submitted materials are not complete, if the final written determination on the appeal is not made within that 60-day period, the application with the submitted materials shall be deemed complete for the purposes of this chapter.

(d) Nothing in this section precludes an applicant and a public agency from mutually agreeing to an extension of any time limit provided by this section.

(e) A public agency may charge applicants a fee not to exceed the amount reasonably necessary to provide the service required by this section. If a fee is charged pursuant to

this section, the fee shall be collected as part of the application fee charged for the development permit.

65943.5. Environmental Permit Applications; Appeals

(a) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving a permit application to a board, office, or department within the California Environmental Protection Agency shall be made to the Secretary for Environmental Protection.

(b) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving an application for the issuance of an environmental permit from an environmental agency shall be made to the Secretary for Environmental Protection under either of the following circumstances:

(1) The environmental agency has not adopted an appeals process pursuant to subdivision (c) of Section 65943.

(2) The environmental agency declines to accept an appeal for a decision pursuant to subdivision (c) of Section 65943.

(c) For purposes of subdivision (b), "environmental permit" has the same meaning as defined in Section 71012 of the Public Resources Code, and "environmental agency" has the same meaning as defined in Section 71011 of the Public Resources Code, except that "environmental agency" does not include the agencies described in subdivisions (c) and (h) of Section 71011 of the Public Resources Code.

65944. Acceptance of application as complete; requests for additional information; restrictions; prior notice of necessary information; Proximity to Military Installation or Special Use Airspace

(a) After a public agency accepts an application as complete, the agency shall not subsequently request of an applicant any new or additional information which was not specified in the list prepared pursuant to Section 65940. The agency may, in the course of processing the application, request the applicant to clarify, amplify, correct, or otherwise supplement the information required for the application.

(b) The provisions of subdivision (a) shall not be construed as requiring an applicant to submit with his or her initial application the entirety of the information which a public agency may require in order to take final action on the application. Prior to accepting an application, each public agency shall inform the applicant of any information included in the list prepared pursuant to Section 65940 which will subsequently be required from the applicant in order to complete final action on the application.

(c) This section shall not be construed as limiting the ability of a public agency to request and obtain information which may be needed in order to comply with the provisions of Division 13 (commencing with Section 21000) of the Public Resources Code.

65945. Requests for Notice of Proposal to Adopt or Amend Certain Plans or Ordinances By City or County; Subscription to Periodically Updated Notice as Alternative; Fees

(a) At the time of filing an application for a development permit with a city or county, the city or county shall inform the applicant that he or she may make a written request to receive notice from the city or county of a proposal to adopt or amend any of the following plans or ordinances:

(1) A general plan.

(2) A specific plan.

(3) A zoning ordinance.

(4) An ordinance affecting building permits or grading permits.

The applicant shall specify, in the written request, the types of proposed action for which notice is requested. Prior to taking any of those actions, the city or county shall give notice to any applicant who has requested notice of the type of action proposed and whose development project is pending before the city or county if the city or county determines that the proposal is reasonably related to the applicant's request for the development permit. Notice shall be given only for those types of actions which the applicant specifies in the request for notification.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this subdivision, the fee shall be collected as part of the application fee charged for the development permit.

(b) As an alternative to the notification procedure prescribed by subdivision (a), a city or county may inform the applicant at the time of filing an application for a development permit that he or she may subscribe to a periodically updated notice or set of notices from the city or county which lists pending proposals to adopt or amend any of the plans or ordinances specified in subdivision (a), together with the status of the proposal and the date of any hearings thereon which have been set.

Only those proposals which are general, as opposed to parcel-specific in nature, and which the city or county determines are reasonably related to requests for development permits, need be listed in the notice. No proposal shall be required to be listed until such time as the first public hearing thereon has been set. The notice shall be updated and mailed at least once every six weeks; except that a notice need not be updated and mailed until a change in its contents is required.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice, including the costs of updating the notice, for the length of time the applicant requests to be sent the notice or notices.

65945.3. Notice of Proposal to Adopt or Amend Rules or Regulations Affecting Issuance of Permits by Local Agency other than City or County; Fee

At the time of filing an application for a development permit with a local agency, other than a city or county, the local agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a rule or regulation affecting the issuance of development permits.

Prior to adopting or amending any such rule or regulation, the local agency shall give notice to any applicant who has requested such notice and whose development project is pending before the agency if the local agency determines that the proposal is reasonably related to the applicant's request for the development permit.

The local agency may charge the applicant for a development permit, to whom notice is provided pursuant to this section, a reasonable fee not to exceed the actual cost of providing that

notice. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

65945.5. Notice of Proposal to Adopt or Amend Regulation Affecting Issuance of Permits and Which Implements Statutory Provision by State Agency

At the time of filing an application for a development permit with a local agency, other than a city or county, the local agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a rule or regulation affecting the issuance of development permits.

Prior to adopting or amending any such rule or regulation, the local agency shall give notice to any applicant who has requested such notice and whose development project is pending before the agency if the local agency determines that the proposal is reasonably related to the applicant's request for the development permit.

The local agency may charge the applicant for a development permit, to whom notice is provided pursuant to this section, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

65945.7. Actions, Inactions, or Recommendations Regarding Ordinances, Rules or Regulations; Invalidity or Setting Aside Ground of Error Only if Prejudicial

No action, inaction, or recommendation regarding any ordinance, rule, or regulation subject to this Section 65945, 65945.3, or 65945.5 by any legislative body, administrative body, or the officials of any state or local agency shall be held void or invalid or be set aside by any court on the ground of any error, irregularity, informality, neglect or omission (hereinafter called "error") as to any matter pertaining to notices, records, determinations, publications or any matters of procedure whatever, unless after an examination of the entire case, including evidence, the court shall be of the opinion that the error complained of was prejudicial, and that by reason of such error the party complaining or appealing sustained and suffered substantial injury, and that a different result would have been probable if such error had not occurred or existed. There shall be no presumption that error is prejudicial or that injury was done if error is shown.

PLANNING AND ZONING LAW
GOVERNMENT CODE
Title 7, Division 1
Chapter 9.3—Mediation and Resolution of Land Use Disputes
(excerpts)

66030. Legislative Findings and Intent

(a) The Legislature finds and declares all of the following:

(1) Current law provides that aggrieved agencies, project proponents, and affected residents may bring suit against the land use decisions of state and local governmental agencies. In practical terms, nearly anyone can sue once a project has been approved.

(2) Contention often arises over projects involving local general plans and zoning, redevelopment plans, the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code), development impact fees, annexations and incorporations, and the Permit Streamlining Act (Chapter 4.5 (commencing with Section 65920)).

(3) When a public agency approves a development project that is not in accordance with the law, or when the prerogative to bring suit is abused, lawsuits can delay development, add uncertainty and cost to the development process, make housing more expensive, and damage California's competitiveness. This litigation begins in the superior court, and often progresses on appeal to the Court of Appeal and the Supreme Court, adding to the workload of the state's already overburdened judicial system.

(b) It is, therefore, the intent of the Legislature to help litigants resolve their differences by establishing formal mediation processes for land use disputes. In establishing these mediation processes, it is not the intent of the Legislature to interfere with the ability of litigants to pursue remedies through the courts.

66031. Actions Subject to Mediation Proceeding; Selecting a Mediator; Considerations; Failure to Select a Mediator

(a) Notwithstanding any other provision of law, any action brought in the superior court relating to any of the following subjects may be subject to a mediation proceeding conducted pursuant to this chapter:

(1) The approval or denial by a public agency of any development project.

(2) Any act or decision of a public agency made pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).

(3) The failure of a public agency to meet the time limits specified in Chapter 4.5 (commencing with Section 65920), commonly known as the Permit Streamlining Act, or in the Subdivision Map Act (Division 2 (commencing with Section 66410)).

(4) Fees determined pursuant to Sections 53080 to 53082, inclusive, or Chapter 4.9 (commencing with Section 65995).

(5) Fees determined pursuant to Chapter 5 (commencing with Section 66000).

(6) The adequacy of a general plan or specific plan adopted pursuant to Chapter 3 (commencing with Section 65100).

(7) The validity of any sphere of influence, urban service area, change of organization or reorganization, or any other decision made pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Division 3 (commencing with Section 56000) of Title 5).

(8) The adoption or amendment of a redevelopment plan pursuant to the Community Redevelopment Law (Part 1 (commencing with Section 33000) of Division 24 of the Health and Safety Code).

(9) The validity of any zoning decision made pursuant to Chapter 4 (commencing with Section 65800).

(10) The validity of any decision made pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9 of the Public Utilities Code.

(b) Within five days after the deadline for the respondent or defendant to file its reply to an action, the court may invite the parties to consider resolving their dispute by selecting a mutually acceptable person to serve as a mediator, or an organization or agency to provide a mediator.

(c) In selecting a person to serve as a mediator, or an organization or agency to provide a mediator, the parties shall consider the following:

(1) The council of governments having jurisdiction in the county where the dispute arose.

(2) Any sub-regional or countywide council of governments in the county where the dispute arose.

(3) Any other person with experience or training in mediation including those with experience in land use issues, or any other organization or agency that can provide a person with experience or training in mediation, including those with experience in land use issues.

(d) If the court invites the parties to consider mediation, the parties shall notify the court within 30 days if they have selected a mutually acceptable person to serve as a mediator. If the parties have not selected a mediator within 30 days, the action shall proceed. The court shall not draw any implication, favorable or otherwise, from the refusal by a party to accept the invitation by the court to consider mediation. Nothing in this section shall preclude the parties from using mediation at any other time while the action is pending.

PLANNING AND ZONING LAW
GOVERNMENT CODE
Title 7—Planning and Land Use
Division 2—Subdivisions
Chapter 3—Procedure
Article 3
REVIEW OF TENTATIVE MAP BY OTHER AGENCIES
(excerpts)

66455.9. Potential Public School sites; Notice; Investigation

Whenever there is consideration of an area within a development for a public school site, the advisory agency shall give the affected districts and the State Department of Education written notice of the proposed site. The written notice shall include the identification of any existing or proposed runways within the distance specified in Section 17215 of the Education Code. If the site is within the distance of an existing or proposed airport runway as described in Section 17215 of the Education Code, the department shall notify the State Department of Transportation as required by the section and the site shall be investigated by the State Department of Transportation required by Section 17215.

EDUCATION CODE
Title 1—General Education Code Provisions
Division 1—General Education Code Provisions
Part 10.5—School Facilities
Chapter 1—School Sites
Article 1
GENERAL PROVISIONS
(excerpts)

17215. Site Near Airport

(a) In order to promote the safety of pupils, comprehensive community planning, and greater educational usefulness of school sites, before acquiring title to or leasing property for a new school site, the governing board of each school district, including any district governed by a city board of education, or a charter school, shall give the State Department of Education written notice of the proposed acquisition or lease and shall submit any information required by the State Department of Education if the site is within two miles, measured by air line, of that point on an airport runway or a potential runway included in an airport master plan that is nearest to the site.

(b) Upon receipt of the notice required pursuant to subdivision (a), the State Department of Education shall notify the Department of Transportation in writing of the proposed acquisition or lease. If the Department of Transportation is no longer in operation, the State Department of Education shall, in lieu of notifying the Department of Transportation, notify the United States Department of Transportation or any other appropriate agency, in writing, of the proposed acquisition or lease for the purpose of obtaining from the department or other agency any information or assistance that it may desire to give.

(c) The Department of Transportation shall investigate the site and, within 30 working days after receipt of the notice, shall submit to the State Department of Education a written report of its findings including recommendations concerning acquisition or lease of the site. As part of the investigation, the Department of Transportation shall give notice thereof to the owner and operator of the airport who shall be granted the opportunity to comment upon the site. The Department of Transportation shall adopt regulations setting forth the criteria by which a site will be evaluated pursuant to this section.

(d) The State Department of Education shall, within 10 days of receiving the Department of Transportation's report, forward the report to the governing board of the school district or charter school. The governing board or charter school may not acquire title to or lease the property until the report of the Department of Transportation has been received. If the report does not favor the acquisition or lease of the property for a school site or an addition to a present school site, the governing board or charter school may not acquire title to or lease the property. If the report does favor the acquisition or lease of the property for a school site or an addition to a present school site, the governing board or charter school shall hold a public hearing on the matter prior to acquiring or leasing the site.

(e) If the Department of Transportation's recommendation does not favor acquisition or lease of the proposed site, state funds or local funds may not be apportioned or expended for the acquisition or lease of that site, construction of any school building on that site, or for the expansion of any existing site to include that site.

(f) This section does not apply to sites acquired prior to January 1, 1966, nor to any additions or extensions to those sites.

EDUCATION CODE
Title 3—Postsecondary Education
Division 7—Community Colleges
Part 49—Community Colleges, Education Facilities
Chapter 1—School Sites
Article 2
SCHOOL SITES
(excerpts)

81033. Investigation: Geologic and Soil Engineering Studies; Airport in Proximity

(c) To promote the safety of students, comprehensive community planning, and greater educational usefulness of community college sites, the governing board of each community college district, if the proposed site is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site and excluding them if the property is not so located, before acquiring title to property for a new community college site or for an addition to a present site, shall give the board of governors notice in writing of the proposed acquisition and shall submit any information required by the board of governors.

Immediately after receiving notice of the proposed acquisition of property which is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site, the board of governors shall notify the Division of Aeronautics of the Department of Transportation, in writing, of the proposed acquisition. The Division of Aeronautics shall make an investigation and report to the board of governors within 30 working days after receipt of the notice. If the Division of Aeronautics is no longer in operation, the board of governors, in lieu of notifying the Division of Aeronautics, shall notify the Federal Aviation Administration or any other appropriate agency, in writing, of the proposed acquisition for the purpose of obtaining from the authority or other agency any information or assistance it may desire to give.

The board of governors shall investigate the proposed site and, within 35 working days after receipt of the notice, shall submit to the governing board a written report and its recommendations concerning acquisition of the site. The governing board shall not acquire title to the property until the report of the board of governors has been received. If the report does not favor the acquisition of the property for a community college site or an addition to a present community college site, the governing board shall not acquire title to the property until 30 days after the department's report is received and until the board of governors' report has been read at a public hearing duly called after 10 days' notice published once in a newspaper of general circulation within the community college district, or if there is no such newspaper, then in a newspaper of general circulation within the county in which the property is located.

(d) If, with respect to a proposed site located within two miles of an operative airport runway, the report of the board of governors submitted to a community college district governing board under subdivision (c) does not favor the acquisition of the site on the sole or partial basis of the unfavorable recommendation of the Division of Aeronautics of the Department of Transportation, no state agency or officer shall grant, apportion, or allow to that community college district for expenditure in connection with that site, any state funds otherwise made available under any state law whatever for community

college site acquisition or college building construction, or for expansion of existing sites and buildings, and no funds of the community college district or of the county in which the district lies shall be expended for those purposes. However, this section shall not be applicable to sites acquired prior to January 1, 1966, or to any additions or extensions to those sites.

If the recommendation of the Division of Aeronautics is unfavorable, the recommendation shall not be overruled without the express approval of the board of governors and the State Allocation Board.

PUBLIC RESOURCES CODE
California Environmental Quality Act Statutes
Chapter 2.6—General
(excerpts)

21096. Technical Resources to Assist in Preparation of Environmental Impact Report as it Relates to Airport-Related Safety Hazards and Noise Problems; Use of Airport Land Use Planning Handbook; Negative Declaration for a Project

(a) If a lead agency prepares an environmental impact report for a project situated within airport land use compatibility plan boundaries, or, if an airport land use compatibility plan has not been adopted, for a project within two nautical miles of a public airport or public use airport, the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation, in compliance with Section 21674.5 of the Public Utilities Code and other documents, shall be utilized as technical resources to assist in the preparation of the environmental impact report as the report relates to airport-related safety hazards and noise problems.

(b) A lead agency shall not adopt a negative declaration for a project described in subdivision (a) unless the lead agency considers whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area.

Business and Professions Code
Section 11000 – 11010
(excerpts)

11000.

(a) "Subdivided lands" and "subdivision" refer to improved or unimproved lands or lands, wherever situated within California, divided or proposed to be divided for the purpose of sale or lease or financing, whether immediate or future, into five or more lots or parcels. However, land or lands sold by lots or parcels of not less than 160 acres which are designated by lot or parcel description by government surveys and appear as such on the current assessment roll of the county in which the land or lands are situated shall not be deemed to be "subdivided lands" or "a subdivision" within the meaning of this section, unless the land or lands are divided or proposed to be divided for the purpose of sale for oil and gas purposes, in which case the land or lands shall be deemed to be "subdivided lands" or "a subdivision" within the meaning of this section. This chapter also does not apply to the leasing of apartments, offices, stores, or similar space within an apartment building, industrial building, commercial building, or mobile home park, as defined under Section 18214 of the Health and Safety Code, except that the offering of leases for a term in excess of five years to tenants within a mobile home park as a mandatory requirement and prerequisite to tenancy within the mobile home park shall be subject to the provisions of this chapter. The leasing of apartments in a community apartment project, as defined in Section 11004 in an apartment or similar space within a commercial building or complex, shall be subject to the provisions of this chapter.

(b) Nothing in this section shall in any way modify or affect any of the provisions of Section 66424 of the Government Code.

(c) Subdivisions, as defined in Section 10249.1, which are located entirely outside California shall be exempt from the provisions of this part.

11000.1.

(a) "Subdivided lands" and "subdivision", as defined by Sections 11000 and 1104.5, also include improved or unimproved land or lands, a lot or lots, or a parcel or parcels, of any size, in which, for the purpose of sale or lease of financing, whether immediate or future, five or more undivided interests are created or are proposed to be created.

(b) This section does not apply to the creation or proposed creation of undivided interests in land if any one of the following conditions exists:

(1) The undivided interests are held or to be held by persons related one to the other by blood or marriage.

(2) The undivided interests are to be purchased and owned solely by persons who present evidence satisfactory to the Real Estate Commissioner that they are knowledgeable and experienced investors who comprehend the nature and extent of the risks involved in the ownership of these interests. The Real Estate Commissioner shall grant an exemption from this part if the undivided interests are to be purchased by no more than 10 persons, each of whom furnishes a signed statement to the commissioner that he or she:

(A) is fully informed concerning the real property to be acquired and his or her interest in that property including the risks involved in ownership of undivided interests,

(B) is purchasing the interest or interests for his or her own account and with no present intention to resell or otherwise dispose of the interest for value, and

(C) expressly waives protections afforded to a purchaser by this part.

(3) The undivided interests are created as a result of a foreclosure sale.

(4) The undivided interests are created by a valid order or decree of a court.

(5) The offering and sale of the undivided interests have been expressly qualified by the issuance of a permit from the Commissioner of Corporations pursuant to the Corporate Securities Law of 1968 (Division 1 (commencing with Section 25000) of Title 4 of the Corporations Code).

11010.

(a) Except as otherwise provided pursuant to subdivision (c) or elsewhere in this chapter, any person who intends to offer subdivided lands within this state for sale or lease shall file with the Department of Real Estate an application for a public report consisting of a notice of intention and a completed questionnaire on a form prepared by the department.

(b) (13) (A) The location of all existing airports, and of all proposed airports shown on the general plan of any city or county, located within two statute miles of the subdivision. If the property is located within an airport influence area, the following statement shall be included in the notice of intention:

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as the airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

(B) For purposes of this section, an "airport influence area," also known as an "airport referral area", is the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission.

LEGISLATIVE HISTORY SUMMARY
PUBLIC UTILITIES CODE
Section 21670 ET SEQ.
Airport land Use Commission Statutes

1967 Original ALUC statute enacted.

- Establishment of ALUCs required in each county containing a public airport served by a certificated air carrier.
- The purpose of ALUCs is indicated as being to make recommendations regarding height restrictions on buildings and the use of land surrounding airports.

1970 Assembly Bill 1856 (Badham) Chapter 1182, S tatutes of 1970 — Adds provisions which:

- Require ALUCs to prepare comprehensive land use plans.
- Require such plans to include a long-range plan and to reflect the airport's forecast growth during the next 20 years.
- Require ALUC review of airport construction plans (Section 21661.5).
- Exempt Los Angeles County from the requirement of establishing an ALUC.

1971 The function of ALUCs is restated as being to require new construction to conform to Department of Aeronautics standards.

1973 ALUCs are permitted to establish compatibility plans for military airports.

1982 Assembly Bill 2920 (Rogers) Chapter 1041, Statutes of 1982 — Adds major changes which:

- More clearly articulate the purpose of ALUCs.
- Eliminate reference to "achieve by zoning."
- Require consistency between local general and specific plans and airport land use commission plans; the requirements define the process for attaining consistency, they do not establish standards for consistency.
- Eliminate the requirement for proposed individual development projects to be referred to an ALUC for review once local general/specific plans are consistent with the ALUC's plan.
- Require that local agencies make findings of fact before overriding an ALUC decision.
- Change the vote required for an override from 4/5 to 2/3.

1984 Assembly Bill 3551 (Mountjoy) Chapter 1117, Statutes of 1984 — Amends the law to:

- Require ALUCs in all counties having an airport which serves the general public unless a county and its cities determine an ALUC is not needed.
- Limit amendments to compatibility plans to once per year.
- Allow individual projects to continue to be referred to the ALUC by agreement.
- Extend immunity to airports if an ALUC action is overridden by a local agency not owning the airport.
- Provide state funding eligibility for preparation of compatibility plans through the Regional Transportation Improvement Program process.1987Senate Bill 633 (Rogers) Chapter 1018, Statutes of 1987 — Makes revisions which:
- Require that a designated body serving as an ALUC include two members having "expertise in aviation."

- Allows an interested party to initiate court proceedings to postpone the effective date of a local land use action if a compatibility plan has not been adopted.
- Delete sunset provisions contained in certain clauses of the law.
- Allows reimbursement for ALUC costs in accordance with the Commission on State Mandates.

1989 Senate Bill 255 (Bergeson) Chapter 54, Statutes of 1989 —
- Sets a requirement that comprehensive land use plans be completed by June 1991.
- Establishes a method for compelling ALUCs to act on matters submitted for review.
- Allows ALUCs to charge fees for review of projects.
- Suspends any lawsuits that would stop development until the ALUC adopts its plan or until June 1, 1991.

1989 Senate Bill 235 (Alquist) Chapter 788, Statutes of 1989 — Appropriates $3,672,000 for the payment of claims to counties seeking reimbursement of costs incurred during fiscal years 1985-86 through 1989-90 pursuant to state-mandated requirement (Chapter 1117, Statutes of 1984) for creation of ALUCs in most counties. This statute was repealed in 1993.

1990 Assembly Bill 4164 (Mountjoy) Chapter 1008, Statutes of 1990 — Adds section 21674.5 requiring the Division of Aeronautics to develop and implement a training program for ALUC staffs.

1990 Assembly Bill 4265 (Clute) Chapter 563, Statutes of 1990 — With the concurrence of the Division of Aeronautics, allows ALUCs to use an airport layout plan, rather than a long-range airport master plan, as the basis for preparation of a compatibility plan.

1990 Senate Bill 1288 (Beverly) Chapter 54, Statutes of 1990 — Amends Section 21670.2 to give Los Angeles County additional time to prepare compatibility plans and meet other provisions of the ALUC statutes.

1991 Senate Bill 532 (Bergeson) Chapter 140, Statutes of 1991 —
- Allows counties having half of their compatibility plans completed or under preparation by June 30, 1991, an additional year to complete the remainder.
- Allows ALUCs to continue to charge fees under these circumstances.
- Fees may be charged only until June 30, 1992, if plans are not completed by then.

1993 Senate Bill 443 (Committee on Budget and Fiscal Review) Chapter 59, Statutes of 1993 — Amends Section 21670(b) to make the formation of ALUCs permissive rather than mandatory as of June 30, 1993. (Note: Section 21670.2 which assigns responsibility for coordinating the airport planning of public agencies in Los Angeles County is not affected by this amendment.)

1994 Assembly Bill 2831 (Mountjoy) Chapter 644, Statutes of 1994 — Reinstates the language in Section 21670(b) mandating establishment of ALUCs, but also provides for an alternative airport land use planning process. Lists specific actions which a county and affected cities must take in order for such alternative process to receive Caltrans' approval. Requires that ALUCs be guided by information in the Caltrans' Airport Land Use Planning Handbook when formulating airport land use plans.

1994 Senate Bill 1453 (Rogers) Chapter 438, Statutes of 1994 — Amends Caltrans Environmental Quality Act (CEQA) statutes as applied to preparation of environmental documents affecting projects in the vicinity of airports. Requires lead agencies to use the Airport Land Use Planning Handbook as a technical resource when assessing the airport-related noise and safety impacts of such projects.

1997 Assembly Bill 1130 (Oller) Chapter 81, Statutes of 1997 — Added Section 21670.4 concerning airports whose planning boundary straddles a county line.

2000 Senate Bill 1350 (Rainey) Chapter 506, Statutes of 2000 — Added Section 21670(f) clarifying that special districts are among the local agencies to which airport land use planning laws are intended to apply.

2001 Assembly Bill 93 (Wayne) Chapter 946, Statutes of 2001 — Added Section 21670.3 establishing the San Diego County Regional Airport Authority and assigning it various powers and duties regarding the establishment, planning and operation of airports within the county.

2002 Assembly Bill 3026 (Dutra) Chapter 438, Statutes of 2002 — In all sections where the term "comprehensive land use plan" is used this bill changed it to "airport land use compatibility plan."

2002 Assembly Bill 2776 (Simitian) Chapter 496, Statutes of 2002— Amends Business & Professions code and Civil code. Requires additional notification in real estate transactions regarding a property's proximity to airports and possible associated annoyances.

2002 Senate Bill 1468 (Knight) Chapter 971, Statutes of 2002— Amended Section 21675 requiring airport land use compatibility plans created for military airports to be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that airport.

2003 Assembly Bill 332 (Mullin) Chapter 351, Statutes of 2003 —

- Clarifies that community college districts and school districts along with special districts are subject to airport land use laws in the State Aeronautics Act.
- Adds that if a local entity proposes to overrule an ALUC decision of incompatible land use then they must notify and provide findings to both the ALUC and Caltrans Aeronautics. Caltrans and the ALUC may provide comments in response and those comments must be made a part of the final local decision.
- Adds that prior to granting building construction permits, local agencies shall be guided by the criteria established in the Airport Land Use Planning Handbook and any related federal aviation regulations to the extent that the criteria has been incorporated into their airport land use compatibility plan.

2007 Senate Bill 10 (Kehoe) Chapter 287, Statutes of 2007 — The San Diego County Regional Airport Authority Reform Act of 2007. Restructures the airport authority established in 2001 by AB 93 (Wayne), with a set of goals related to governance, accountability, planning and operations at San Diego International Airport.

Appendix B

Federal Aviation Regulations Part 77

(Effective January 18, 2011)

Subpart A
General

77.1 Purpose.

This part establishes:

(a) The requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures;

(b) The standards used to determine obstructions to air navigation, and navigational and communication facilities;

(c) The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and

(d) The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

77.3 Definitions.

For the purpose of this part:

"Non-precision instrument runway" means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document.

Planned or proposed airport is an airport that is the subject of at least one of the following documents received by the FAA:

(1) Airport proposals submitted under 14 CFR Part 157.

(2) Airport Improvement Program requests for aid.

(3) Notices of existing airports where prior notice of the airport construction or alteration was not provided as required by 14 CFR Part 157.

(4) Airport layout plans.

(5) DOD proposals for airports used only by the U.S. Armed Forces.

(6) DOD proposals on joint-use (civil-military) airports.

(7) Completed airport site selection feasibility study.

"Precision instrument runway" means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

"Public use airport" is an airport available for use by the general public without a requirement for prior approval of the airport owner or operator.

"Seaplane base" is considered to be an airport only if its sea lanes are outlined by visual markers.

"Utility runway" means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

"Visual runway" means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority.

Subpart B
Notice Requirements

77.5 Applicability.

(a) If you propose any construction or alteration described in §77.9, you must provide adequate notice to the FAA of that construction or alteration.
(b) If requested by the FAA, you must also file supplemental notice before the start date and upon completion of certain construction or alterations that are described in §77.9.
(c) Notice received by the FAA under this subpart is used to:

(1) Evaluate the effect of the proposed construction or alteration on safety in air commerce and the efficient use and preservation of the navigable airspace and of airport traffic capacity at public use airports;

(2) Determine whether the effect of proposed construction or alteration is a hazard to air navigation;

(3) Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460–1, Obstruction Marking and Lighting;

(4) Determine other appropriate measures to be applied for continued safety of air navigation; and

(5) Notify the aviation community of the construction or alteration of objects that affect the navigable airspace, including the revision of charts, when necessary.

77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460–1, Notice of Proposed Construction or Alteration. FAA Form 7460–1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460–1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and

Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

77.11 Supplemental notice requirements.

(a) You must file supplemental notice with the FAA when:

(1) The construction or alteration is more than 200 feet in height AGL at its site; or

(2) Requested by the FAA.

(b) You must file supplemental notice on a prescribed FAA form to be received within the time limits specified in the FAA determination. If no time limit has been specified, you must submit supplemental notice of construction to the FAA within 5 days after the structure reaches its greatest height.

(c) If you abandon a construction or alteration proposal that requires supplemental notice, you must submit notice to the FAA within 5 days after the project is abandoned.

(d) If the construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Subpart C
Standards for Determining Obstructions to Air Navigation or Navigational Aids or Facilities

77.13 Applicability.

This subpart describes the standards used for determining obstructions to air navigation, navigational aids, or navigational facilities. These standards apply to the following:

(a) Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.

(b) The alteration of any permanent or temporary existing structure by a change in its height, including appurtenances, or lateral dimensions, including equipment or material used therein.

77.15 Scope.

(a) This subpart describes standards used to determine obstructions to air navigation that may affect the safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities. Such facilities include air navigation aids, communication equipment, airports, Federal airways, instrument approach or departure procedures, and approved off-airway routes.

(b) Objects that are considered obstructions under the standards described in this subpart are presumed hazards to air navigation unless further aeronautical study concludes that the object is not a hazard. Once further aeronautical study has been initiated, the FAA will use the standards in this subpart, along with FAA policy and guidance material, to determine if the object is a hazard to air navigation.

(c) The FAA will apply these standards with reference to an existing airport facility, and airport proposals received by the FAA, or the appropriate military service, before it issues a final determination.

(d) For airports having defined runways with specially prepared hard surfaces, the primary surface for each runway extends 200 feet beyond each end of the runway. For airports having defined strips or pathways used regularly for aircraft takeoffs and landings, and designated runways, without specially prepared hard surfaces, each end of the primary surface for each such runway shall coincide with the corresponding end of the runway. At airports, excluding seaplane bases, having a defined landing and takeoff area with no defined pathways for aircraft takeoffs and landings, a determination must be made as to which portions of the landing and takeoff area are regularly used as landing and takeoff pathways. Those determined pathways must be considered runways, and an appropriate primary surface as defined in §77.19 will be considered as longitudinally centered on each such runway. Each end of that primary surface must coincide with the corresponding end of that runway.

(e) The standards in this subpart apply to construction or alteration proposals on an airport (including heliports and seaplane bases with marked lanes) if that airport is one of the following before the issuance of the final determination:

(1) Available for public use and is listed in the Airport/Facility Directory, Supplement Alaska, or Supplement Pacific of the U.S. Government Flight Information Publications; or

(2) A planned or proposed airport or an airport under construction of which the FAA has received actual notice, except DOD airports, where there is a clear indication the airport will be available for public use; or,

(3) An airport operated by a Federal agency or the DOD; or,

(4) An airport that has at least one FAA-approved instrument approach.

77.17 Obstruction standards.

(a) An existing object, including a mobile object, is, and a future object would be an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

(1) A height of 499 feet AGL at the site of the object.

(2) A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile from the airport up to a maximum of 499 feet.

(3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under §77.19, 77.21, or 77.23. However, no part of the takeoff or landing area itself will be considered an obstruction.

(b) Except for traverse ways on or near an airport with an operative ground traffic control service furnished by an airport traffic control tower or by the airport management and coordinated with the air traffic control service, the standards of paragraph (a) of this section apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance.

(2) 15 feet for any other public roadway.

(3) 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.

(4) 23 feet for a railroad.

(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

77.19 Civil airport imaginary surfaces.

The following civil airport imaginary surfaces are established with relation to the airport and to each runway. The size of each such imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach procedure existing or planned for that runway end.

(a) Horizontal surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by Swinging arcs of a specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual;

(2) 10,000 feet for all other runways. The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

(b) Conical surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

(c) Primary surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having non-precision instrument approaches.

(3) For other than utility runways, the width is:

(i) 500 feet for visual runways having only visual approaches.

(ii) 500 feet for non-precision instrument runways having visibility minimums greater than three-fourths statue mile.

(iii) 1,000 feet for a non-precision instrument runway having a non-precision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.

(iv) The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

(d) Approach surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

(i) 1,250 feet for that end of a utility runway with only visual approaches;

(ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches;

(iii) 2,000 feet for that end of a utility runway with a non-precision instrument approach;

(iv) 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater that three-fourths of a statute mile;

(v) 4,000 feet for that end of a non-precision instrument runway, other than utility, having a non-precision instrument approach with visibility minimums as low as three-fourths statute mile; and

(vi) 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:

(i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways;

(ii) 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility; and

(iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

(3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

(e) Transitional surface. These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

77.21 Department of Defense (DOD) airport imaginary surfaces.

(a) Related to airport reference points. These surfaces apply to all military airports. For the purposes of this section, a military airport is any airport operated by the DOD.

(1) Inner horizontal surface. A plane that is oval in shape at a height of 150 feet above the established airfield elevation. The plane is constructed by scribing an arc with a radius of 7,500 feet about the centerline at the end of each runway and interconnecting these arcs with tangents.

(2) Conical surface. A surface extending from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation.

(3) Outer horizontal surface. A plane, located 500 feet above the established airfield elevation, extending outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

(b) Related to runways. These surfaces apply to all military airports.

(1) Primary surface. A surface located on the ground or water longitudinally centered on each runway with the same length as the runway. The width of the primary surface for runways is 2,000 feet. However, at established bases where substantial construction has taken place in accordance with a previous lateral clearance criteria, the 2,000-foot width may be reduced to the former criteria.

(2) Clear zone surface. A surface located on the ground or water at each end of the primary surface, with a length of 1,000 feet and the same width as the primary surface.

(3) Approach clearance surface. An inclined plane, symmetrical about the runway centerline extended, beginning 200 feet beyond each end of the primary surface at the centerline elevation of the runway end and extending for 50,000 feet. The slope of the approach clearance surface is 50 to 1 along the runway centerline extended until it reaches an elevation of 500 feet above the established airport elevation. It then continues horizontally at this elevation to a point 50,000 feet from the point of beginning. The width of this surface at the runway end is the same as the primary surface, it flares uniformly, and the width at 50,000 is 16,000 feet.

(4) Transitional surfaces. These surfaces connect the primary surfaces, the first 200 feet of the clear zone surfaces, and the approach clearance surfaces to the inner horizontal surface, conical surface, outer horizontal surface or other transitional surfaces. The slope of the transitional surface is 7 to 1 outward and upward at right angles to the runway centerline.

77.23 Heliport imaginary surfaces.

(a) Primary surface. The area of the primary surface coincides in size and shape with the designated take-off and landing area. This surface is a horizontal plane at the elevation of the established heliport elevation.

(b) Approach surface. The approach surface begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.

(c) Transitional surfaces. These surfaces extend outward and upward from the lateral boundaries of the primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

Subpart D
Aeronautical Studies and Determinations

77.25 Applicability.

(a) This subpart applies to any aeronautical study of a proposed construction or alteration for which notice to the FAA is required under 77.9.

(b) The purpose of an aeronautical study is to determine whether the aeronautical effects of the specific proposal and, where appropriate, the cumulative impact resulting from the proposed construction or alteration when combined with the effects of other existing or proposed structures, would constitute a hazard to air navigation.

(c) The obstruction standards in subpart C of this part are supplemented by other manuals and directives used in determining the effect on the navigable airspace of a proposed construction or alteration. When the FAA needs additional information, it may circulate a study to interested parties for comment.

77.27 Initiation of studies.

The FAA will conduct an aeronautical study when:

(a) Requested by the sponsor of any proposed construction or alteration for which a notice is submitted; or

(b) The FAA determines a study is necessary.

77.29 Evaluating aeronautical effect.

(a) The FAA conducts an aeronautical study to determine the impact of a proposed structure, an existing structure that has not yet been studied by the FAA, or an alteration of an existing structure on aeronautical operations, procedures, and the safety of flight. These studies include evaluating:

(1) The impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules;

(2) The impact on arrival, departure, and en route procedures for aircraft operating under instrument flight rules;

(3) The impact on existing and planned public use airports;

(4) Airport traffic capacity of existing public use airports and public use airport development plans received before the issuance of the final determination;

(5) Minimum obstacle clearance altitudes, minimum instrument flight rules altitudes, approved or planned instrument approach procedures, and departure procedures;

(6) The potential effect on ATC radar, direction finders, ATC tower line-of-sight visibility, and physical or electromagnetic effects on air navigation, communication facilities, and other surveillance systems;

(7) The aeronautical effects resulting from the cumulative impact of a proposed construction or alteration of a structure when combined with the effects of other existing or proposed structures.

(b) If you withdraw the proposed construction or alteration or revise it so that it is no longer identified as an obstruction, or if no further aeronautical study is necessary, the FAA may terminate the study.

77.31 Determinations.

(a) The FAA will issue a determination stating whether the proposed construction or alteration would be a hazard to air navigation, and will advise all known interested persons.

(b) The FAA will make determinations based on the aeronautical study findings and will identify the following:

(1) The effects on VFR/IFR aeronautical departure/arrival operations, air traffic procedures, minimum flight altitudes, and existing, planned, or proposed airports listed in §77.15(e) of which the FAA has received actual notice prior to issuance of a final determination.

(2) The extent of the physical and/or electromagnetic effect on the operation of existing or proposed air navigation facilities, communication aids, or surveillance systems.

(c) The FAA will issue a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact.

(d) A Determination of No Hazard to Air Navigation will be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation. A Determination of No Hazard to Air Navigation may include the following:

(1) Conditional provisions of a determination.

(2) Limitations necessary to minimize potential problems, such as the use of temporary construction equipment.

(3) Supplemental notice requirements, when required.

(4) Marking and lighting recommendations, as appropriate.

(e) The FAA will issue a Determination of No Hazard to Air Navigation when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation.

77.33 Effective period of determinations.

(a) A determination issued under this subpart is effective 40 days after the date of issuance, unless a petition for discretionary review is received by the FAA within 30 days after issuance. The determination will not become final pending disposition of a petition for discretionary review.

(b) Unless extended, revised, or terminated, each Determination of No Hazard to Air Navigation issued under this subpart expires 18 months after the effective date of the determination, or on the date the proposed construction or alteration is abandoned, whichever is earlier.

(c) A Determination of Hazard to Air Navigation has no expiration date.

77.35 Extensions, terminations, revisions and corrections.

(a) You may petition the FAA official that issued the Determination of No Hazard to Air Navigation to revise or reconsider the determination based on new facts or to extend the effective period of the determination, provided that:

(1) Actual structural work of the proposed construction or alteration, such as the laying of a foundation, but not including excavation, has not been started; and

(2) The petition is submitted at least 15 days before the expiration date of the Determination of No Hazard to Air Navigation.

(b) A Determination of No Hazard to Air Navigation issued for those construction or alteration proposals not requiring an FCC construction permit may be extended by the FAA one time for a period not to exceed 18 months.

(c) A Determination of No Hazard to Air Navigation issued for a proposal requiring an FCC construction permit may be granted extensions for up to 18 months, provided that:

(1) You submit evidence that an application for a construction permit/license was filed with the FCC for the associated site within 6 months of issuance of the determination; and

(2) You submit evidence that additional time is warranted because of FCC requirements; and

(3) Where the FCC issues a construction permit, a final Determination of No Hazard to Air Navigation is effective until the date prescribed by the FCC for completion of the construction. If an extension of the original FCC completion date is needed, an extension of the FAA determination must be requested from the Obstruction Evaluation Service (OES).

(4) If the Commission refuses to issue a construction permit, the final determination expires on the date of its refusal.

Subpart E
Petitions for Discretionary Review

77.37 General.

(a) If you are the sponsor, provided a substantive aeronautical comment on a proposal in an aeronautical study, or have a substantive aeronautical comment on the proposal but were not given an opportunity to state it, you may petition the FAA for a discretionary review of a determination, revision, or extension of a determination issued by the FAA.

(b) You may not file a petition for discretionary review for a Determination of No Hazard that is issued for a temporary structure, marking and lighting recommendation, or when a proposed structure or alteration does not exceed obstruction standards contained in subpart C of this part.

77.39 Contents of a petition.

(a) You must file a petition for discretionary review in writing and it must be received by the FAA within 30 days after the issuance of a determination under 77.31, or a revision or extension of the determination under 77.35.

(b) The petition must contain a full statement of the aeronautical basis on which the petition is made, and must include new information or facts not previously considered or presented during the aeronautical study, including valid aeronautical reasons why the determination, revisions, or extension made by the FAA should be reviewed.

(c) In the event that the last day of the 30-day filing period falls on a weekend or a day the Federal government is closed, the last day of the filing period is the next day that the government is open.

(d) The FAA will inform the petitioner or sponsor (if other than the petitioner) and the FCC (whenever an FCC-related proposal is involved) of the filing of the petition and that the determination is not final pending disposition of the petition.

77.41 Discretionary review results.

(a) If discretionary review is granted, the FAA will inform the petitioner and the sponsor (if other than the petitioner) of the issues to be studied and reviewed. The review may include a request for comments and a review of all records from the initial aeronautical study.

(b) If discretionary review is denied, the FAA will notify the petitioner and the sponsor (if other than the petitioner), and the FCC, whenever a FCC-related proposal is involved, of the basis for the denial along with a statement that the determination is final.

(c) After concluding the discretionary review process, the FAA will revise, affirm, or reverse the determination.

Appendix C

Next Generation Air Transportation System

INTRODUCTION

The Next Generation Air Transportation System (NextGen) is the transformation of the current U.S. aviation system or National Airspace System (NAS) from land-based navigational aids to a satellite-based navigation system. The satellite-based technologies will significantly improve safety, capacity and efficiency on the ground as well as in the air while providing environmentally friendly procedures and technologies that will reduce fuel burn, carbon emissions and in some instances will also reduce noise. The transformation to NextGen is expected to occur by employing technologies, operational advances, and policies to provide necessary future safety, security, capacity, and enhanced environmental performance. Ongoing investments in airport infrastructure – runways, terminals and technology – will ensure that maximum benefits will be gained from transforming the air traffic system and updating aircraft fleets. The investment in advanced engines, airframes and sustainable fuels, along with new procedures, will help reduce aviation's environmental footprint. As NextGen has to date been mostly in planning and design stages, and has only recently entered implementation, there is insufficient detail at this time to address specifics of land use compatibility for California airports. However, it is important to note that some of the recently announced implementation initiatives have indicated that several metropolitan areas in California, including both Southern California and the Bay Area, are candidates for early and midterm NextGen implementation. The early implementation initiatives will likely impact large metropolitan areas by introducing NextGen supported arrival and departure procedures and associated airspace redesigns at high volume airports. In the far-term NextGen is also likely to bring about changes associated with reduced runway separation standards for all airports as well as the virtual tower concepts for small, uncontrolled airports.

The remainder of this appendix discusses proposed NextGen improvements and their potential impact on the airport environment in two categories: operational improvements and noise and other environmental improvements.

OPERATIONAL IMPROVEMENTS: NEXTGEN AIRPORT AND AIRSPACE CONCEPTS

Several NextGen concepts will result in significant increase of airspace and airport capacity and may therefore influence local land use policies. This section presents the most influential NextGen improvements and technologies in relation to land use policies as they relate to each of the three basic phases of flight: departure, en route and arrival.

Integrated Departure/Arrival Management

NextGen capabilities will provide a number of improvements to terminal area operations that save fuel, increase predictability and minimize maneuvers such as holding patterns and delaying vectors. Areas of particular interest for land use compatibility planning purposes are Flexible Terminal Operations (FTO), Optimized Profile Descent (OPD) also known in the industry as Continuous Descent Arrivals (CDA), and Performance-Based Navigation (PBN) routes and procedures that leverage emerging technologies and aircraft navigation capabilities. All these capabilities are described in further detail in subsequent sections. In addition, new airspace designs will take advantage of expanded use of terminal procedures and separation standards, which will be particularly applicable in major metropolitan areas supporting multiple high volume airports. These NextGen operational concepts will increase aircraft flow and introduce additional routes and flexibility to reduce delays. These concepts can also be implemented to improve land use compatibility by reducing noise exposure and by designing routes to avoid noise sensitive land uses.

Flexible Terminal Operations: This concept introduces technologies and procedures necessary to increase access to and manage the separation of aircraft in the terminal environment and improves access to runways in low visibility conditions. These concepts can assist airports with minimizing airport operational constraints that can impede full implementation of preferential runway use and other noise abatement programs. Programs included in the FTO include:

- Wake Turbulence Mitigation for Departures (WTMD): technologies that leverage a national rule change allowing increased departures from Closely Spaced Parallel Runways when WTMD technology is being utilized.

- Wake Turbulence Mitigation for Arrivals (WTMA): concept feasibility prototypes for WTMA decision support tools, designed to enable reduction of wake.

- Approaches, Ground Based Augmentation Systems (GBAS): systems that use existing GPS single civil frequency to provide Category I GBAS service for airport arrivals, and design improvements to this architecture to support future Category II/III service.

- Closely Spaced Parallel Operations: increased arrival, departure and taxi operations to airports with closely spaced parallel runways in all weather conditions. The FAA is targeting enhanced procedures that will allow dependent operations to closely spaced parallel runways or converging approaches to runways closer than 2,500 feet, as well as supporting independent operations to parallel runways between 2,500 feet and 4,300 feet.

- Approaches, NextGen Navigation Initiatives: increased capacity during Instrument Meteorological Conditions (IMC) with improvements supporting terminal and approach phases of flight as well as improved situational awareness on the airport surface:
  - Enabling a reduction of required Runway Visual Range minimums during IMC.
  - Implementing significant changes to the national standard for Distance Measuring Equipment (DME) usage to expand the service volume of DME-DME area navigation (RNAV) without the need for an inertial reference unit.
  - Investigating the use of ADS-B, ASDE-X, GPS augmentation systems such as GBAS and the Wide Area Augmentation System (WAAS) and other systems providing RNAV and Required Navigation Performance (RNP) to deliver information to the cockpit aimed at improving situational awareness on the airport surface.
- Arrivals (RNAV and RNP with 3D Required Time of Arrival (RTA)): RTA capability that will ensure the safe and efficient transition of aircraft from en route to terminal airspace with appropriate sequencing and spacing.

Arrival Management: NextGen capabilities will provide improvements to terminal area operations that save fuel, increase predictability and minimize arrival management. Enhanced traffic management tools will analyze flights approaching an airport from hundreds of miles away, across facility boundaries, and will calculate scheduled arrival times to maximize arrival performance. These advances will improve the flow of arrival traffic to maximize use of existing capacity. Air Traffic controllers will gain automated information on airport arrival demand and available capacity, enabling them to improve sequencing and balance between arrival and departure rates.

Information such as proposed arrival time, sequencing and route and runway assignments will be exchanged with the aircraft through a data communications link to negotiate a final flight path. The final flight path will ensure that the flight has no potential conflicts, and that there is an efficient arrival to the airport, while maintaining overall efficiency of the airspace. Airports can influence the design of these final flight paths to help reduce the overflight of noise sensitive land uses. These arrival management concepts also attempt to reduce the stair-step arrival procedures, which use more fuel and produce greater emissions and noise exposure than the continuous descents that are often incorporated in the NextGen concepts.

Departure Management: Departure performance will be improved with NextGen by using multiple precise departure paths from each runway end through RNAV and RNP procedures. Multiple departure paths will enable controllers to place each aircraft on a separate precise track, avoiding known constraints, thunderstorms and other severe weather near the airport.

The ability to operate simultaneously on closely spaced parallel runways – through increased accuracy in surveillance and navigation, and through improved understanding of wake vortices – means airports in effect will gain capacity for their existing runways. Precise departure paths will optimize system operations for entire metropolitan areas, reducing delays

by allowing each airport to operate more independently. This will better separate arrival and departure flows for airports in proximity to one another, which provide more efficient access to both commercial service and general aviation airports in congested metropolitan regions. These precise departures also can be designed to support airports that are limited by terrain and other obstacles or have periods of reduced visibility. Precise paths will reduce flight time, fuel burn and emissions. As explained in further detail later in this appendix, precise departures may also decrease, increase or redistribute aircraft noise.

En Route Management: As the aircraft climbs into the en route airspace, enhanced processing of surveillance data will improve position information and enable the flight crew and controllers to take advantage of reduced separation standards. Because the flight crew will be able to monitor the position of other aircraft from their flight deck, air traffic personnel will be able to assign spacing responsibility to the flight crew as the aircraft climbs to its cruising altitude. The aircraft will be able to merge into the overhead stream with a minimum of additional maneuvers.

Data communications will provide routine and strategic information to the flight crew and automate some routine tasks for both pilots and controllers. Air Traffic controllers will be able to focus on providing more preferred and direct routes and altitudes, saving fuel and time.

At times, traffic delays, airspace restrictions or adverse weather will require additional changes to the flight path agreement. When rerouting is needed, controllers will be able to assign offsets to the published route. Tailored to each flight, these offsets will be a way of turning a single published route into a "multi-lane highway in the sky." Use of offsets will increase capacity in a section of airspace. Since the final agreement will be reached via data messaging, complex reroutes can be more detailed than those constrained by the limitations of voice communications and reduce one source of error in communications.

Furthermore, the capabilities described in the arrival and departure management sections also expand the use of terminal separation standards and procedures within the en route environment. A redesign of the airspace will permit a greater number of RNAV and RNP procedures within the transition and en route airspace to allow for increased throughput. Extended application of terminal procedures and separation standards allows greater flexibility for traffic to be re-routed during severe weather and other disruptions to normal flows.

NOISE AND OTHER ENVIRONMENTAL NEXTGEN IMPROVEMENTS

The overarching environmental goal for NextGen is environmental protection that allows sustained aviation growth. The NextGen Draft Environmental Policy statement on aircraft noise reads: "The noise goal is to reduce the number of people exposed to significant noise in areas around U.S. airports in absolute terms compared to today, notwithstanding aviation

growth, and to further explore and institute noise mitigation identified to improved health and welfare."[1]

Furthermore, the NextGen policy articulates a " five pillar" approach to addressing environmental challenges, including noise. These pillars are:

- Commitment to Increasing Scientific Knowledge Base: We must improve our scientific understanding of the impacts of aviation.
- Commitment to Technology Improvements: The U.S. will support a comprehensive approach to environment and energy based on aviation's traditional strengths of technological advances and innovation.
- Commitment to Operational Improvements: The development and integration of clean and quiet operational procedures will foster NAS operational capabilities that will function more efficiently and contribute to mitigating environmental impacts and improving energy efficiency.
- Supportive Use of Policy Approaches and Market-based Measures: The U.S. will develop and implement appropriate policies, programs, and mechanisms to support advantageous technology and operational innovations and accelerate their integration into the commercial fleet, the airport environment, and the entire NAS.
- Development and Use of Advanced Decision-Support Tools: The environmental challenges confronting NextGen will require advanced decision-support tools that account for interdependencies of impacts and the cost-benefit analyses of potential solutions are critical for well-informed decision-making.

The remainder of the section discusses NextGen implications for airport noise and land use compatibility planning, with particular emphasis on the first three pillars.

Scientific Knowledge Base

As part of the development of the NextGen Environmental Policy, the Federal Aviation Administration (FAA) Office of Environment and Energy has developed a research roadmap to address critical noise impacts research needs. This roadmap was developed in collaboration with and participation of researchers across numerous disciplines and around the world, as well as with the broad community of aviation stakeholders including the public. The roadmap will enable FAA and interested parties to define systematic, focused, and complementary research programs, in which limited resources could be pooled to advance the scientific knowledge on how best to address the impacts of aviation noise on society.

Need for Research

Though it is clear that aircraft noise has been reduced for millions of people over the past 30 years despite increasing air traffic (see Figure C1), noise issues continue to generate

[1] Draft policy contained in JPDO email, dated 5/18/2010.

community reactions that can slow efforts to increase capacity. If air transport capacity is to increase to meet coming demand, the understanding of aircraft noise and its effects on people needs to be improved and FAA policy reviewed in light of this better understanding.

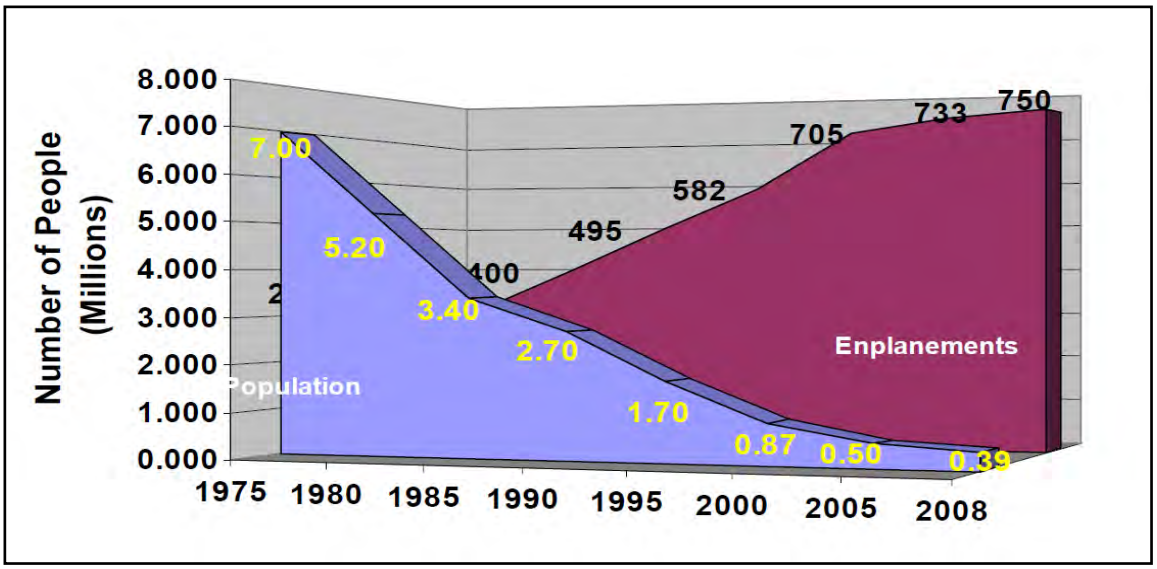


Figure C1 US Trends: decline in population exposed to levels exceeding 65 DNL (Source: FAA, 2010)

The technical bases for FAA's noise policies were last reviewed in 1992. Currently, this policy identifies a value of 65 dB Day-Night Average Sound Level (DNL)[2] as the threshold of significant impact for purposes of the National Environmental Policy Act (NEPA) analyses of FAA major actions; this threshold corresponds to about 13% of the population which will report high annoyance. The policy is based on the best available scientific evidence on the effects of aircraft noise and should this relationship be outdated, a policy review/update will be appropriate.

Goals for Aviation Noise Research

Research will provide the needed scientific basis for examining or updating FAA noise policy and insure that decisions about major FAA actions and any FAA-sponsored airport noise studies will be informed by the best available information. Three goals have been identified. First, with the proper technical evidence, FAA could update land use compatibility guidelines, the NEPA significance thresholds, and criteria for judging and targeting mitigation measures. Second, application of up-to-date research results will help build public trust in noise analyses and, through better communication, increase understanding about aircraft noise, its effects and the likely changes that can be expected from airport and airspace projects. Third, updated research results can focus noise abatement or airport/airspace design efforts for efficiency and help to balance noise with other environmental considerations.

The FAA has identified four critical research areas based on gaps in current knowledge and capabilities: (1) noise effects on health and welfare, (2) noise in National Parks and

[2] For the purposes of this report DNL is considered to be approximately equivalent to the Community Noise Equivalent Level (CNEL); the cumulative noise metric for assessing aircraft noise exposure in California.

wilderness, (3) NextGen noise modeling enhancements, and (4) overall costs of aircraft noise on society. Detailed research roadmaps, including identification of preliminary research projects to address unresolved issues, are being developed by FAA.

Technology Improvements

New engine/airframe technologies and alternative fuels will play key roles in achieving environmental and energy goals. There are four major federal research programs underway that will support NextGen technology goals.

***FAA CLEEN*:** The FAA's Continuous Low Energy, Emissions and Noise (CLEEN) Consortium will demonstrate aircraft and engine technologies that reduce noise, local air quality, and greenhouse gas emissions at the source to a developmental level that will allow quicker industry uptake of these new environmental technologies. These efforts will result in a fleet that will operate more efficiently with less energy usage and permit expansion of airports in a manner consistent with the environmental goals of the NextGen plan. Solutions that involve technology improvements in engines and airframes in a foreseeable timeframe require successful maturation and certification of new technologies within the next 5-8 years.

CLEEN has identified three milestones for identifying improved noise goals:

- N+1 (2015): 32 dB cumulative reduction from current Stage 4 noise levels
- N+2 (2020-2025): 42 dB cumulative reduction from current Stage 4 noise levels
- N+3 (2030-2035): 71 dB cumulative reduction from current Stage 4 noise levels

Achievement of these milestones and integration of CLEEN aircraft into the fleet would likely result in significant aircraft noise being confined to compatible land uses (the airport property line or adjacent property).

NASA Environmentally Responsible Aviation (ERA) Project: The goal of NASA's Environmentally Responsible Aviation (ERA) Project is to explore and document the feasibility, benefits and technical risk of vehicle concepts and enabling technologies that will reduce the impact of aviation on the environment. The project's primary goal is to select vehicle concepts and technologies that can simultaneously reduce fuel burn, noise and emissions; it contains three subprojects: Airframe Technology, Propulsion Technology and Vehicle Systems Integration.

***Optimized Profile Descent*:** OPD is designed to reduce fuel consumption, emissions, and noise during descent by allowing pilots to set aircraft engines near idle throttle while they descend. OPDs use the capabilities of the aircraft Flight Management System to fly a continuous, descending path without level segments. The noise benefit of OPD are generally well outside the area of significant noise impact (i.e., 65 dB CNEL), but can be as much as 5 to 7 decibels per event. Anecdotally, residents find that the lack of power adjustments (that are required in the traditional "step-down" approach) is a noticeable benefit of OPD.

Performance-Based Navigation: PBN is comprised of RNAV and RNP and describes an aircraft's capability to navigate using performance standards. RNAV enables aircraft to fly on

any desired flight path within the coverage of ground- or spaced-based navigation aids, or within the limits of the capability of aircraft self-contained systems, or a combination of both capabilities. RNP is RNAV with the addition of an onboard performance monitoring and alerting capability.

RNAV and RNP specifications facilitate more efficient design of airspace and procedures which collectively result in improved safety, access, capacity, predictability, operational efficiency, and environment. Specifically, improved access and flexibility help to enhance reliability and reduce delays by defining more precise terminal area procedures. They also reduce emissions and fuel consumption.

Consolidation of flights through RNAV and other advanced navigational procedures will reduce noise in most locations, but it will also increase noise levels in some concentrated locations (see Figure C2). Similarly, adverse noise impacts may be present in communities that will lie beneath flight paths of newly developed PBN procedures where conventional procedures were not previously present. Care should be taken in the development of procedures and routes to avoid noise-sensitive communities to the extent possible.

One of the major challenges to implementing RNP procedures will be meeting environmental review requirements, even for projects that provide a net environmental benefit. This may require numerous NEPA reviews to assess the impacts from the consolidated flight tracks. As of this writing, FAA is developing guidance for preparing such environmental reviews.

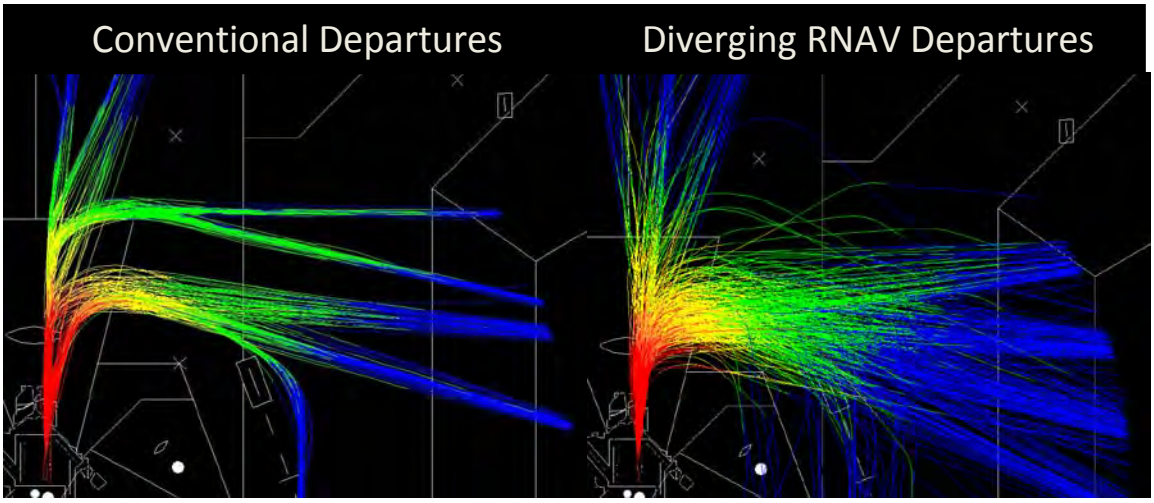


Figure C2 Benefits of RNP/RNAV Procedures
(Source: FAA, 2010)

Policy Approaches

Another key element of NextGen is to develop and implement appropriate policies, programs, and mechanisms to support advantageous technology and operational innovations and accelerate their integration into the commercial fleet, the airport environment, and the entire NAS. The Joint Planning and Development Office (JPDO) noise policy was articulated above. Specific policy measures to achieve the larger policy goals include such strategies as public/private research and development consortium (such as CLEEN), regulatory approaches, and financial incentives.

Advanced Decision-Support Tools

FAA, in collaboration with NASA and Transport Canada, is currently engaged in a multi-year effort to develop a comprehensive tool suite that allows aviation noise, emissions and fuel burn inventories and thorough assessment of the environmental impacts of aviation. This tool suite comprises the Environmental Design Space (EDS), Aviation Environmental Design Tool (AEDT), Aviation Environmental Portfolio Management Tool for Economics (APMT-Economics) and Aviation environmental Portfolio Management Tool for Impacts (APMT-Impacts). Once fully mature, this integrated tool suite will be capable of characterizing and quantifying the interdependencies among aviation-related noise and emissions, impacts on health and welfare, and industry and consumer costs and associated environmental benefits under different policy, technology, operational, and market scenarios.

EXAMPLES OF ONGOING NEXTGEN IMPROVEMENTS

Automatic Dependent Surveillance – Broadcast (ADS-B): The FAA first rolled out ADS-B in Alaska, a site chosen because the rugged terrain severely limits radar coverage. Aircraft were equipped with ADS-B avionics, including a cockpit display. This display provided the pilot with the aircraft's location, the location of other aircraft, and graphical and textual weather information on a moving map.

ADS-B now covers the Gulf of Mexico, where the FAA, in partnership with the Helicopter Association International, installed a network of ADS-B ground stations on oil and natural gas platforms and the surrounding shoreline. This brings air traffic surveillance services, more precise aircraft locations and weather data to both low-altitude helicopters servicing the platforms and high-altitude commercial flights operating beyond radar coverage in the Gulf.

The FAA also rolled out ADS-B in Louisville. Louisville was chosen as a key site in part because United Parcel Service (UPS) voluntarily equipped 107 of its aircraft with ADS-B avionics in order to save time, fuel and carbon emissions on flights to and from its Louisville hub. The system is being used by controllers in the tower at Louisville International Airport and at the Louisville Terminal Radar Approach Control (TRACON) facility.

Controllers in the Philadelphia area also have the capability to use ADS-B to track and separate aircraft. ADS-B coverage in Philadelphia extends 60 nautical miles out from Philadelphia International Airport and approximately 10,000 feet up. It also covers the surface area and the approach corridors to the runways. Philadelphia was selected in part because UPS has equipped some of its aircraft with ADS-B and a large amount of their operations are conducted there.

Ground stations have been installed in South Florida, which means that pilots flying in aircraft equipped with ADS-B avionics in that region now receive free traffic and weather information on their cockpit displays.

ADS-B coverage will be nationwide in 2013.

Area Navigation (RNAV): The FAA RNAV test bed features RNAV routes between Florida airports (including Miami, Orlando and Daytona) and New York area airports (Teterboro, JFK, LaGuardia and Newark). The precision allowed by RNAV routes improves the efficiency of operations along the crowded East Coast corridor, saving time and money for airlines serving those routes and reducing delays for passengers. OPDs and Tailored Arrivals are being used in Miami. Both operational maneuvers allow aircraft to descend in a more direct alignment with runways, increasing predictability while reducing emissions and fuel burn.

Surface Management: The FAA is using JFK and Memphis to test new Surface Management programs in order to facilitate better aircraft flow on the ground. This will enhance runway safety on runways, taxiways and ramp areas and reduce delays, while also lowering emissions and fuel use.

International: The FAA has also entered into agreements with international partners across the Atlantic and Pacific to accelerate the deployment of NextGen technologies and procedures to improve aviation safety, efficiency and capacity while reducing the environmental footprint during all phases of flight. The Atlantic agreement, reached between the FAA and the European Union, is called the Atlantic Interoperability Initiative to Reduce Emissions (AIRE). The Pacific agreement, first reached with Australia and New Zealand and more recently joined by Japan and Singapore, is called the Asia and Pacific Initiative to Reduce Emissions (ASPIRE).

Appendix D

Measuring Aircraft Noise

OVERVIEW

By one common definition, noise is simply *unwanted* sound. *Sound* is something that can be precisely defined and physically measured. *Noise*, on the other hand, is highly subjective. Sounds which may be pleasant and desirable to one person may be noise to someone else. Moreover, even when people agree that a sound constitutes noise, their reactions to that noise may vary substantially.

The subjective and highly complex nature of noise is implicit even in the measurement of noise. These characteristics are particularly evident with respect to measurement of aircraft noise. As discussed in this appendix, aircraft noise differs in many respects from other sources of noise, including other transportation noise. Also discussed are the efforts which have been and continue to be made to devise ways of describing and quantifying aircraft noise. Lastly, issues involved with measuring noise levels for a particular airport and projecting potential future noise exposure are addressed.

This appendix examines the various factors involved in measurement of aircraft noise. The discussion covers:
- Characteristics of aircraft noise
- Aircraft noise metrics
- Calculation of aircraft noise contours

CHARACTERISTICS OF AIRCRAFT NOISE

Noise is often perceived to be the most significant of the effects associated with airport activity. To better understand aircraft noise exposure, it is important to recognize the variables involved with regard to different types of aircraft, aircraft flight routes, and other factors such as pilot technique.

Type of Aircraft

As background to the topics which follow, an understanding of the fundamental characteristics of sound is valuable. Tables D1 and D2 provide some basic information on sound measurement and sound attenuation, respectively. Figure D1 lists typical sound levels of common indoor and outdoor sound sources.

TABLE D1: MEASUREMENT OF SOUND

Sound

Sound is transmitted in the form of pressure waves. These waves are created by oscillation of particles of air—that is, air particles being displaced from and returning to an equilibrium position. As the particles are displaced, they bump into surrounding particles which bump into others and so on. In this manner, sound is transmitted through the atmosphere. Sounds are heard when the pressure waves of displaced air particles strike the eardrum, causing it to vibrate.

The physical properties of a sound can be measured in terms of three basic components: *magnitude, frequency,* and *duration*. Although these components can be directly measured, useful measures of sound are complicated both by environmental variables and the way in which people hear sound.

Magnitude

The magnitude or strength of a sound is determined by how much the air particles are displaced from equilibrium by the sound pressure waves. The greater the amplitude of the pressure fluctuation, the more acoustic energy the sound wave carries. Simply measuring the magnitude of sound on a linear scale is not practical, however, because the range of sound pressures which the human ear can detect is enormous—a ratio of 1 to approximately 1^{14} (1 followed by 14 zeros). By converting this ratio to a logarithmic scale, the range can be reduced to 14 units. The unit of sound level measurement on this scale is the bel (in honor of Alexander Graham Bell). Normally, though, these units are divided into tenths—that is, decibels. The range of human hearing thus extends from 0 decibels, corresponding to the faintest sound level that the healthy, unimpaired human ear can detect, to more than 140 decibels. (Sound levels of nearly 200 decibels are possible— such as inside a rocket engine—but are greater than the unprotected human ear can withstand.)

The use of a logarithmic scale for measurement of the magnitude of sound is often the cause for confusion because it does not directly correspond to the way in which people perceive the relative loudness of different sound levels. People tend to think that, if two equal sounds are combined, the result will seem twice as loud. In reality, however, combining two equal sounds—although it doubles the sound energy— produces only a 3 dB increase in magnitude, an amount which is barely perceptible. For one sound to be judged twice as loud as another, it actually must be 10 dB higher (meaning that the acoustic energy must increase 10-fold). Because we perceive the loudness of sounds in relative rather than absolute terms, the relationship of 10 dB per doubling of loudness applies to any 10 dB increase—sound level increases from 40 dB to 50 dB or from 80 dB to 90 dB are both perceived as representing a doubling of loudness.

Frequency

The frequency of a sound—its tonal quality—depends upon the relative rapidity of the air pressure oscillation. In a low-pitched tone, the sound waves are relatively far apart (that is, the wavelength is relatively long); while in a high-pitched tone they are squeezed much closer together. Frequency is measured in cycles per second (also called hertz or Hz). Although some pure tone sounds contain only one frequency, more often sound is a mixture of different frequencies. The response of the human ear to different sounds is significantly affected by the frequency of those sounds. Although people can hear sound frequencies as low as 20 Hz and as high as 20,000 Hz, they do not hear all frequencies in this range equally well. Very low and very high frequency sounds are perceived to be less loud than mid-range sounds. Most environmental sound measurements consequently are weighted to simulate the varying frequency sensitivity of the human ear. A widely used weighting for general environmental sounds (as opposed to large-amplitude impulse sounds such as sonic booms) is the A-weighted sound level expressed in decibels (abbreviated as “dBA”).

Duration

The third component of sound is the length of time over which it occurs. Many sounds have a distinct beginning and ending; others, such as from aircraft overflights, gradually increase and decrease without a sharp definition of when they start or stop. In the latter case, the duration of the sound is usually measured in terms of the time period over which the sound level exceeds a specified threshold. Because sound levels vary from one moment to the next, it is not possible to say that a given noise was “so many decibels” except when referring to an instantaneous measurement or by averaging the sound level over time. As discussed elsewhere in this appendix, numerous methods have been developed which seek to measure the overall exposure produced by a noise event or events within a defined period of time.

As experienced on the ground, the noise emitted by different types of aircraft has distinct differences in terms of both the overall sound level and other properties. The extent of the differences in sound levels generated by a selection of general aviation, air carrier, and military aircraft can be seen in Figure D2. The illustrations depict the typical noise “footprint” created by a single landing and takeoff of each aircraft.

TABLE D2: SOUND ATTENUATION

Sound Attenuation in the Outdoor Environment

Among the basic characteristics of sound, which are of particular interest in the discussion of aircraft-generated noise, is sound attenuation or reduction over distance. Part of the reduction occurs because sound energy is spread over a three-dimensional, geometrically increasing area as the distance from the source increases. At sufficient distances from the source, geometric spreading alone results in a 6 dB loss per doubling of distance. Actual attenuation of sound is greater than this as a result of factors such as absorption by the atmosphere. Also, atmospheric attenuation is greater for high-frequency sound than for sound with a low frequency.

Other factors also influence the extent to which sound is attenuated in the environment. Sound propagation through the air is affected by meteorological conditions including air temperature, temperature inversions, humidity, wind speed, and air turbulence. Sound traveling along a hard ground surface is attenuated by approximately an additional 2.5 dB in 1,000 feet (compared to the attenuation in air alone) and tall grasses or shrubs can double this figure. Structures, terrain, or other barriers can provide significant attenuation for ground-to-ground sound as well. Ground cover and objects on the ground, however, have little effect on reducing air-to-ground sound such as that from aircraft. Moreover, buildings and other such objects can cause reflections which may even *increase* the localized sound level.

Sound Attenuation Provided by Buildings

For indoor activities, another significant factor affecting the level of aircraft-generated noise to which people are exposed is the amount of sound attenuation provided by the building. The sound insulation capabilities of buildings are measured in several ways.

One measure commonly associated with the individual structural components of a building is the *Sound Transmission Class* (STC). The STC rating of a component is expressed as a single number, in decibels, and is calculated in laboratory testing of the component. STC ratings are often used in construction specifications to indicate a required sound insulation capability. The original application of STC ratings was with regard to interior partitions, but it can also give some indication of the sound attenuation provided by exterior walls, windows, and doors.

Caution must be used, however, when attempting to evaluate the exterior-to-interior sound level attenuation of a building by means of STC ratings. First, as a single number, the STC of a structural component may not adequately reflect differences in the component's relative abilities to block sounds of different frequencies. Secondly, the overall sound attenuation provided by most buildings cannot be calculated from STC ratings. The various components of a building each have different noise insulation qualities. Moreover, sound tends to enter an interior space not so much through individual components, but by way of openings and gaps such as vents, door jambs, and so forth. Interior noise levels from exterior sources thus are substantially determined by the weak link in the overall construction.

A more general measure of a building's sound attenuation attributes is its *Noise Level Reduction* (NLR). Like STC, NLR is a single-number value measured in decibels and as such may disguise a building's varying response to different sound frequencies. Unlike STC, though, NLR is measured in field testing of actual structures. It thus takes into account the fact that buildings are made up of numerous components.

Each of the footprints is broadly representative of those produced by other aircraft similar to the ones included. However, the actual sound level produced by any single aircraft takeoff or landing will vary not only among specific makes and models of aircraft, but also from one operation to another of identical aircraft.

In several respects, aircraft noise is intrinsically different from other types of transportation noise.

- *Directionality: Few other noises routinely come from overhead.*

  Intermittent Occurrence: Unlike the often constant drone common from highway noise, aircraft noise is usually composed of discrete events.
- *Vibration: Blade slap noise from helicopters and propeller driven aircraft, and the low- frequency rumble created behind jet aircraft as they take off, often cause perceptible vibration in structures.*
- *Fear: In part because the source is from overhead, there is sometimes a sense of fear attached to how people perceive aircraft noise that is seldom evident with noise from highways and railroads.*

As discussed later in this appendix and in the appendix which follows, these characteristics often necessitate different approaches to aircraft noise exposure mitigation than are used with respect to other noise sources.

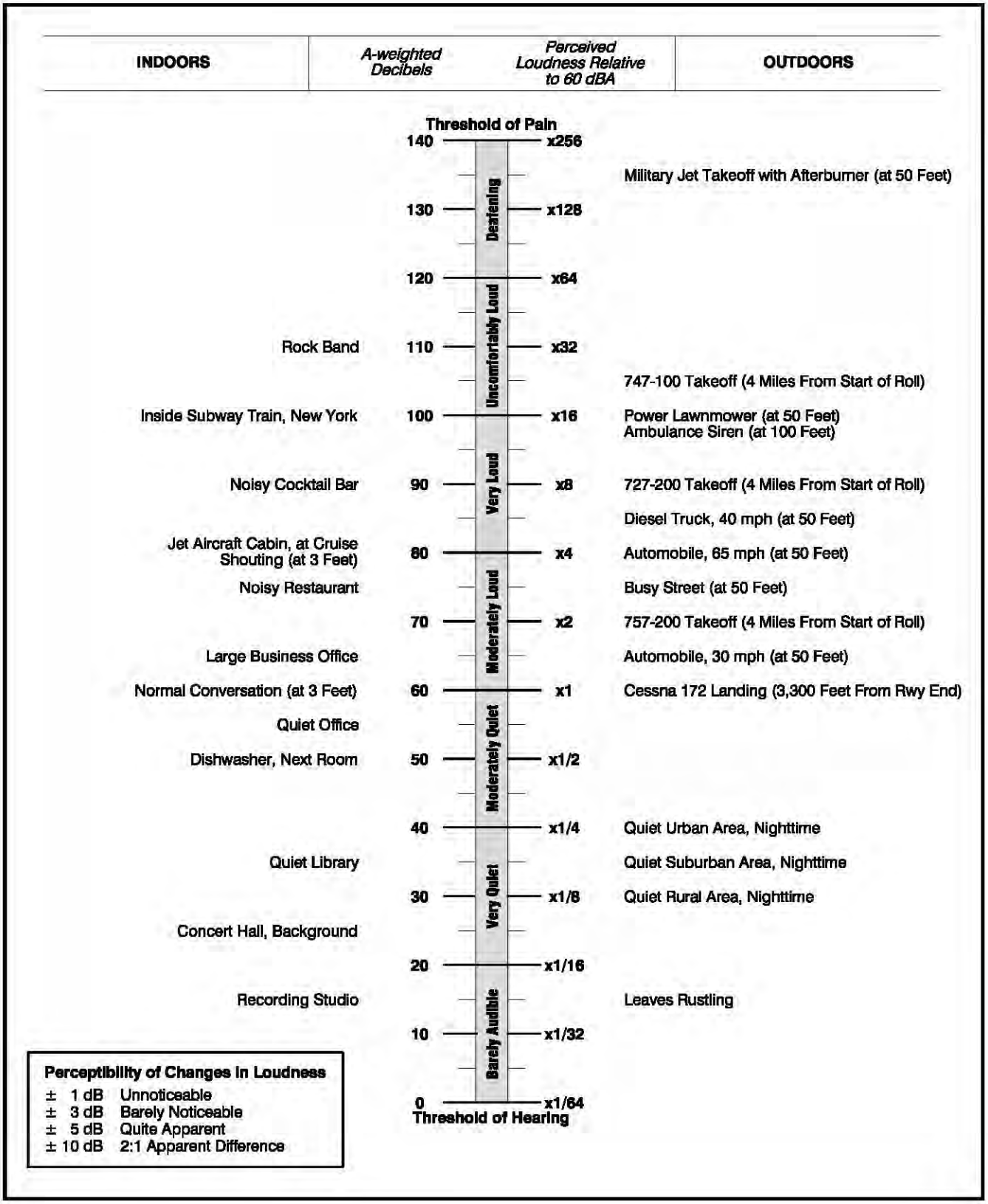
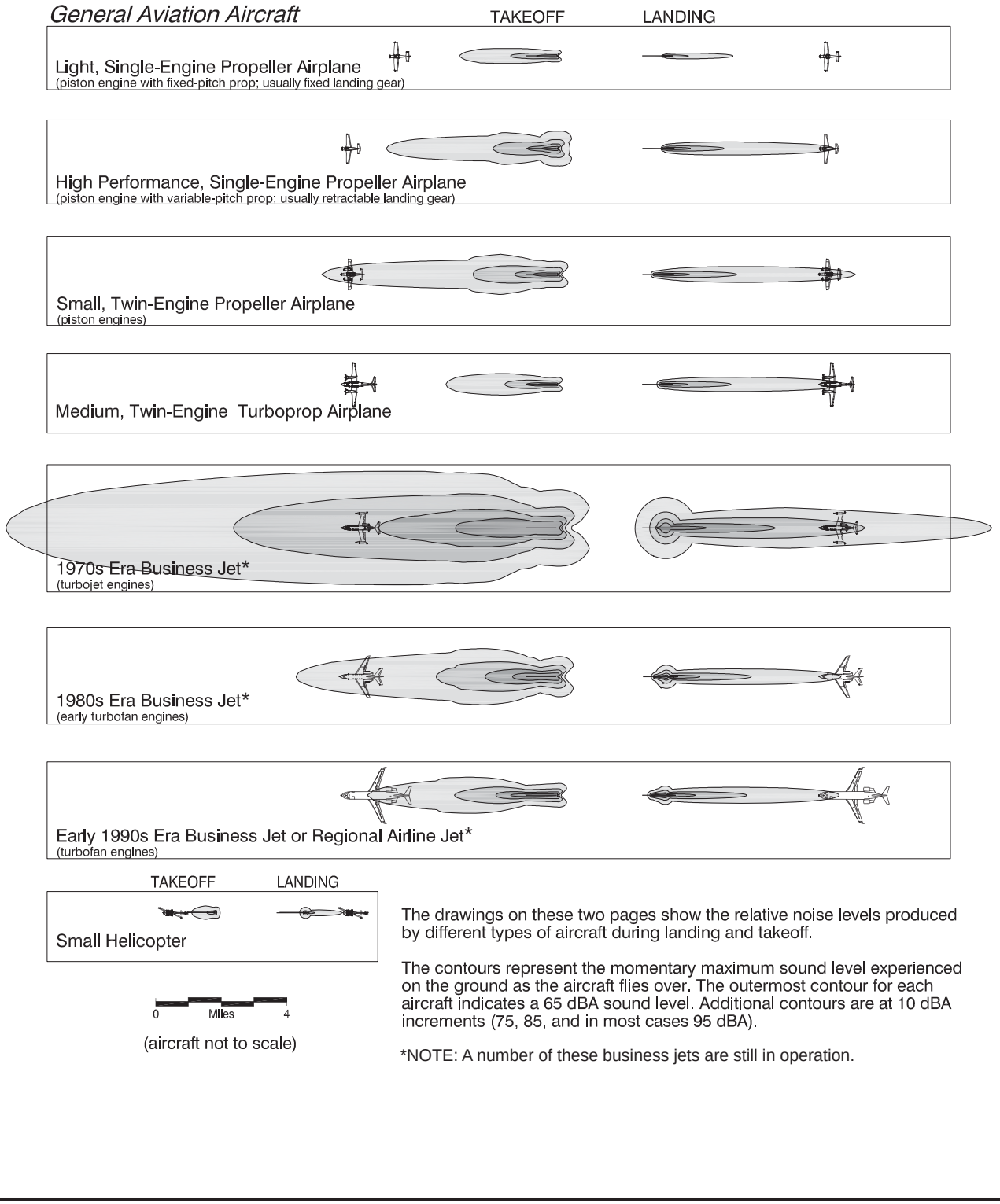


FIGURE D1

Typical Decibel Level of Common Sounds



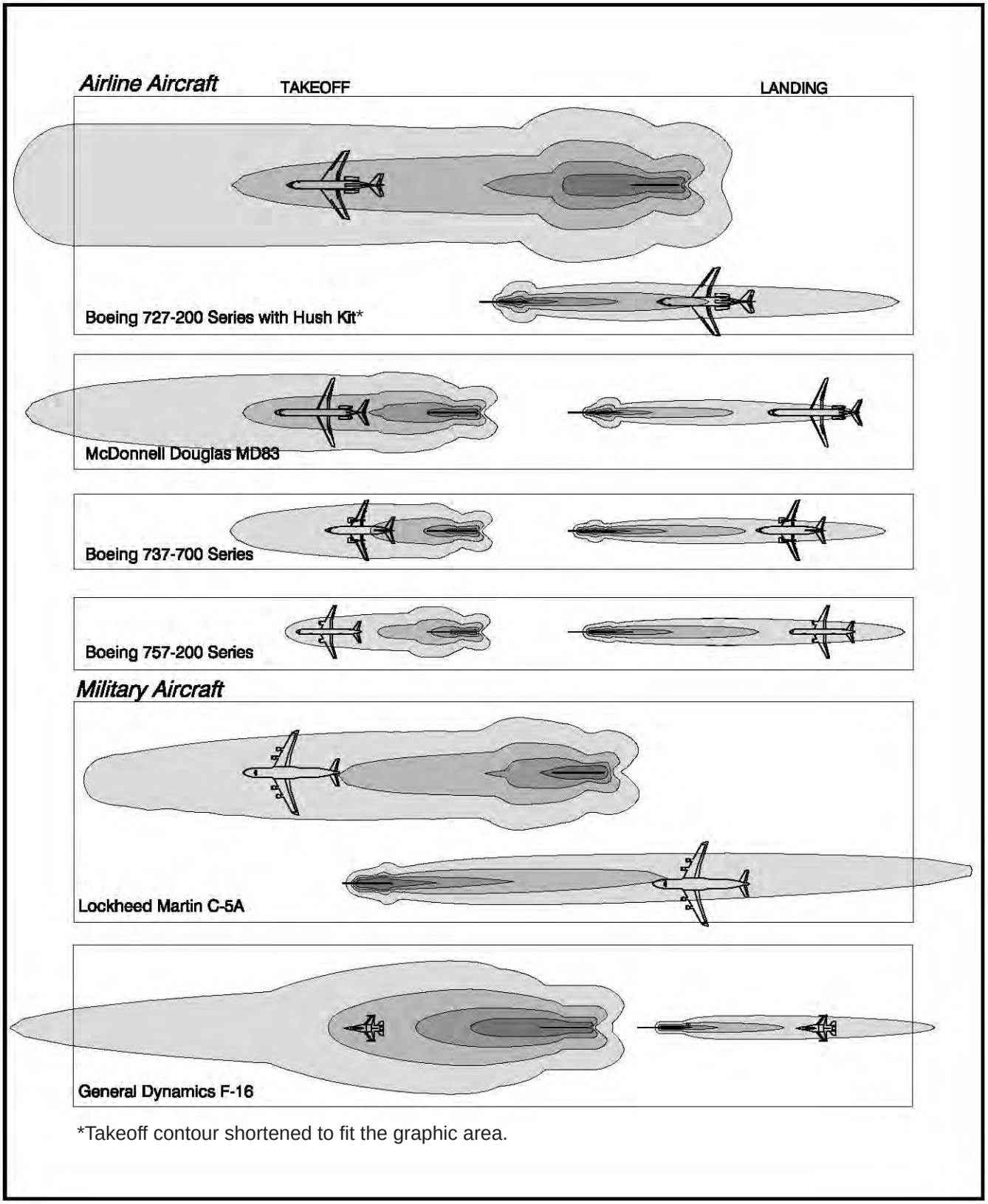
The drawings on these two pages show the relative noise levels produced by different types of aircraft during landing and takeoff.

The contours represent the momentary maximum sound level experienced on the ground as the aircraft flies over. The outermost contour for each aircraft indicates a 65 dBA sound level. Additional contours are at 10 dBA increments (75, 85, and in most cases 95 dBA).

*NOTE: A number of these business jets are still in operation.

FIGURE D2

Noise Footprints of Selected Aircraft



*Takeoff contour shortened to fit the graphic area.

FIGURE D2 CONTINUED

Jet Airplanes

Both the character and the sound level (magnitude) of jet airplane noise has changed over time as new engine technologies have been developed and introduced into the air carrier and business jet aircraft fleets. The old, pure-jet engines produce noise that is both very loud and at the high end of the frequency spectrum. Newer generation, fan-jet engines—in which a substantial volume of the air entering the engine bypasses the combustion chamber— create noise that is comparatively lower both in magnitude and frequency. Even among fan-jet engines, noise levels have been considerably reduced with the most recent models compared to the earliest types.

Most of the overall noise level improvements experienced in recent years at airports having jet activity have resulted from retirement of the older, louder jet aircraft. As of January 1, 2000, the older-model, so-called Stage 2, fanjet aircraft have been phased out of the nation's air carrier fleet in accordance with federal law. The phase-out of Stage 2 aircraft, however, applied only to aircraft weighing more than 75,000 pounds; Stage 2 bu siness jet aircraft which weigh less than this amount are still allowed to operate. Such aircraft can produce a significant proportion of the noise exposure at general aviation airports.

Furthermore, the effect of the technological improvements on a ircraft noise levels differs between takeoffs (departures) and landings (approaches). Decreased engine exhaust noise together with improved climb-out performance (aircraft reach a higher altitude more quickly) have enabled major reductions in departure noise levels. Approach noise has recently become a more prominent issue with the increase in use of Stage 3 aircraft. Greater noise emissions from the fans and compressors in high-bypass engines have increased the comparative importance— and sometimes the actual noise levels—of aircraft approaches. One further concern to be addressed is sideline noise produced by the reverse thrust applied as a ircraft land. This noise, particularly evident lateral to runways, can be the subject of complaints, but usually has little effect on overall noise contours because of the dominance of takeoff noise.

The extent to which jet aircraft noise will be further reduced in the future depends upon several factors. Continued technological advancements appear capable of reducing noise emissions to levels below those of the newest aircraft now in production. The question then becomes one of how quickly such technologies will be introduced into the national and world-wide aircraft fleets. Also an important consideration is the rate at which older, noisier aircraft will be phased out of operation. Lastly, in terms of cumulative noise exposure, a key factor is the volume of future aircraft operations. Even with improved technologies, the potential exists for the overall noise level at airports to increase along with growth in the number of aircraft operations.

Propeller Airplanes

The dominant noise from most propeller airplanes, whether they are driven by piston or turbine engines, is from the propeller slapping against the air as it rotates. Propeller airplane noise varies depending upon the number of engines, the rotational speed of the propellers, the number of blades on each propeller, and the pitch of the blades, as well as, to some extent, the type of engine.

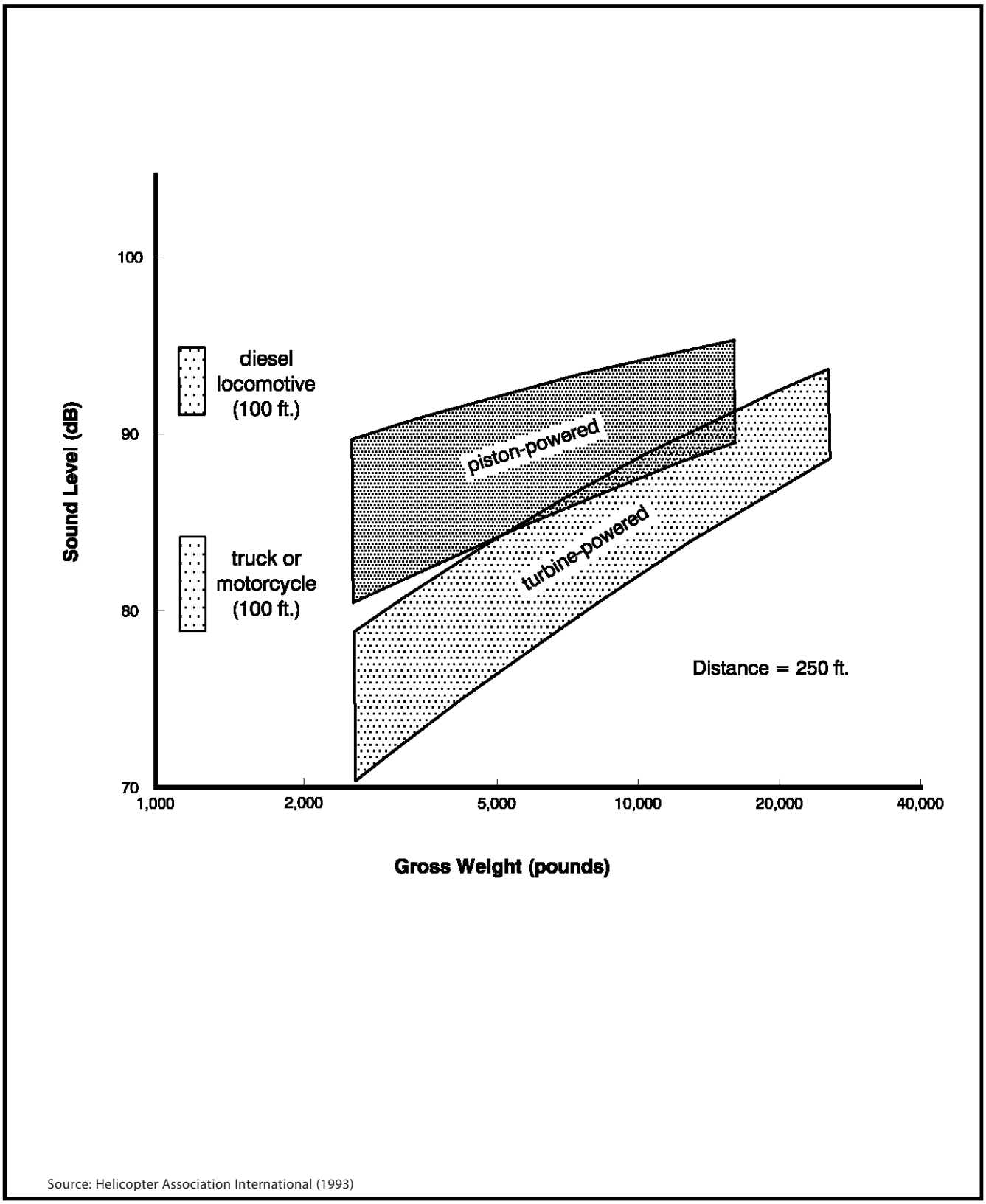
A common perception is that propeller airplanes typically emit significantly less noise than jet airplanes. Early-technology (and most tactical military) jet aircraft clearly are very noisy—more so than most propeller airplanes. With current model jets, however, the distinction is much less. Indeed, aircraft weight accounts for much of the difference. Most propeller airplanes flying today are substantially smaller and lighter than jet airplanes. For aircraft of similar weight, the noise levels of aircraft that are propeller driven and those that have new-technology, fan-jet engines are not greatly different. Another factor affecting the relative noise levels generated by the two aircraft types is the takeoff climb profile. Because jets climb much more rapidly than typical propeller airplanes, the noise levels measured on the ground diminish rapidly with increased distance from the runway. Consequently, at points sufficiently far from the runway end, the higher altitude attained by jets may make them effectively quieter than propeller airplanes. This phenomenon can be seen from comparisons among the aircraft noise footprints depicted in Figure D2.

Unlike jet aircraft, the noise levels produced by average, propeller-driven, small airplanes found at general aviation airports has not changed appreciably over the years. The potential for future technological improvements is limited. Moreover, small, private airplanes tend not to be replaced with newer models at anywhere near the rate common to jet aircraft used by the airlines. Thus, for many years to come, the noise exposure of typical propeller airplanes is likely to remain similar to what it is now.

Helicopters

Helicopter noise has a character all its own. Although a portion of the noise emanates from the engines themselves, the uniqueness of helicopter noise is mostly due to the modulation of sound created by the relatively slow-turning main rotor as it hits the air around it. This sound modulation is referred to as *blade slap*. Blade slap is most pronounced during low-speed descents and high-speed cruise. To a listener on the ground, it is most audible as the helicopter approaches. Helicopters are also notable for creating perceived vibration or rattle in structures.

Research into methods of reducing helicopter noise is on-going. How successful and cost-effective the results will be remains to be seen. (Figure D3 depicts the normal sound level range of helicopter operations, measured at a distance of 250 feet.)



Source: Helicopter Association International (1993)

FIGURE D3

Helicopter Noise Levels

Common Aircraft Flight Routes

In general, the most significant noise exposure created by aircraft is concentrated near the ends of airport runways. The locations of aircraft flight routes to, from, and around an airport, however, are also a major determinant of where noise exposure occurs. This section describes the major factors which determine the type and location of aircraft flight routes near airports.

The discussion in this section concerns the flight routes and procedures used by aircraft under normal flying conditions. Appendix E contains information regarding how pilots and aircraft react under emergency circumstances.

An essential point to emphasize in this discussion of aircraft flight routes is that airport land use commissions have no authority to regulate where aircraft fly. That responsibility rests with the FAA.

Types of Flight Rules

Aircraft fly to and from airports under two different sets of operating procedures defined by Federal Aviation Regulations:

- **Visual Flight Rules (VFR)**—VFR operating procedures apply at airports when weather conditions (specifically, the horizontal visibility and the cloud ceiling height) permit pilots sufficient time to see a runway for landing as well as to see and avoid other aircraft in flight and obstacles on the ground. These minimums are set by Federal Aviation Regulations Part 91. Within controlled airspace around airports the minimum visibility requirement for VFR flight is basically three statute miles. By requesting a special VFR clearance, pilots can obtain minimums as low as one statute mile. Minimums of one statute mile also are permitted in uncontrolled airspace.

- **Instrument Flight Rules (IFR)**—Under IFR procedures, pilots must rely on the aircraft's cockpit instrumentation, ground- or satellite-based navigational aids, and (where available) air traffic control services. IFR procedures are required when the weather conditions are below the minimums for VFR operations. Airport instrument procedures fall into two basic categories: *approach procedures* and *departure procedures*. Published procedures for individual airports are formally defined in accordance with federal guidelines and must be approved by the FAA. Airports may have one or more of each type of procedure based upon different navigational aids and applicable to different runway ends.

A mixture of VFR and IFR procedures are frequently used for aircraft operations at airports. IFR procedures can be followed during VFR conditions. This is the standard practice for air carrier aircraft, is often used by corporate aircraft, and also occurs during instrument flight training. Additionally, VFR procedures are often used at the termination of an IFR flight once the pilot has the airport in sight.

Airplane VFR Traffic Patterns

Federal Aviation Administration guidelines establish the standard traffic pattern flown by airplanes approaching and departing airports under VFR conditions. Airplane traffic patterns are defined in terms of a generalized *routing* and an *altitude* (or height above the airport).

The generalized routing is in the form of a racetrack-shaped path leading to and from the runway in use (Figure D4). FAA guidelines specify only the shape of the pattern, not its size. Unless precluded by local operating conditions, traffic patterns use left-hand turns. The direction of flow within a traffic pattern depends mostly upon wind conditions. Aircraft will almost always take off and land facing as closely into the wind as the choice of runway alignment permits. When winds are calm, other factors such as attaining the most efficient flow of traffic or minimizing noise exposure may influence which runways are used.

Most pilots normally fly a standard pattern for non-towered airports. However, use of such a pattern is not mandatory. Depending upon the direction from which the flight is coming, a pilot may choose to make a *base entry* or *straight in* approach to landing. Also, after takeoff, an aircraft may depart the pattern at various points.

Traffic patterns at airports where an air traffic control tower is operating are more regulated, but often more variable, than at airports without towers. Pilots commonly request the type of entry or departure which will be most convenient to them. Controllers may grant such requests if conditions allow. However, when traffic is heavy, controllers will tell pilots which aircraft to follow and when to make turns. Atypical flight tracks can sometimes result.

The existence of standard patterns tends to give people who are not pilots the impression that aircraft follow well-defined *highways in the sky*. The reality is that considerable variation occurs in how pilots fly traffic patterns. This variation is expected and normal.

> *Figure D5 depicts the actual flight tracks at an airport having both air carrier and general aviation operations, recorded from FAA radar over two six-hour periods. Although certain primary traffic corridors can be seen, the significant diversity in flight track locations is also apparent. Additionally, even for aircraft following nearly identical tracks, performance differences and the need to avoid conflicts with other aircraft results in wide variations in aircraft altitudes at any given point along a track.*
>
> *These variations in flight paths and altitudes may be somewhat reduced in the future. At least near major air carrier airports, new technologies are enabling aircraft to closely follow precisely defined flight paths. The potential for creation of enhanced noise abatement flight procedures is a potential benefit of this new technology (also see Appendix C: Next Gen).*

- **Landings**—For landings, pilots of average single-engine airplanes usually fly the downwind leg (see Figure D4) anywhere from 1⁄4 to 1 nautical mile (1,500 to 6,000 feet) laterally from the runway. The base leg may extend even farther from the airport, particularly when other aircraft are in the traffic pattern. There is a tendency by many pilots to fly a relatively wide pattern at airports with a long, wide runway even when no other aircraft are present. Also, terrain and other local operating conditions can affect

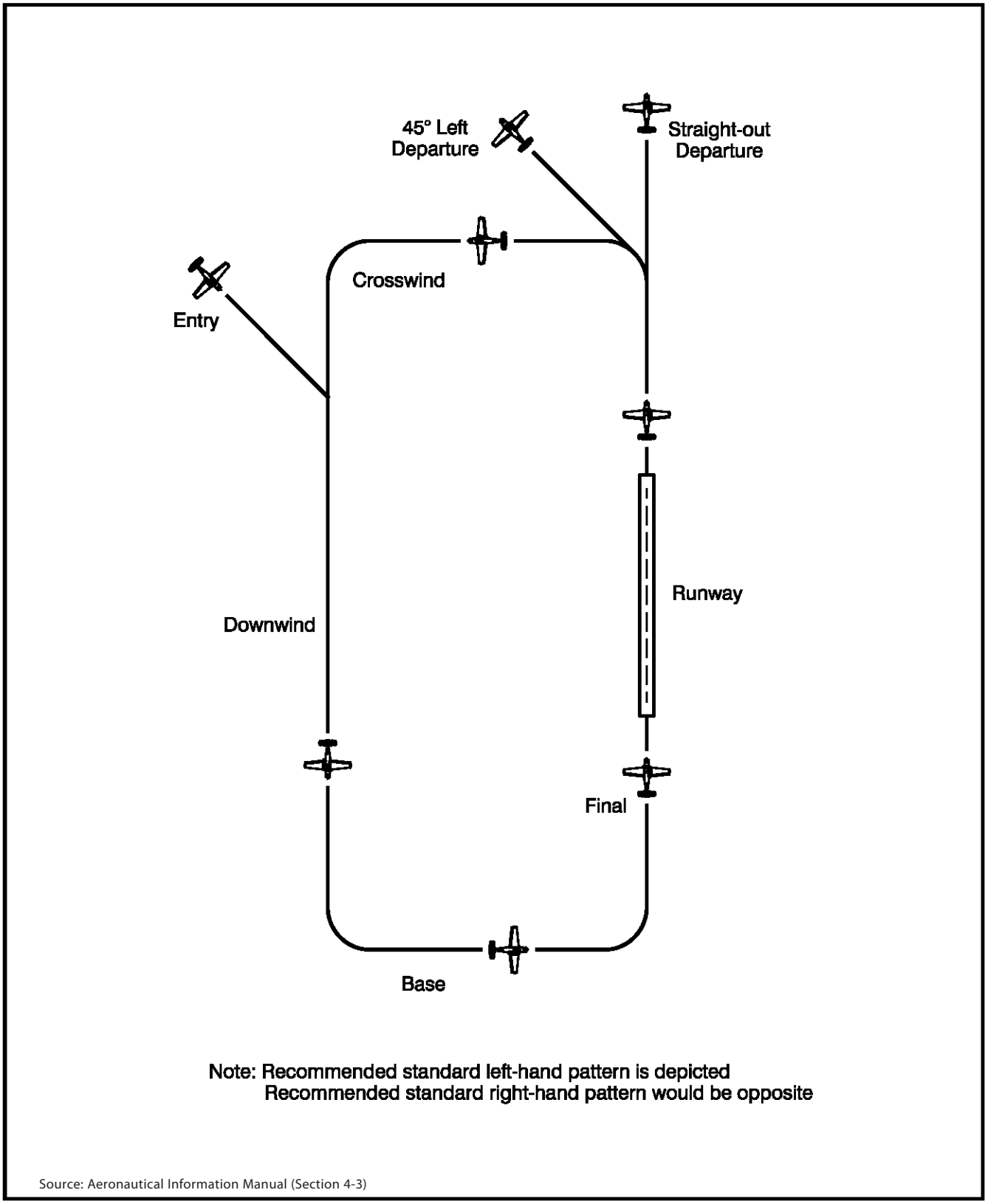


FIGURE D4

Standard Traffic Pattern

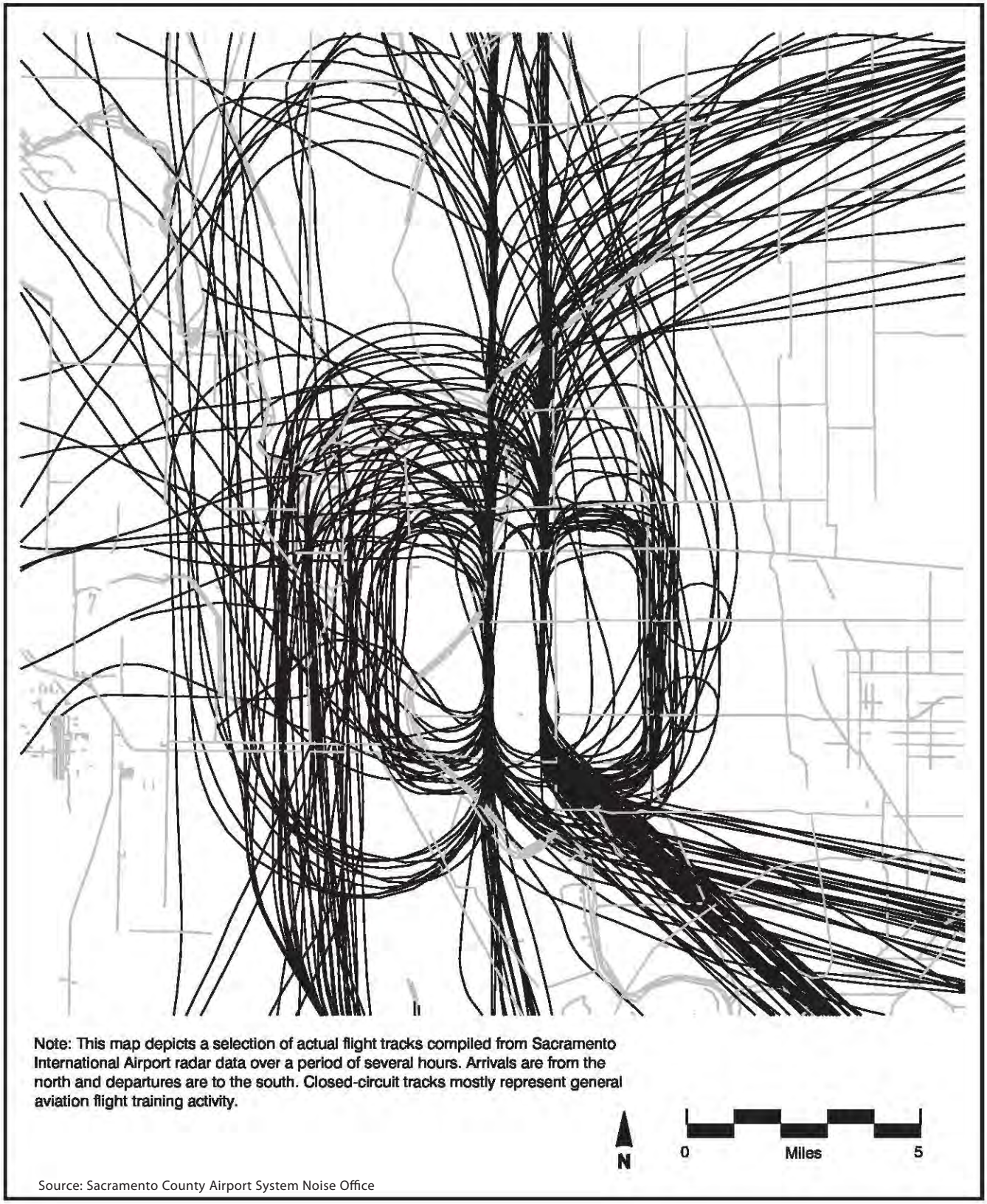


FIGURE D5

Sample Plot of Actual Flight Tracks

how traffic patterns are commonly flown at any given airport. When larger and faster airplanes fly a traffic pattern, the pattern is not only typically higher, but also farther out than one flown by smaller airplanes.

- **Takeoffs**—On takeoff, the normal procedure for small airplanes is to fly straight ahead until reaching an altitude of at least 400 feet above the airport elevation. Depending upon runway length, aircraft type, air temperature, and pilot technique, this altitude may be reached over the end of the runway or not until nearly a mile beyond the runway end. Some pilots (especially those of agricultural aircraft) begin a turn at a lower altitude. Jets and other large airplanes normally climb straight ahead until reaching an altitude of at least 1,500 feet above airport elevation.

At most airports, the traffic pattern altitude for small airplanes is set at 800 to 1,000 feet above the airport elevation. Higher altitudes are sometimes established for large aircraft. These altitudes, however, apply only to a portion of the traffic pattern (mostly the *downwind* leg). Elsewhere in the pattern, aircraft are descending toward a landing or climbing after takeoff. FAA regulations regarding minimum en route altitudes (in populated areas, 1,000 feet above the highest obstacle within 2,000 feet of the aircraft) do not apply while an aircraft is landing at or taking off from an airport. The actual altitude of an aircraft at any particular point along the traffic pattern is largely dependent upon its performance capabilities plus, on landing, any visual glide slope guidance or other navigational aids which may be installed at the airport.

Instrument Approach Procedures

Instrument approach procedures are classified as either *precision* or *non-precision*.

- **Precision Approach Procedures**—Precision approach procedures provide both vertical and horizontal guidance to the aircraft. Current procedures all rely upon using navigational aids located at the airport and elsewhere on the ground nearby. In the future, the satellite-based Global Positioning System (GPS) is expected to enable precision approaches without the need for navigational equipment on the ground.

> *The FAA is currently implementing the instrument approach known as Wide Area Augmentation System (WAAS). The WAAS will allow GPS to be used as a primary means of navigation from takeoff through Category I precision approach.*

- **Non-precision Approach Procedures**—Non-precision approach procedures give only horizontal guidance. Pilots must rely upon other means (other navigation aids on or off the airport and/or radar control) to determine when to descend to a lower altitude along the approach course. Historically, non-precision approaches required installation of navigational equipment on the ground at the airport or in the vicinity. Stand-alone GPS-based non-precision approaches have come into use over the past several years.

Precision approach procedures typically allow lower approach minimums than do non-precision approach procedures. Most precision approach procedures allow aircraft to land with weather conditions as low as a 200-foot cloud ceiling and a ½-mile visibility. Some major air carrier airports have navigational aids which enable suitably equipped aircraft to land with *zero-zero* conditions. Good minimums for non-precision approach procedures are generally double those typical of a precision approach procedure.

Instrument approach procedures are divided into as many as four segments: *initial*, *intermediate*, *final*, and *missed*. The initial and intermediate approach segments serve to guide the aircraft from major air routes to the airport vicinity. Once an aircraft is established on the final approach course, it generally is aligned with the runway and is at a precise altitude. Aircraft fly the final approach segment until reaching the specified minimum altitude at which point, if the runway is visible, the aircraft either proceeds straight ahead to the runway or circles to land on a nother runway. The missed approach segment of the procedure is utilized if the runway is not visible when the aircraft reaches a predetermined position (indicated by navigational aids or timing) and minimum altitude or the pilot elects to abandon the approach earlier. Missed approach procedures enable the aircraft to climb back to a safe altitude and then either wait for operating conditions to improve or proceed to another airport.

Until the mid 1990s, all instrument approach procedures relied upon g round-based navigational aids. Since that time, procedures utilizing GPS have come increasingly into use. Initially, all GPS procedures were "overlays"— near duplicates of already existing ground-based procedures. More recently, procedures based solely upon GPS have been established. To date, all GPS procedures are still classified as non-precision (providing horizontal guidance only). Ultimately, GPS has the potential to allow establishment of new instrument approach procedures with lower minimums or even curved approach paths. Another key advantage of GPS approach procedures is that they do not require installation of on-ground navigational aids. Runways for which ground-based procedures are not technically practical or cost-effective (because of relatively low activity levels) thus may be capable of accommodating a GPS-based approach.

Despite this potential, it should be realized that, even with GPS, every runway will not become an instrument runway, let alone a precision instrument runway. The FAA has adopted minimum design criteria for runways to support various categories of instrument approach procedures (whether GPS or otherwise). For example, the minimum runway length requirement (as of late 2010) is 3,200 feet for a non-precision approach. This minimum requirement has been established for many years. Additionally, lateral setback distances from the runway and the presence of obstacles in the approach and missed approach path are major determinants of the visibility and descent minimums that an approach can have.

> *Caltrans Guidance: Even though GPS may enable many runways currently without an instrument approach procedure to have one in the future, ALUCs cannot necessarily assume this will occur for any particular runway. ALUCs are limited by state law to basing their compatibility plans on master plans or layout plans adopted by airport proprietors. Therefore, unless the adopted plan indicates a runway to be a future instrument runway or the instrument procedure already exists, ALUCs should not base their plans on the possibility that a procedure will be created.*

Instrument Departure Procedures

All airports with instrument approach capabilities also have published instrument departure procedures. These procedures enable aircraft to depart an airport and climb to en route airspace. Departure procedures are usually less complex than approach procedures and often

do not depend upon on-airport navigational aids. For air carrier and charter aircraft operations, certain minimum visibility conditions must be met before the aircraft can take off. No minimums are set for operations by private aircraft operating under Federal Aviation Regulations Part 91. Also, instrument departures are permitted from any airport, even those without an instrument approach procedure.

Airport-Related Factors

Adjustments to standard traffic patterns frequently are made to reflect specific conditions at individual airports. Airports where multiple runways are simultaneously used may limit the pattern locations of individual runways in order to avoid air traffic conflicts. Similarly, when two or more airports are situated close together, limitations on their traffic pattern locations may be necessary.

High terrain on one side of an airport is another local condition which may dictate establishment of a right-hand pattern to a runway. Finally, the locations of traffic patterns and flight routes to and from an airport are sometimes defined so as to minimize aircraft overflights of residential or other noise-sensitive land uses.

Specialized Aircraft Flight Routes

In addition to the common arrival and departure flight routes flown by most aircraft, some airports have activity by specialized aircraft which may have their own particular routes.

Helicopter Flight Patterns

Normal flight patterns for helicopters are the same as those for airplanes in certain ways and are different in others. Most of the differences result from the distinct operating characteristics of helicopters.

- **Visual Flight Rules**—Helicopter flight under VFR conditions involves significant differences from airplane flight. For example, en route altitude is generally lower for helicopter flights than it is for airplanes. Federal Aviation Regulations Part 91 establishes the minimum en route altitude for all aircraft in urban areas at 1,000 feet above the highest obstacle within a 2,000 foot horizontal radius of the aircraft. Helicopters, however, may be operated at less than these minimums if "the operation is conducted without hazard to persons or property on the surface."

  The FAA has not established a standard airport traffic pattern for helicopters comparable to that for airplanes. FAR Part 91 dictates only that helicopters should "avoid the flow of fixed-wing traffic." This is often accomplished by flying both at a lower altitude than the airplane traffic pattern and along different routes. Also, many airports and heliports have adopted official or unofficial helicopter approach and departure routes.

- Because helicopters require little or no landing or takeoff roll along the ground the way airplanes do, they can approach or depart a landing/takeoff site from virtually any direction when not limited by obstacles, established procedures, or other factors. Given the choice, helicopters, like airplanes, will land and take off as closely into the direction of the wind as possible. Helicopter landing approach and takeoff climb angles are

comparatively steeper, however. Also, the length of these segments can be much shorter than needed for airplanes.

- **Instrument Flight Rules**—Under instrument weather conditions, helicopters mostly follow the same flight rules as airplanes. At airports, for example, properly equipped helicopters can use the same instrument approach and departure procedures as those flown by airplanes. Some helicopter facilities, however, may have instrument procedures exclusively for helicopter use.

Agricultural Aircraft

In agricultural locations, agricultural *crop duster* aircraft often are the principal contributors to an airport's overall noise impact. Agricultural aircraft noise differs from that of other aircraft and is difficult to accurately portray in aircraft noise contours. A key factor is that these aircraft seldom climb to normal traffic pattern altitudes and they often make turns at low altitudes close to the runway.

Other Factors Affecting Aircraft Noise Levels

Although aircraft characteristics and flight routes are the principal determinants of aircraft noise exposure, other factors have noteworthy contributing roles.

Ground Operations

Although airborne aircraft operations are the primary source of aircraft noise in the vicinity of an airport, ground operations can also produce significant exposure under certain circumstances. Particular locations of ground operation noise include:

- **On the Runway**—Significant noise levels are generated behind an aircraft, especially a jet aircraft, as full engine thrust is produced during acceleration to takeoff. (More specifically, the highest noise levels are experienced at a 15 to 45 degree angle from the aircraft path; directly behind the aircraft is a zone of relative quiet.) On landing roll-out, power settings on most aircraft are low and the noise is comparatively minimal. The one significant exception is when jet aircraft use reverse thrust to decelerate after landing. This action can produce high noise levels in front and to the sides of the aircraft. (Note: reverse thrust noise is included in standard Integrated Noise Model (INM) computations.)

- **Taxiing**—Aircraft mostly use low power settings when taxiing between parking locations and a runway. For most aircraft, the resulting noise levels are minimal and not a factor off the airport property. There are exceptions, however. For example, aircraft require added power to begin moving when stopped. Also, large aircraft need to apply moderate power to engines on one side in order to turn while taxiing at low speeds. With propeller airplanes, moderately high engine power is briefly necessary to start the engine. Noise levels increase correspondingly for these few moments.

- **At Runway Holding Bays**—Pre-flight engine run-ups by piston aircraft are usually conducted at holding bays or other locations near the ends of runways. Many people perceive the noise from pre-flight run-ups of propeller-aircraft engines to be more annoying than the noise from overflights, even if the sounds have equal loudness. Part of the reason for this greater annoyance is that run-up noise is thought to be (although it is

not) less necessary and more under the control of the aircraft operator. For land uses near the end of a runway, run-up noise can be louder and more prolonged than overflight noise. This is especially true when a runway is used predominantly in one direction. The runway end which is used for landings—when aircraft are typically the quietest—is also the end at which pre-flight engine run-ups are normally conducted.

Airport land use commissions seldom adopt land use compatibility criteria which specifically consider noise from aircraft ground operations not on the runway. Nevertheless, these noise sources can be significant in locations immediately adjacent to an airport. INM allows analysis of aircraft run-up noise.

- **At Airline Terminals**—Activity around airline terminals can be a noticeable source of noise. Auxiliary power units on board jet aircraft (used for cabin temperature control, to operate electrical equipment, etc. while on the ground) are one such source. These noise sources can be bothersome at airports where terminal areas are situated close to noise-sensitive land uses.

- **Aircraft Maintenance Facilities**—Maintenance testing of aircraft engines can require the use of high power settings and resulting noise levels. This activity may occur in or near airline or fixed base operations maintenance hangars or sometimes at other locations on an airport. At airports where frequent engine testing creates significant noise exposure on nearby land uses, construction of noise barriers or testing enclosures (sometimes called "run-up enclosures") has become necessary.

Other Variables

The noise levels experienced on the ground as an aircraft flies over are primarily dependent upon the inherent loudness of the aircraft, the aircraft's altitude, and the horizontal distance between the receiver and the aircraft flight track. Other variables may also be important as well and are discussed below.

It should be noted that the cumulative noise level contours which ALUCs use for land use compatibility planning purposes normally do not take into account variables such as these. Unless special steps are taken to calibrate the noise contours for a particular airport with actual noise measurements taken at that airport, the contours will reflect standard aircraft operating characteristics.

- **Pilot Technique**—An important variable in aircraft noise is the pilot. Depending upon the techniques that the pilot employs, the same aircraft can generate significantly different noise levels. Conditions which produce some of the greatest noise variations include:

  - The angle of climb while on takeoff (also affected by aircraft payload, air temperature, and wind);
  - Power adjustments during takeoff;
  - The propeller pitch setting on airplanes with variable pitch propellers, especially at high takeoff power settings;
  - Flap settings (especially during landings by large aircraft); and

- The airspeed and descent rate relationships that determine the extent of helicopter blade slap during landing operations.

Pilot awareness of the aircraft configurations that create abnormally high noise levels can be a significant factor in helping to reduce actual aircraft noise exposure.

- **Air Temperature**—Aircraft engines, both piston and turbine, operate less efficiently when temperatures are high. The lower power results in reduced climb rates. For propeller airplanes, somewhat higher noise levels may result. However, for jets, the lower power also results in lower noise emissions, thus essentially cancelling out the effect of reduced climb rates.

- **Sound Wave Reflection**—The presence of nearby structures or steep terrain can cause sound wave reflections which may locally increase noise levels. Water or hard ground surfaces can particularly contribute to such occurrences. Certain meteorological conditions—such as a temperature inversion layer—also can reflect sound back to the ground, resulting in higher noise levels.

- **Height of Terrain**—Rising or falling terrain changes the distance between an aircraft and people on the ground relative to the flat ground assumed in standard INM calculations. These changes in turn increase or reduce the actual sound levels experienced on the ground compared to the levels calculated by the noise model.

The FAA's Integrated Noise Model, versions 6.0 and higher, allows assessment of the effects of elevation variations.

AIRCRAFT NOISE METRICS

Measurement of sound is a relatively straightforward and objective process. Environmental noise, however, is comprised of a multitude of varying sounds having different magnitudes, frequencies, and durations, and stemming from different sources. Moreover, to be useful, measures of environmental noise must take into account the ways in which noise affects people.

Metric: A standard or scale of measurement.

In many communities, particularly urban communities, aircraft and other modes of transportation constitute the most predominant sources of noise. Over the years, a variety of noise metrics have been devised in order to assess these forms of noise. Some of these metrics are general-purpose and can be applied to almost any noise source. Others are intended more specifically for measuring aircraft noise and particularly noise associated with aircraft operations to and from airports. These noise metrics can be grouped according to whether they measure the sound level of a single event or are cumulative measures of many events. Essentially all noise description metrics employ a logarithmic scale and the measurement units are expressed in decibels (dB). An A-weighted decibel scale (see Table D1) is generally used.

Each of these metrics has notable advantages and disadvantages which differ depending upon the purpose of the noise measurement.

Single-Event Metrics

The sound level associated with an individual aircraft flying nearby (see Figure D6) can be characterized as:

- Beginning at some point when the sound can be distinguished above a threshold or ambient sound level;
- Reaching a maximum level; then
- Diminishing until it is no longer distinct.

Ambient Noise Level: The background noise level absent any readily distinguishable sounds.

Instantaneous Sound Levels

Sound levels can be measured on a continuous basis for each instant during this cycle. A significant point is the maximum sound level attained (L_{max}). L_{max} is an important determinant of whether speech interference may occur.

Single-Event Energy

The limitation of an instantaneous sound level measurement is that it provides no information regarding the duration of a sound. Two different aircraft overflights thus can produce vastly different total amounts of sound energy at a given point on the ground depending upon how quickly the aircraft pass by. To compare the total sound produced by individual aircraft flyovers, a reference time of one second is used. In other words, this measurement method indicates the level of a continuous one-second sound which contains the same amount of energy as the complete noise event. The resulting noise metric is called *Single Event Noise Exposure Level* (SENEL).

The SENEL metric used in California is virtually identical to the Sound Exposure Level (SEL) metric used by the Federal Aviation Administration and other federal agencies.

Figure D6 illustrates the relationship between L_{max} and SENEL for a typical aircraft noise event. Because aircraft noise events last more than one second, SENEL values are higher than the L_{max} recorded for any individual event. The relationship between SENEL and L_{max} is not constant, however. For most aircraft noise events, SENEL is about 5 to 10 dB higher than L_{max}; the shorter the noise event is, the closer the two numbers will be.

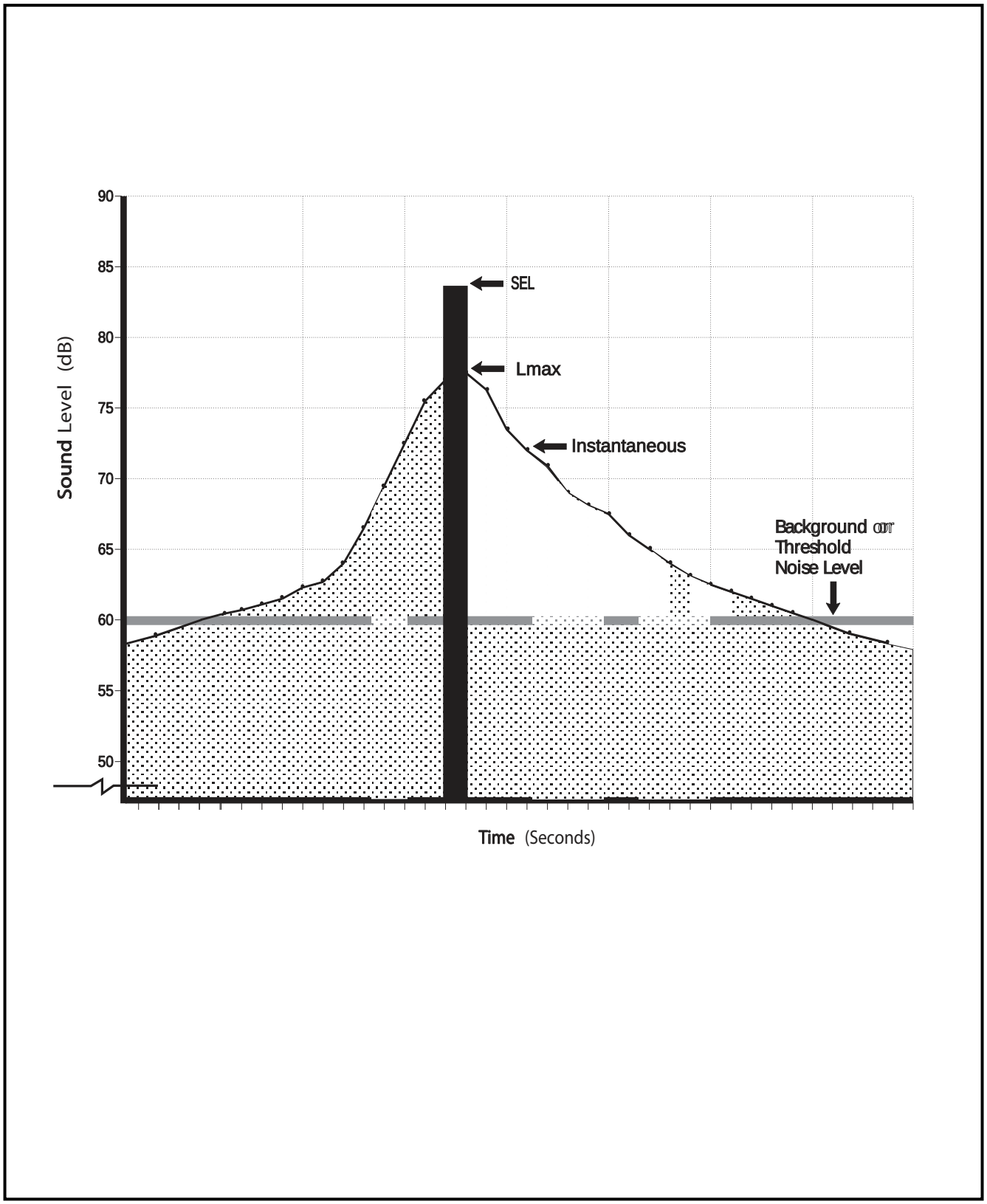


FIGURE D6

Typical Aircraft Noise Event

Cumulative Noise Metrics

In order to provide a single measure of continuous or multiple noise events over an extended period of time, a variety of cumulative noise level metrics have been devised. Most of these metrics result in a weighted average measurement of noise over time.

Various other cumulative noise metrics exist in addition to the ones mentioned here. Some are used for measuring other aspects of noise (the amount of time noise exceeds a certain level, for example) or noise from sources other than airports. Others were created as communications tools rather than for policy making purposes. Still others are found primarily in other countries. None of these metrics are considered applicable to airport land use compatibility planning in California.

Equivalent Sound Level

A standard measure of sound level averaged over a specified period of time is the *Equivalent Sound Level* (abbreviated L_{eq}). This metric indicates the constant sound level in decibels which would produce the same amount of sound energy as a s eries of events having fluctuating sound levels. The more closely spaced the noise events over the entire measurement period, the closer L_{eq} will come to L_{max}. This is the case for noise from a busy highway, for example. For infrequent noise events, such as at a low-activity general aviation airport, L_{eq} may not be much higher than the ambient noise level.

Time-Weighted Cumulative Noise Metrics

Undoubtedly the most widely used metrics for assessment of aircraft noise levels are time-weighted cumulative noise metrics. These types of metrics include the community noise equivalent level (CNEL) used in California and the *Day-Night Average Sound Level* (abbreviated as DNL, but symbolized in formulas as L_{dn}) adopted by the Environmental Protection Agency and the Federal Aviation Administration and used elsewhere in the United States.

This Handbook primarily refers to cumulative noise metrics in term of CNEL rather than DNL in that the former is the metric used in most California state noise regulations including those for airports.

Both metrics are similar to the Equivalent Sound Level (Leq) except that they compensate for the widely assumed increase in people's sensitivity to noise during nighttime hours. Each aircraft operation occurring between 10:00 p.m. and 7:00 a.m. is treated as if it were ten operations. Similarly, CNEL (but not DNL) includes a penalty weighting for operations taking place between 7:00 and 10:00 p.m. in the evening. Each aircraft operation during these hours is counted as if it were three operations. Logarithmically, these multipliers are the equivalent of adding 10 dB to the noise level of each nighttime operation and 4.77 dB to the noise level of each evening operation. These noise level penalties are intended to correspond to the drop in ambient noise level which studies have found takes place from daytime to evening and nighttime in a typical community. The evening and nighttime decrease in ambient sound levels—from both outdoor and indoor sources—is commonly considered to be the principal explanation for people's heightened sensitivity to noises during these periods.

CNEL values are normally depicted by a series of contours representing points of equal noise exposure in 5 dB increments (see example in Figure D7). Specialized computer programs—as described in the next section—are normally used for calculation of noise contours.

CALCULATION OF AIRCRAFT NOISE CONTOURS

Just as the metrics created for describing aircraft noise have evolved over the years, so have the means available for calculating current and future noise levels around airports. Today, highly sophisticated computer models are commonly used to carry out the noise calculations. Still, as precise as these models can be, they depend upon the accuracy of the data entered into them. These topics are discussed in the text which follows.

When developing or updating compatibility plans, ALUCs (or their staff or consultants) sometimes need to prepare aircraft noise contours. Even when creation of noise contours is not necessary as part of a compatibility planning process, it is important that ALUCs and their staffs understand the factors involved.

Aircraft Noise Models

Integrated Noise Model

In the U.S., by far the most commonly used aircraft noise model is the Federal Aviation Administration's Integrated Noise Model (INM) computer program. INM was developed by the FAA as a means of standardizing the assessment of aircraft noise levels in the vicinity of airports. The original INM program dates back to 1978. As of late 2010, the most recent version is 7.0b which was introduced in 2009 (INM 7.0 was released in 2007). Each iteration of the program has added to its sophistication, allowing noise contours to be computed more efficiently and more accurately. However, one effect of the upgrading of the noise calculation algorithms at the core of the program has been that identical input data may result in slightly different output contours than produced by earlier versions.

Anyone can obtain the INM software through the FAA. However, most airports and ALUCs retain consultants to prepare noise analyses. Major airports commonly have their own staff trained in use of the program, but rely on consultants to prepare noise analyses due to the amount of effort involved.

The INM is capable of providing output in a variety of formats and metrics. Noise contours can be produced using CNEL, DNL, or any of several other cumulative noise metrics. Single-event contours can also be run. Finally, detailed data for a single point, or a grid of multiple points, can be produced.

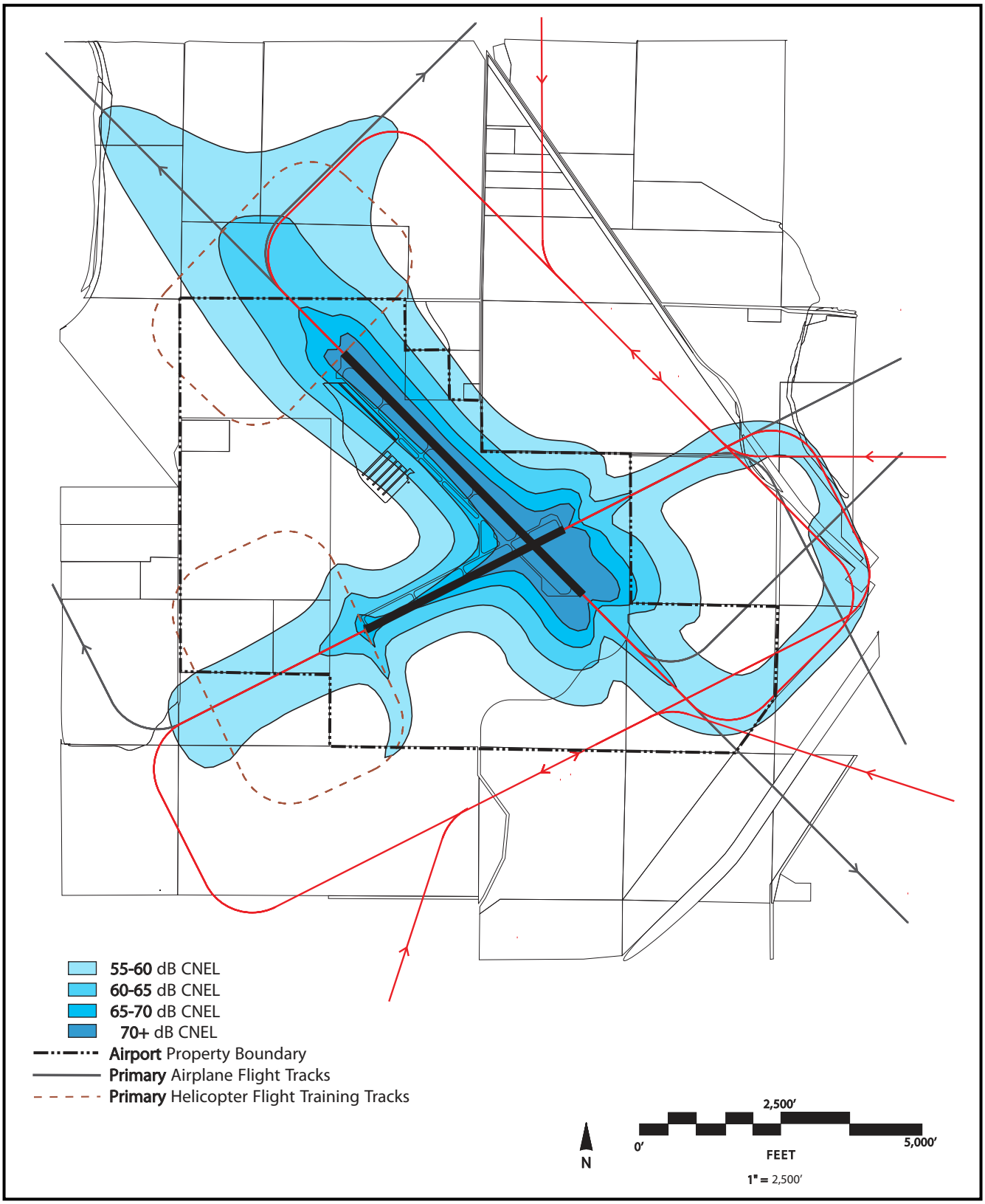


FIGURE D7

Example of Airport Noise Contours

Other Noise Models

While INM has widespread general utility, other noise models have been created for use in more specialized circumstances. (Also, other countries have developed their own variations of noise models.)

- **NOISEMAP**—The current U.S. Air Force NOISEMAP model has capabilities similar to the latest version of INM, but is designed for use at military aviation facilities or civil airports with a substantial amount of military aircraft operations. The aircraft noise database in NOISEMAP consists solely of military aircraft or military versions of civil aircraft. Civil aircraft can be added using the INM database however. The noise computation algorithms are slightly different between the two models, but the output noise contours are very similar.

Sources of Aircraft Noise Model Input Data

In order to calculate noise contours or other noise impact information, INM and the other noise models require several types of data. Some of the data is built into the model database, although it can be modified by the user. Other data must be entered for each individual noise study. Still other types of data can be entered to refine the analyses, but are not required.

Built-In Data

The database built into INM consists primarily of aircraft-related data. Information is included on more than 200 different types of aircraft and helicopters. The majority of aircraft are jet aircraft, with most of those consisting of air carrier aircraft. Propeller aircraft and helicopters are represented in the database, but are more represented in the approved substitution database. Military aircraft are comparatively less represented in the INM. For each of the aircraft in the database, standardized data is provided for:

- Performance characteristics (takeoff distance, climb rates, etc.);
- Power settings used at various stages of landing or takeoff; and
- For each power setting, the amount of noise measured at various distances from the aircraft.

The database reflects average operating conditions for each aircraft type. In most cases this data is used directly when calculating noise contours. INM also has the capability of accepting user input data to better fit known variations for a particular aircraft or airport. For example, adjustments or "calibration" of the standard aircraft parameters can be done based upon data obtained from flight track monitoring systems. Production of noise contours cannot use noise measurement data from noise monitors.

TABLE D3: NOISE AND OPERATIONS MONITORING SYSTEMS

History

Aircraft noise and operations monitoring systems have been installed at California airports since the 1970s. The earliest systems measured aircraft noise levels at fixed positions, separating aircraft noise events from other noise sources primarily by their isolation from such sources, and the use of threshold values for noise levels and event duration. Other noise event parameters were evaluated during data analysis to improve discrimination of aircraft noise events. Later systems relied on airport staff input of FAA flight strips (which the FAA did not make available until at least 14 days after the flights). Using a computer, sequential noise events were then matched to the reported FAA takeoff release times. In this manner, aircraft noise events were reasonably well separated from other noise sources and it was possible to determine the noise levels produced by individual aircraft.

Over time, noise and operations monitoring systems have taken advantage of better computers and of access to aircraft flight data directly from FAA data disks and computer downloads, use of passive radar systems to gather data without the need for FAA cooperation, and most recently, direct connection to the FAA TRACON radar system using an FAA-approved "gateway."

Present-Day Systems

Today, many California airports have fully integrated noise and operations data collection and analysis systems which allow rapid matching of aircraft noise events, specific flights, and their flight paths. Some airports have systems which monitor noise levels, without access to FAA radar data. In such systems, recordings of radio transmissions by the FAA Tower and the aircraft are used to correlate noise events to specific flights.

Permanent aircraft noise and operations monitoring systems provide a highly credible database of noise level and operational data including:

- Long-term measurements of cumulative noise levels
- Statistically valid distributions of measured single-event noise levels by aircraft type and operator
- Precise definition of flight tracks and areas of aircraft overflights
- Census of aircraft types and operations
- Flight profiles
- Adherence to established flight procedures
- Variations in noise levels and operational procedures over time
- Changes in noise levels due to changes in operations
- Identification of aircraft flights and noise levels associated with complaints and political concerns
- Accurate input data for the INM
- Validation of INM-predicted CNEL contours

Although each system has distinct capabilities, noise and operations monitoring systems will typically be capable of producing a wide range of standard or customized statistical analyses and maps. Most systems either utilize or can be integrated with geographic information system (GIS) databases. All of these systems enable precise judging of changes in noise levels and compliance with the established noise emissions criteria. Additionally, by accurately defining aircraft noise exposures, they help facilitate justification and implementation of noise mitigation programs such as sound insulation or property acquisition.

Although permanent noise and operations monitoring systems are unsurpassed as an objective method of providing current aircraft noise data, a major limitation is their cost. Fully integrated systems such as these can range from about $500,000 to several million for the largest systems.

The high costs limit the practicality of fully integrated systems for smaller airports. At these facilities, noise measurements can be made using portable monitoring units set to discriminate between aircraft and non-aircraft noise levels in the same manner as the earliest systems. Noise sampling techniques may be used to provide reasonable estimates of cumulative noise exposures over longer periods and single-event data can be collected for comparison to noise levels predicted using the INM. In addition, short-term radar data, or observations of aircraft flight paths in the field or at the radar scope, can be used to develop reasonable assumptions for standard aircraft flight tracks.

While not as sophisticated as the fully integrated systems, even the portable units can serve an important function of all monitoring systems. They serve as an essential source of information with which to respond to public queries and concerns over aircraft noise.

User-Provided Data

The user-provided data critical to operation of INM consists of defining where aircraft fly and how often. An extensive amount of data is usually available for major air carrier airports and other airports situated in the surrounding metropolitan area. For general aviation, solid data may be scarce and use of estimates may become necessary.

Inputs to CNEL contour calculation include:

- Runway system configuration and runway lengths.
- The geometry of common aircraft flight tracks.
- The standard approach slope used for each runway.
- The number of operations by aircraft type or group.
- Runway utilization distribution by aircraft type and time of day.
- The distribution of operations by time of day for each type of aircraft.
- The distribution of operations for each flight track.

Specific types of data needed by INM are listed above. Potential sources for this data include the following:

- **Radar Flight Track Data**—For airports covered by FAA terminal radar control (TRACON) facilities, recorded flight track data is an ideal source of information on where aircraft fly. Not only can the path of the aircraft along the ground be identified, but also the altitude and the type of aircraft as well. The current version of INM is capable of handling an indefinite number of flight tracks. In addition, recent versions of the software allow for some refinement of flight track depiction process—a set of dispersed subtracks offset horizontally (but not in altitude) from the primary tracks can now be modeled to more accurately account for the variability in flight track dispersion that naturally occurs.

- **Control Tower Counts of Aircraft Operations**—At airports having functioning air traffic control towers, tower personnel maintain complete data on the number of aircraft operations. This data categorizes the operations as to whether they were conducted by air carrier, air taxi, general aviation, or military aircraft (a note of caution here: air carrier and air taxi counts may include operations other than by scheduled airlines). Also counted are itinerant (headed to or from other airports) versus local (consisting mostly of flight training "touch-and-go") operations. Tower count data can usually be obtained from airport management or directly from the FAA and is also available via the Internet.

- **Airport Management Records**—Neither air traffic control tower nor automated counter data fully identify the types of aircraft operations. Additional data needs to be obtained from other sources. Information on numbers of scheduled airline flights, air cargo aircraft operations, fire attack aircraft missions, and other distinct forms of aircraft activity are often maintained by airport management, particularly if landing fees are collected from these users. Airport management also may have information on the types of aircraft based at the airport which can be used to help estimate the mix of aircraft operations.

- **Wind Data**—Wind direction data gathered at the airport in question or at a nearby location can be useful in estimating the percentage of usage of each of the airport's runways.

- **Interviews with Airport Personnel**—Individuals who regularly operate or observe aircraft at the airport comprise a final source of valuable, although qualitative, information on aircraft types, runway usage, flight tracks, time of day distribution, and other inputs to noise modeling. Interviews with control tower staff, flight instructors, and others can help fill the gaps in quantitative data.

- **Projected Activity**—The data sources listed above are all potentially useful in preparation of noise contours representing current airport activity. To develop contours depicting projected future noise exposure, forecasts of future activity are necessary. Additionally, assumptions must be made regarding future changes in the aircraft fleet mix, runway utilization, and other noise model input data.

Optional Data

To refine the precision of noise contours, the latest versions of INM allow entry of terrain data. Whereas earlier versions assumed that the airport and surrounding areas were all on level ground, this capability enables the effects of increased or decreased distances between the aircraft and the ground to be calculated. (The effects of shielding or reverberation produced by the terrain are not taken into account, however.)

Another form of data which can be entered into the program on an optional basis is census data. Although this information has no effect on the contours, its entry can facilitate evaluation of the numbers of people impacted by various noise levels or aircraft operational scenarios.

Limitations of Aircraft Noise Contour Modeling

Despite the increasing sophistication and accuracy of aircraft noise models, several limitations are important to note.

- **Aircraft Database Limitations**—Even though additional aircraft have been added to the database with each version of the program, INM (as well as the other noise models) tend to be slow in including the newest models of aircraft. Often it is necessary to substitute similar aircraft. The INM contains a database of approved aircraft substitutions for aircraft with similar noise footprints. This approved substitution database contains more than 260 aircraft and helicopters. The INM database lacks information on specialized aircraft such as agricultural aircraft or fire fighting aircraft. Lastly, all of the databases include only existing aircraft. When modeling projections of noise exposure more than twenty or so years in the future, assumptions must be made on the types of aircraft that will be operating and appropriate aircraft substitutions using existing aircraft made.

- **Flight Tracks—** Close to the end of runways, nearly all aircraft flight tracks are aligned with the runway, especially on arrivals or on departures from a short runway. The greater the distance from the runway ends, the more the tracks disperse. The accuracy of noise contours in these areas depends greatly upon the number and location of flight tracks entered into the noise model. If too few flight tracks are defined, the noise contours will tend to take on a spiky rather than usually more realistic bulbous shape. This is particularly the case with general aviation aircraft in that their flight tracks ordinarily vary quite widely. Even air carrier aircraft following instrument procedures have a noticeable divergence in their flight tracks, although certain flight corridors are normally

evident. On the other hand, attempts to model a large number of flight tracks can be difficult and, if little is known as to their precise location or frequency of use, not necessarily more accurate. The recent enhancement of INM allowing modeling of dispersed sub-tracks adjacent to the primary tracks can help improve the realism of noise contours.

- **Helicopter Noise—**Because of their separate flight tracks, different operating characteristics, and typically low activity volumes, helicopter operations are often not included in noise contour calculations. However, a simulation of helicopter noise can be included in Integrated Noise Model calculations. Also, the noise exposure of some types of helicopters can be modeled with the separate U.S. Air Force NOISEMAP model (for military helicopters) and the resulting exposure then manually added to aircraft exposure calculated with the INM.

- **Ground Operations—**As noted previously, various types of aircraft ground operations can be significant noise sources at some airports. Although the current version of INM allows some of this activity to be modeled (specifically, run-up operations), this is typically not done unless a problem with noise from this source is known to exist.

- **Local Environmental Conditions—**The noise calculation algorithms built into the model assume an average set of physical and atmospheric conditions in the area surrounding an airport. Thus, localized factors such as reflection or diffraction of sound off of or around terrain or buildings are not considered. Similarly, daily local atmospheric conditions—such as temperature, humidity, wind, and cloud cover—may result in day-to-day variations from the predicted annual average noise levels.

- **Precision**—Because of the many variables and assumptions associated with their computation, cumulative noise contours representing existing airport activity are often considered to have a precision of approximately ±3 dB. Greater precision (within ±1 dB) can be obtained at airports where flight track data is available from radar and/or a permanent noise monitoring system is installed. In any case, precision is greatest close to the runway and decreases beyond where flight tracks diverge.

- **Projections of Future Noise Exposure**—As imprecise as modeling of current noise contours can sometimes be, contours representing projections of future noise exposure are inherently even less precise. Uncertainty regarding future aircraft technologies and the timing of when current aircraft models will be phased out of use is one source of imprecision. Perhaps even more unknown is the future number of operations of various aircraft types likely to occur at any particular airport.

EFFECTS OF NOISE ON PEOPLE

A central consideration in setting noise compatibility policies is to understand the ways in which noise affects people.

Types of Effects

Noise, especially aircraft noise, affects people and their activities in varied and complex ways. Three principal types of effects can be identified: *physiological*, *behavioral*, and *subjective*.

- Physiological Effects—Physiological effects can be either temporary or permanent. Among the temporary effects are startle reactions and the effects of sustained sleep interference. Hearing loss is the most obvious permanent effect of noise. Research indicates that off-airport aircraft noise, even from the loudest aircraft, is not severe enough to produce permanent or even sustained (after the noise ceases) effects on hearing. Less is known about the non-auditory health effects of aircraft noise. Despite new research conducted over the last two decades, a U.S. Environmental Protection Agency conclusion in 1982 remains valid today:

  "Research implicates noise as one of several factors producing stress-related health effects such as heart disease, high blood pressure and stroke, ulcers and other digestive disorders. The relationship between noise and these effects has not yet been quantified."

- Behavioral Effects—Behavioral effects are usually measured in terms of interference with human activities. Speech interference and interference with the enjoyment of radio or television are the most often cited examples. Interference with concentration on mental activities and disruption of sleep are two others. Most of the readily identifiable aircraft noise effects fall into this category.

- Subjective Effects—By their very nature, subjective effects are unique to each individual and, therefore, difficult to quantify. Subjective effects of noise are commonly described in terms of annoyance or other similar terms. Because of the great variability in the ways people perceive and react to the unpleasant aspects of noise, prediction of how any one individual will react is nearly impossible. Most research consequently focuses on identifying predictable results among a group or community of people.

The latter two categories are examined more closely in the following discussion.

Effects of Noise on Human Activities

Speech Communication

Scientific research has found that the maximum continuous sound level that will permit relaxed conversation with 100% intelligibility throughout a typical residential living room (talker/listener separation greater than approximately 3.5 feet) is 45 dB (L_{eq} = 45 dB). A 95% intelligibility—considered to be "satisfactory conversation"—can be obtained with a steady sound level of up to 64 dB. When the noise level approaches 80 dB, intelligibility drops to near zero even when a loud voice is used (EPA–1974). Interference with communication may result from masking of the speaker's words or by causing the speaker to pause.

Outdoors, because of the absence of reflecting walls to provide the reverberation found indoors, the sound level of speech as it reaches the ear decreases comparatively more rapidly with increasing distance between the talker and listener. In a steady background noise, there comes a point—as the talker and listener increase their separation where speech can no longer be understood because it is masked by the noise.

Almost all fluctuating sound levels found in the everyday environment will, if averaged over a long time period, have less impact on speech intelligibility than a steady sound which has the same Equivalent Sound Level (L_{eq}). This occurs because most of the time the background noise level is less than the Equivalent Sound Level (because of the logarithmic base of sound

intensity measurement, a loud sound need have only a relatively short duration to raise the L_{eq} substantially). In circumstances where assessment of speech interference is particularly important, measurement of the amount of time during which noise levels exceed a level for acceptable communication can be informative.

Effects on Learning

Closely related to speech interference are the effects of noise on learning and, more broadly, on cognitive tasks. Recent studies have shown a st rong relationship between noise and children's reading ability (FICAN–2000). Children's attention spans also appear to be adversely affected by noise. Adults are affected as well. Some studies indicate that, in a noisy environment, adults have increased difficulty accomplishing complex tasks.

One of the issues associated with assessment of these effects is which noise metric correlates most closely with the impacts. For example, DNL, with its nighttime weighting, may not be the best measure of noise impacts on schools. Also, DNL and L_{eq} were developed primarily to address annoyance issues, not effects on learning or health-related matters. Future research into this issue also may help in assessment of the manner in which the effects of loud, intermittent noise events such as aircraft overflights differ from lower volume, but relatively constant, noise sources such as highways.

The FAA considers an aircraft Leq of 45 dB during normal schools hours the "usual design objective" for sound insulation of schools. (FAA Order 5100.38C). Schools are encouraged to meet the American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools (ANSI/ASA S12.60-2010) published by the American National Standard Institute and Acoustical Society of America.

Sleep Disturbance

The extent to which environmental noise disturbs human sleep patterns varies greatly from individual to individual as well as from one time to another for any particular individual. Whether an individual is aroused by a noise depends upon the individual's sleep state and sleep habits, the loudness or suddenness of the noise, the information value of the noise (a child crying, for example), and other factors. Also, most people adapt over time to increased levels of noise during sleep.

When the noise source emanates from outdoors—as is the case with aircraft noise—additional factors affect the loudness of the noise as heard indoors. The noise level reduction provided by the type of construction is one of these determinants. A greater variable, though, is whether windows are open or closed.

Early studies of the effects of noise on sleep disturbance produced varying results. A major factor in these differences, though, is whether the study evaluated people sleeping in a laboratory or in their own homes. Generally, laboratory studies have shown considerably more sleep disturbance than is evident in field studies. More recent studies, all conducted in the field, have produced relatively consistent results. These studies have included:

- A 1990 British study;
- A 1992 U.S. Air Force study of residents near Castle Air Force Base and Los Angeles International Airport; and
- A 1995 study comparing the effects of the closure of Stapleton International Airport with the opening of Denver International Airport.

In 1997, the Federal Interagency Committee on Aviation Noise (FICAN) sought to put the subject to rest with publication of a recommended new dose-response curve predicting awakening. This curve was calculated using data from the above three studies, among others. The 1997 FICAN curve represents the upper limit of the observed field data and should be interpreted as predicting the maximum percent of the exposed population expected to be behaviorally awakened.

FICAN found a much lower likelihood of awakenings from noise than had been indicated in earlier studies, including the 1992 FICON report. For example, at an indoor sound exposure of SEL 80 dB, the FICAN curve predicts 10% awakenings. By comparison, FICON predicted over 30%. FICAN, however, notes two particular caveats to the prediction curve: (1) it applies only to long-term residents; and (2) it cannot be generalized to apply to children in that only adults were included in the studies.

Subjective Reactions to Noise

Factors Influencing Individuals' Annoyance at Noise

Numerous studies have been conducted that attempt to identify the types of factors which contribute to an individual's annoyance at noise. Annoyance as assessed in most of these studies is not limited to reactions separate from interference with speech communication, disturbance to sleep, and other such behavioral effects. Rather, annoyance is a complex reaction to many physical and emotional factors, including adverse effects on behavior.

Below is a list of common annoyance factors:

- Demographic characteristics of the individual (age, sex, economic status, etc.).
- Residential dwelling characteristics (single versus multi-family; owner-occupied versus rental).
- The loudness, tonal qualities, and other inherent unpleasant characteristics of the noise itself.
- How often the noise occurs.
- The duration of the noise.
- The predictability of the noise.
- Experience and expectations regarding noise levels in the community (is the noise likely to get better or worse in the future?).
- Personal sensitivity to noise.

- Beliefs regarding the preventability of the noise.
- Attitudes regarding the importance of the activity associated with the noise.
- Perceptions concerning the extent to which efforts have been made to minimize the noise levels.
- The activity in which the individual is engaged at the time of the noise.
- Beliefs regarding the health effects of noise.
- Feelings of fear or anxiety associated with the noise.

Listed above, in no particular order, are many of the factors which have been demonstrated to influence the extent of an individual's annoyance at noise. As can be seen, some of these factors are objective, measurable influences, but many are highly subjective. The significance of these subjective factors varies widely from individual to individual and, even for a given individual, from one set of circumstances to another.

The last factor in the above list suggests that annoyance is not strictly a noise-derived phenomenon, but one which also involves a safety component. This factor is particularly important with respect to annoyance at aircraft overflights. Although people may not fear the aircraft noise itself, they may be apprehensive of the prospect that an aircraft could crash onto their property and it is the noise that mostly creates their awareness of the aircraft's presence. The altitude of the aircraft and individuals' understanding of how aircraft fly thus are additional factors in the airport-related annoyance equation.

Rates of Annoyance

Even though studies have been able to identify most of the factors affecting an individual's annoyance at noise, predicting how any one individual will react to typical environmental noises has proved virtually impossible. Consequently, most studies seek instead to assess the rate of annoyance within broad segments of the population.

A summary of the effects of noise on people, including the reactions of average communities is presented in the FICON report. This summary is reproduced here as Table D4.

Complaints

One manner in which annoyance at noise is sometimes exhibited is through complaints. Many airports maintain logs of noise complaints received. In addition to providing an avenue for people to express their concerns, noise complaint phone lines can help in identifying the nature and location of particular aircraft noise problems.

Complaints, however, cannot necessarily be equated to annoyance rates within a community. Annoyance can exist without resulting in complaints and complaints may occur even without a high rate of annoyance. Moreover, there is not necessarily a correlation between complaints and noise exposure. At many airports, residential areas subjected to the highest noise levels produce relatively few complaints perhaps because of the predictability of the events. More common is for the majority of complaints to originate from locations outside the defined noise contours. Table D4 summarizes the effects of noise on people.

TABLE D4: SUMMARY OF EFFECTS OF NOISE ON PEOPLE

Day-Night Average Sound Level *(Decibels)*	Effects[1]			
	Hearing Loss *(Qualitative Description)*	**Annoyance**[2] *(Percentage of Population Highly Annoyed)*[3]	**Average Community Reaction**[4]	**General Community Attitude Toward Area**
≥75	May begin to occur	37%	Very severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will not likely occur	22%	Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will not occur	12%	Significant	Noise is one of the important adverse aspects of the community environment.
60	Will not occur	7%	Moderate to Slight	Noise is one of the important adverse aspects of the community environment.
≤55	Will not occur	3%		Noise considered no more important than various other environmental factors

[1] All data is drawn from National Academy of Science 1977 report *Guidelines for Preparing Environmental Impact Statements on Noise*, Report of Working Group 69 on Evaluation of Environmental Impact of Noise.

[2] A summary measure of the general adverse reaction of people to living in noisy environments that cause speech interference; sleep disturbance; desire for tranquil environment; and the inability to use the telephone, radio or television satisfactorily.

[3] The percentage of people reporting annoyance to lesser extents is higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time. USAF Update with 400 points (Finegold et al. 1992)

Source: *Federal Interagency Committee on Noise (1992)*

[4] Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

NOTE:

Research implicates noise as a factor producing stress-related health effects such as heart disease, high blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been conclusively demonstrated. (Thompson 1981; Thompson et al. 1989; CHABA 1981; CHABA 1982; Hattis et al. 1980; and U.S. EPA 1981)

- Exceptionally loud, large, or low-flying aircraft which are not normal for the airport;
- Changes in flight patterns which cause increased noise impacts; or
- A small number of people who frequently complain about airport activities.

Other Variables in Airport-Related Noise Annoyance

Several other inter-related variables appear to influence the extent of airport-related annoyance within a community. For some of these, relatively little research has been conducted. The apparent significance is thus more qualitative than quantified.

- Differences among Airport Types—Virtually all research on aircraft noise has been conducted at major airline airports, most of which are located in urban areas. The aircraft activity at these airports generates relatively predictable, frequent, loud noise events. In contrast, most general aviation airports have relatively few loud noise events and the total number of aircraft operations may vary substantially from day to day. Also, many general aviation airports are located in relatively quiet, suburban or rural settings where aircraft noise may be perceived as more intrusive than in noisier communities.

- Significance of Overflight Frequency versus Noise Event Loudness—Cumulative noise exposure metrics reflect a combination of both the frequency with which overflights occur and the loudness of those events. Any given noise exposure level can be the result of either a small number of noisy overflights or a high incidence of just moderately noisy events. A basic assumption in use of cumulative noise contours for compatibility planning is that community reactions will be the same under each of these circumstances.

- Time of Day Weighting—Some evidence suggests that, because people are more likely to be home during the evening (7:00 p.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) than in the day, the same noise exposure produces more annoyance during those hours. This consideration is reflected in the CNEL metric by inclusion of a penalty factor on evening and nighttime aircraft operations.

Appendix E

Aircraft Accident Characteristics

2010 AIRCRAFT ACCIDENT RESEARCH

Accident Points and Procedure

The purpose of this updated study of aircraft accident locations was to identify any changes in accident location patterns compared to the old aircraft accident database used for the previous versions of the California Airport Land Use Planning Handbook. If no substantial changes in accident characteristics are discovered, the data would be used to revalidate accident information from the 2002 *Handbook*. Additionally, this update was part of an attempt to answer questions raised regarding the uniqueness of California aviation, and whether or not flying has substantially changed since the ten-year period covered in the previous database.

This updated study focused on the accidents that occurred between the years 2000 and 2009. The 2002 *Handbook* studied accidents between 1983 and 1992, with a total 873 accident records.

The current study began by downloading a database file from the National Transportation Safety Board (NTSB) which contained records of all the aircraft accidents ever recorded by the NTSB or other government agency.

For the ten years from 2000 through 2009, there were approximately 17,000 accidents contained in the nationwide database. Although the previous study included all 50 states, this update to the accident patterns focused exclusively on California. In the 2000 through 2009 period, the NTSB database listed approximately 1,800 accidents and incidents in California.

This study of aircraft accidents, like the 2002 *Handbook* study, was primarily concerned with the risks to people and property on the ground. The following specific criteria were applied to the accident records to create a dataset representative of these concerns.

- Only accidents – no incidents. Aircraft accidents are defined as events associated with flight which result either in fatal or serious injury to a person (either on board the aircraft on the ground) or in substantial damage to the aircraft. This study purposely excluded incidents as there is less data available for them.

- Occurred off the runway – beyond the primary surface
- Occurred during takeoff, climb, approach and landing
- Occurred within 5 miles of the airport
- Only fixed wing, powered aircraft

After these criteria were applied, approximately 10% of the 1,800 records remained. The majority of the 90% of records removed were because the accidents or incidents occurred on or very close to the runway.

The foundation of this study was based on the assumption that the latitude and longitude of accident locations as reported by the NTSB could be used to accurately locate and depict accident locations. Due to this assumption, the database for the time period which was studied, intentionally excluded NTSB records which did not have latitude and longitude recorded for the accident location.

It should be noted that only 15% of the 1,800 accidents studied in the 2000 through 2009 period lacked latitude and longitude information for the accident location. The majority of the exclusions made were based on the above bulleted criteria.

After applying these specific criteria to the 1,806 California accidents, the database was reduced to 154 accidents.

Analyzing the Data

Our initial methodology was to use the latitude and longitude as reported for each of those 154 accidents and plot them on an X and Y coordinate system. The X value represents the distance of the accident site lateral to the runway end, while the Y value represents the medial distance of the accident site in relation to the runway end. The X and Y coordinate system was originally used in the previous study because it provides a simple and accurate way to locate all of the accident sites relative to the fixed position of the runway end.

To calculate the X and Y values of the accident sites, the coordinates as reported in the NTSB database were entered into Google Earth. When latitude and longitude coordinates are entered into Google Earth, the location appears on the earth as a point between crosshairs. Measurements were then taken from the accident location, as depicted by the latitude and longitude coordinates, relative to the runway end associated with the aircraft operation.

In order to confirm the accuracy of coordinates within Google Earth, several test cases were run by entering runway end coordinates into Google Earth and verifying that the locations presented in Google Earth were aligned with the runway ends shown on the aerial image.

Once the accuracy of using Google Earth was confirmed, test plots on an X and Y coordinate system were completed. These test plots revealed that a majority of the accidents were centered on the mid points of the runways.

Problems Encountered

The test plots did not reflect accident locations in the areas as expected. In the instance of aircraft arrivals, it was expected that the majority of accident sites would be preceding the threshold of the runway. Likewise, in the case of departures, it is expected that the majority of accident sites would be located beyond the far end of the runway.

It was discovered that a significant portion of the accident records had a latitude and longitude which reflected the Airport Reference Point (ARP) rather than the actual accident location. Other records had coordinates that did not point to the ARP, but when compared to the location described in the case narrative, were simply inaccurate.

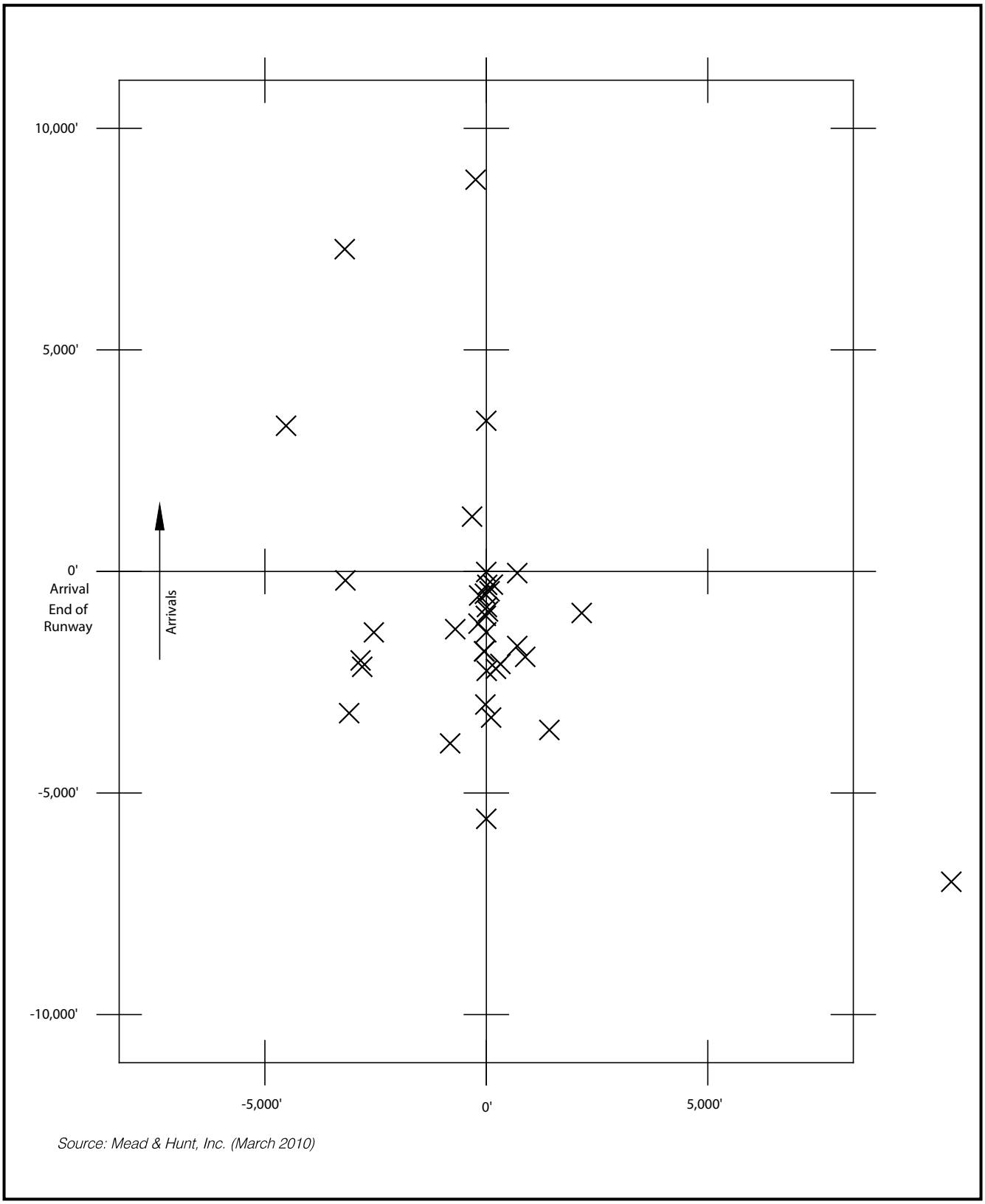
After discovering the inconsistencies with the data, the process of using the NTSB supplied coordinates to calculate an X and Y value could no longer be relied upon.

Solution

In order to create a set of accident records that could be used confidently, each narrative was read and compared to the location indicated by the NTSB database. In some instances, enough information was supplied in the narrative that the previously incorrect accident location could be revised. Using the revised location, X and Y values could be calculated in confidence.

After reading through the narratives and revising the accident locations when able, the result was only 70 records which met the criteria for the study and could be assigned accurate X and Y values. In most cases, the narratives associated with the accident records did not include enough information describing the crash site to allow for manual calculation of the X and Y values. In other instances the narrative revealed that the accident should have been excluded from the study for other reasons such as, the accident occurring on the runway or beyond 5 miles from the airport.

Graphics depicting these accidents on the X and Y coordinate system are attached as Figures E1 and E2.



Source: Mead & Hunt, Inc. (March 2010)

FIGURE E1

All Categories – Arrival Accidents (2002 Handbook Data)

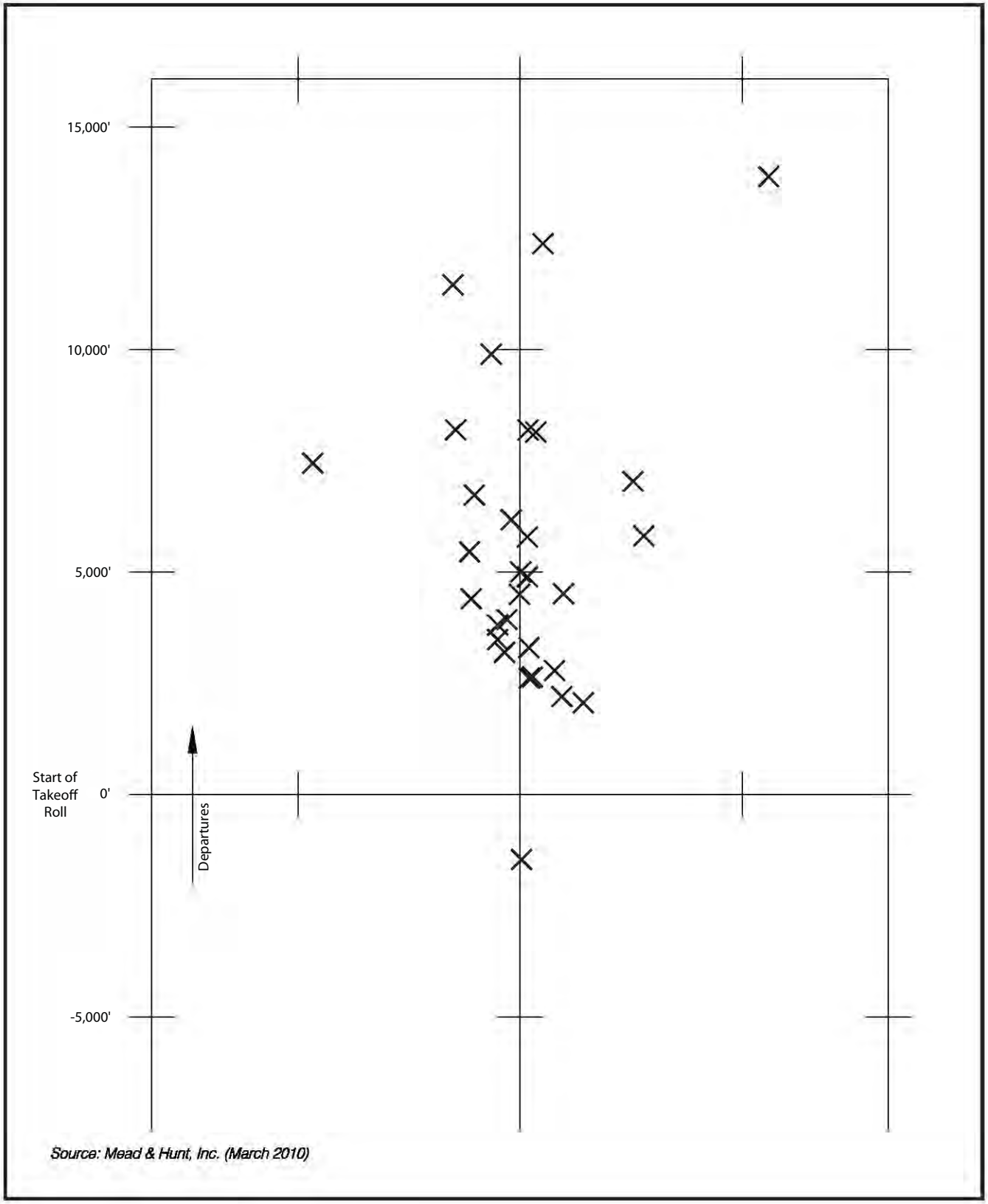


FIGURE E2

All Categories – Departure Accidents (2002 Handbook Data)

Data Analysis

An important way of looking at aircraft accidents is by the distance the accident occurred relative to the runway end associated with the aircraft operation. The 2002 *Handbook* tabulated these distances in Table 8D. An updated version of this table (Table E1) focuses on the mean and median distances for all categories of accidents, with both the distances from the previous study as well as the current effort. The limited number of records which met the criteria for this study has prevented any valid analysis for the various sub-categories included in the Table 8D of 2002 *Handbook* (Table E6, below).

For arrival accidents, the mean distance from the runway end has decreased by less than 150 feet (-4.8%), while the mean distance for departures has increased by 884 feet (16%).

The median distance for arrival accidents has more than doubled from the 2002 study at 1,000 feet to 2,110 feet (111%) in the current study. The median distance for departure accidents has increased by slightly more than 600 feet (13%), from 4,684 feet in the 2002 study to 5,296 feet in the current study.

2002 RESEARCH METHODOLOGY

Data Sources Initially Investigated

Data regarding virtually all of the characteristics pertinent to analysis of off-airport accidents is contained in the computer-based accident briefs covering all accidents investigated by the National Transportation Safety Board. Information regarding the *precise location* of each accident relative to the runway used is the key exception. To the extent that exact location information is recorded by the NTSB, it is included only in the individual Factual Record assembled for each accident. Depending upon the nature of the accident, the Factual Record may be anywhere from a dozen to hundreds of pages long. This data is maintained on microfiche and is not available in computerized form.

Prior to preparation of the 1993 edition of this *Handbook*, preliminary investigation by the study team into the Factual Records for a test group of accidents revealed that many contain the necessary location data, but most do not. Also, it was recognized that the process of extracting this information from the records would be a time-consuming one.

	Mean Distances (Feet)			
	All Operations	Arrivals	Departures	Normalized Departures
Runway Length				
All Categories	4,938	5,152	4,715	
Accident Location				
All Categories		2,801	5,514	799
All Categories (updated study)		2,667	6,398	
Aircraft Type				
Single-Engine		2,092	4,959	669
Twin-Engine		4,347	7,446	1,320
Pilot Control				
Some		2,422	5,581	1,083
None		2,767	5,404	562
Visibility				
VFR		1,716	5,196	700
IFR		5,844	7,150	1,152
Time of Day				
Dawn / Daylight / Dusk		2,006	5,038	594
Night		4,430	7,681	1,813
Swath Length				
All Accidents	197	236	158	
Pilot Control				
Some	220	186	244	
None	183	231	130	

	Median Distances (Feet)			
	All Operations	Arrivals	Departures	Normalized Departures
Runway Length				
All Categories	4,600	4,997	4,300	
Accident Location				
All Categories		1,000	4,684	600
All Categories (updated study)		2,110	5,296	
Aircraft Type				
Single-Engine		520	4,177	500
Twin-Engine		2,276	6,946	1,131
Pilot Control				
Some		1,320	4,753	779
None		788	4,561	478
Visibility				
VFR		475	4,427	500
IFR		4,200	7,051	1,738
Time of Day				
Dawn / Daylight / Dusk		500	4,417	500
Night		2,798	7,337	1,481
Swath Length				
All Accidents	100	145	75	
Pilot Control				
Some	144	135	147	
None	89	140	54	

Notes:
- All distances rounded to nearest 10 feet.
- Accident location distances calculated along runway centerline, ignoring offset to left or right. Arrival distances measured from landing threshold; departure distances measures from start of takeoff roll; normalized departure distances from departure (climb-out) end of runway.
- Information on the degree of pilot control at the time of aircraft contact with the ground is unknown for many accidents, including some for which swath length data is available. This factor accounts for the "all accidents" swath length exceeding the lengths for both "some" pilot control and "none".

TABLE E1

Accident Characteristics: Distances – General Aviation Aricraft Accident Database

Other possible sources of information were therefore investigated to determine whether any could be more efficiently researched or would yield more complete or more accurate data than the NTSB records. The sources reviewed included:

- **Managers of Individual Airports**—Direct contact with the management of individual airports was the principal alternative initially considered. A major difficulty with this approach is that the completeness of the accident records maintained by different airports varies greatly. The number of years recorded, the level of detail, and the accuracy of the data from these sources would thus be inconsistent. Time-consuming follow-up letters and phone calls would be necessary in order to clarify the information received or to get any response at all. Also, correlating individual accident information obtained from airport managers with other categories of data readily available only in NTSB records would be difficult.

- **Local Newspapers**—Information from this source is essentially limited to published reports and pictures. As protection against possible erosion of first amendment rights, unpublished notes and photographs are not released to the public, even under court order. The probability of published stories or photographs adding to the information available from other sources is small.

- **Local Police and Fire Department Records**—A check with several California emergency agencies regarding specific accidents within their jurisdiction yielded little in the way of official (written) information other than that which is already included in the Factual Report. The only way this source could be useful would be to contact the individuals who went out on call and ask them to try to pinpoint the accident site.

- **State Aeronautics Offices**—Of the fifty states, only seven (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Ohio, and Rhode Island) did any of their own investigating in 1992. Even among these seven, the investigations are usually quite limited and often done for a specific purpose (i.e., Massachusetts checks to make sure that the aircraft owner is insured or has sufficient net worth to cover damages).

- **Aircraft Owners and Pilots Association**—This organization relies almost entirely on the FAA and the NTSB for the information they collect and publish regarding accidents. There is no new or enhanced information available from this source.

- **Airline Pilots Association**—The union for airline pilots is involved in investigations of commercial air carrier accidents only and would be of no help in general aviation accident locations. Their reports on commercial accidents would shed no new light on location.

- **Aircraft Insurance Companies**—A check with two of the major general aviation insurance companies (USAIG and Associated Aviation Insurance) yielded little in the way of useful results. Except in cases where location is useful in assessing fault (such as defective navigational aid or cockpit instrument) specific accident location is not of interest, and therefore, not included. Even in cases where accurate site data

is given, two problems arise. First, finding the cases that would be of use would require a hand search through individual accident reports. Second, it would probably be difficult to obtain permission to go through the files as the information is considered proprietary and also could expose the company to lawsuits. The conclusion reached from the review of these alternative data sources was that each could provide some useful information, but—for the purposes of ascertaining accident location data—none would be as complete, accurate, or accessible as the NTSB Factual Reports.

Summary Of Research Methodology

The task of gathering the desired data was accomplished by the University of California, Berkeley, Institute of Transportation Studies working under contract to the California Department of Transportation Division of Aeronautics. The data-gathering process evolved to some extent even after the basic approach and scope of the research were decided. Three major steps were involved, each with several components:

- **Review Briefs of All Accidents**—First, a computer listing of all aircraft accident records for the selected time period was obtained from the NTSB in *mini-brief* format. Each brief was then reviewed and an assessment made as to whether its location appeared to fall within the airport-vicinity range defined for the research. This process narrowed the number of accidents fitting the defined parameters to approximately 20% of the total.

- **Review of Selected Accident Factual Records**—Next, microfiche copies of the complete Factual Record for each of the selected accidents were ordered. These records were then scanned to determine whether the necessary location information was included. Location data could be found in any of several sections of the record including the investigators notes, the pilot's statement, or statements of witnesses or emergency response personnel. Only about one record in six was determined to contain usable data.

- **Preparation of Database**—Finally, location information on each accident was entered into a computer database along with the data in the other categories which had been selected. Frequently, the Factual Records identify the accident sites with reference to local streets. In order to establish the distance of the accident site from the airport runway involved, local street maps often had to be obtained and measurements taken from them. At that time, the various other categories of data for each accident were also added to the database.

Scope of Research

Beyond the principal requirement for precise accident location data, various decisions were necessary in order to define the scope of the research effort. Some of these parameters were decided by the Division of Aeronautics and the study team at the outset of the research effort; others were modified in response to the outcome of the early phases of the process.

- **Definition of Airport Vicinity**—Although the fundamental interest of the study is on off-airport accidents, an accident occurring say 2,000 feet from the end of a runway may be within the boundaries of a large airport, but well beyond the property line of a smaller facility. Therefore, for the purposes of the analysis, *off-airport* was broadened to include any accidents not confined to the immediate vicinity of the runway (generally defined as Federal Aviation Regulations Part 77 primary surface), even if the accident site is on property actually owned by the airport. At the outer edge, a 5 mile radius—measured from the airport center in accordance with the NTSB data format—was selected as the limits of the airport vicinity. It is recognized that, at this distance from an airport, some of the accidents included may more properly be defined as en route rather than airport-related.

- **Accidents versus Incidents**—The NTSB defines an aircraft *accident* as an occurrence in which people on board or on the ground sustained serious or fatal injuries or in which the aircraft incurred substantial damage to the extent that it could no longer be considered airworthy. Other mishaps are classified as *incidents*. The NTSB and/or the FAA may conduct preliminary investigations into incidents to determine if they qualify as accidents. However, the extensive records maintained and compiled for accidents are not available for incidents. Given that the NTSB was selected as the data source for the research effort, it was necessary to exclude incidents from the database. (See Glossary for a complete definition of *aircraft accident*.)

- **Aircraft Types**—Initially, all categories of civilian-use airplanes—airline and general aviation—were to be included in the database. Very few airline aircraft accident records were actually found, however. These were eliminated from the completed database because of the statistical bias they could give to some of the data (especially with regard to the number of injuries). Helicopters and other types of aircraft are omitted because of their markedly different operational characteristics. Accidents involving military and other government aircraft are not investigated by the NTSB and therefore are excluded from the database as well.

- **Data Categories**—Although the data of central interest to the research effort was the accident location information, other categories of data also were determined to be important to the subsequent analysis of the accidents' geographic distribution pattern. Many of the data categories selected for inclusion in the database were chosen with the thought that they might prove to be significant variables affecting where accidents occur. A complete list of the categories included in the database is included in Exhibit E1. A description of each category and the manner in which the data was obtained or determined is noted as well.

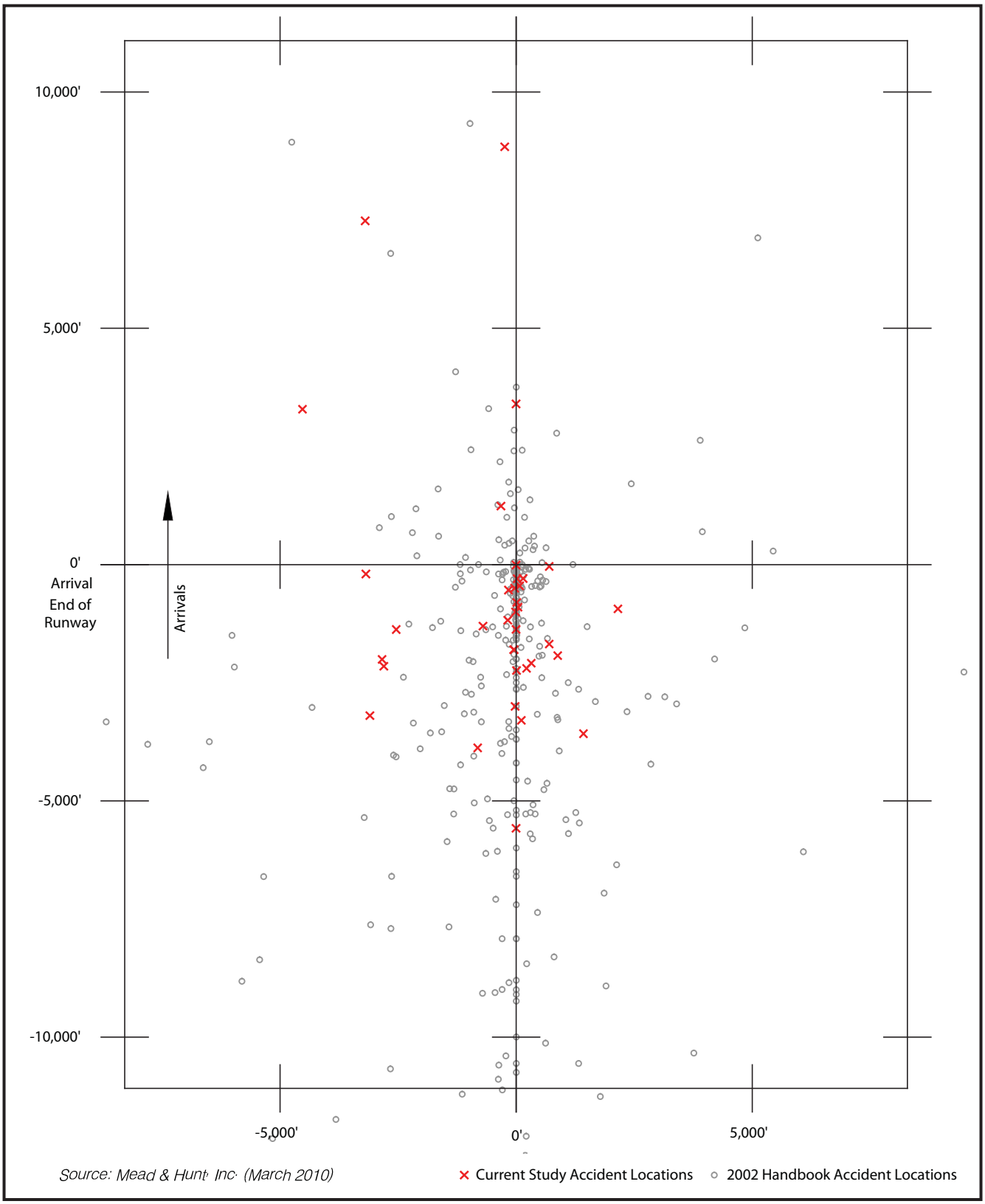


EXHIBIT E1

All Categories – Arrival Accidents

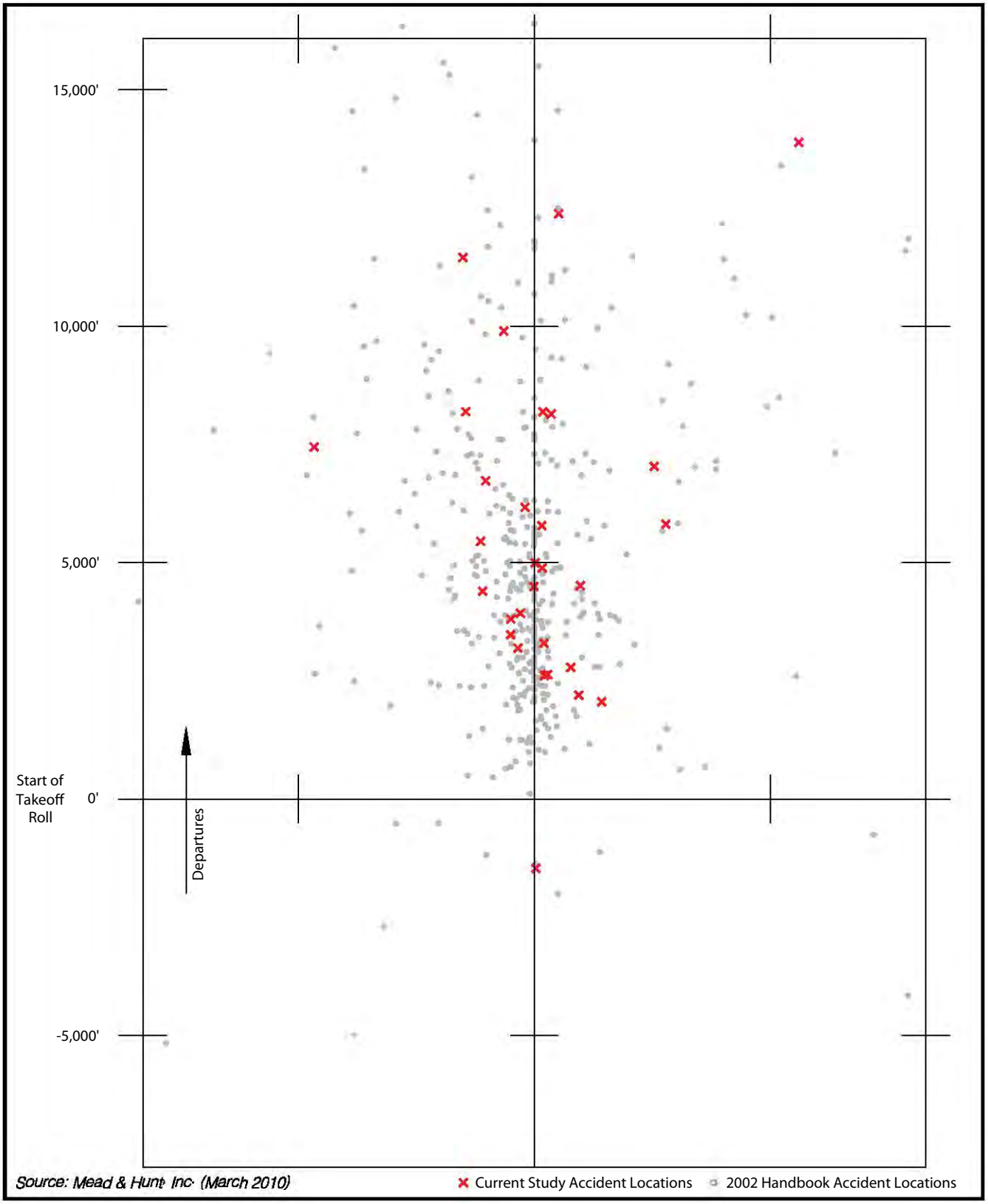


EXHIBIT E2

All Categories – Departure Accidents

- **Time Frame Covered**—The time period to be included within the research effort was at first planned to cover a minimum of 10 years, beginning with 1980 and extending to the then most recently available data. However, the format of the NTSB's computer records essential to the initial step of the investigation was changed in 1983 and the earlier format was found to be less readily usable for the purposes of the project. The database was therefore extended to cover the 10-year period from 1983 through 1992.

- **States Included**—To enable statistically significant analysis of various subsets of accident points, a target of 500 accident records was set as the goal for the initial database development in 1993. It was anticipated that a database of this size could be obtained by review of accidents from just the 4 to 8 *sunbelt* states which generate the highest volumes of aircraft operations. However, a trial run of the process found a high rate of records which do not contain sufficiently accurate locational data. This factor necessitated extending the research scope to include all 50 states. Time and budgetary limitations, however, prevented completion of the research. The original 1993 *Handbook* database thus included records for 11 states for the years 1983–1989, while records for the other 39 states were searched only for the years 1983–1985. In the subsequent research completed in 1998, the remaining records were examined for all 50 states over the full 10-year period. The expanded database now contains records from 43 states.

- **Total Records**—The original database included a total of 400 records including records from 190 arrival accidents and 210 departure accidents. As used for the analyses presented in this *Handbook*, the expanded database contains 873 records, 445 for arrival accidents and 428 for departure accidents.

2002 AIRCRAFT ACCIDENT RESEARCH RESULTS

OVERVIEW

The work of compiling the 2002 accident data was conducted by the Institute of Transportation Studies at the University of California, Berkeley. The major findings of the research are incorporated into the discussion here.

Neither the National Transportation Safety Board (NTSB), which is the primary repository of aviation accident data in the U.S., nor the Federal Aviation Administration routinely compile data in this manner. For both agencies, accidents are investigated for aeronautical purposes to determine ways of improving the design and operation of aircraft and airports and to foster better pilot skills and techniques. If land use factors are examined at all, it is done only in a manner incidental to the primary purpose of the investigation.

Aircraft accidents are defined as events associated with flight which result either in fatal or serious injury to a person (either on board the aircraft or on the ground) or in substantial damage to the aircraft. Events with less serious outcomes are classified as incidents. Taken together, accidents and incidents are referred to as mishaps.

The total number of data points examined as part for the 2002 *Handbook* were 873. A statistical analysis of the expanded accident database is summarized in this appendix. Also included here is information describing other characteristics of aircraft operations and accidents.

AIRCRAFT LIMITATIONS AND PILOT ACTIONS

The emphasis in this discussion is on emergency conditions in which the aircraft can be maintained under at least some measure of pilot control. Most of the performance characteristics described here are not applicable in situations where the aircraft is incapable of being controlled (because of mechanical failure or damage resulting from collisions with obstacles or other aircraft, for example).

Airplane Emergencies

Broadly speaking, aircraft operations emergencies can be divided into two groups: situations in which the pilot's control of the aircraft directly creates the emergency and situations in which some other condition causes an emergency to which the pilot must react. Among airport-vicinity, general aviation airplane accidents in the first of these groups, the most common is pilot failure to maintain sufficient flying speed. This usually results in a stall, and potentially a spin and uncontrolled descent. In the second group, common accident factors include adverse wind and weather conditions and loss of power (complete or partial engine failure for either mechanical reasons or due to lack of fuel).

Airplane Performance Limitations

When not prevented by mechanical or structural damage, the capability of an airplane to remain under pilot control while flying is largely dependent upon the plane's airspeed. Even in situations where a complete engine failure has occurred, a plane will not go out of control and drop from the sky if sufficient speed is maintained and enough altitude is available to give the pilot a chance to react. Even large, air carrier jet aircraft have been landed without functioning engines.

Most light airplanes are capable of gliding 500 to 1,000 feet for every 100 feet of altitude (altitude is lost more quickly in turns than when gliding straight ahead, however). At a 1,000-foot traffic pattern altitude, for example, a light airplane could travel one to two miles before reaching the ground.

One major difference among airplanes is between single-engine and multiengine types. An obvious, but very important, distinction between the two is that a multi-engine aircraft can experience an engine failure without having a complete loss of power. Although the asymmetrical thrust plus drag from an inoperative engine(s) reduce performance, most multi-engine aircraft can hold altitude or even continue to climb if one engine fails. For smaller piston twins with less power, the functioning engine may do no more than extend the glide distance, provided that the pilot keeps the aircraft under control.

For a single-engine plane, the critical airspeed is its *stall speed.* A multiengine plane has two additional milestone speeds: *minimum control speed* and *best single-engine rate of climb*

speed. These critical airspeeds are significant regardless of the flight mode of the aircraft: taking off, landing, or maneuvering at low speeds. As noted, however, these speeds are particularly important for a pilot to watch when an engine failure occurs, especially on takeoff.

- **Stall Speed (V_s)**—This is the minimum steady flight speed at which an airplane, either single- or multi-engine, can fly. At lower speeds, the flow of air over the wing does not generate enough lift to match the aircraft's weight. If an engine failure occurs before this speed is reached during the takeoff run, the airplane would remain on the ground and maximum braking would need to be applied to bring the plane to a stop. If the engine failure occurs while the airplane is airborne, it is essential for the pilot to keep the aircraft above stall speed. The airplane's speed can be controlled by adjusting its pitch and, on a multi-engine aircraft, by use of the remaining engine(s). By staying above stall speed, an airplane can potentially be guided to a successful emergency landing. A significant factor to note is that an airplane's stall speed is higher during a turn (that is, the airplane can stall more readily) than it is in straight flight.

- **Minimum Control Speed (V_{mc})**—Below this speed, a multi-engine airplane cannot be controlled with full power on the remaining engine(s) with the critical engine inoperative. Airflow across the rudder does not generate enough yawing force to overcome the asymmetrical thrust of the remaining engine(s) operating away from the aircraft centerline. Engine failure below this speed requires a reduction in power on the good engine(s) in order to maintain directional control.

  V_{mc} is typically attained while the aircraft is either still on the runway or only a few feet above it. During a takeoff, the aircraft would either remain on the ground or would, if properly handled, return immediately to the ground in a controlled manner. Maximum braking would then be applied.

- **Single-Engine Climb Speed (V_{yse})**—V_{yse} is the speed at which a twin-engine airplane operating on one engine can attain the best rate of climb (or, for some aircraft, the slowest rate of descent). If an engine fails below this speed, it is possible to stretch a controlled descent as long as a speed of V_{mc} or better is maintained. The aircraft will quickly return to the ground, however. Engine failure at a speed above V_{yse} may not necessitate a forced landing because many twin-engine airplanes are capable of using the remaining engine to climb to an altitude from which a return to the airport for a safe emergency landing can be made.

Pilot Actions

As alluded to above, pilot actions under emergency circumstances are a major determinant of whether an accident will result and, if so, how severe it will be. Pilots are taught a set of procedures to follow if, for example, an engine stops running. Most critical is to keep the aircraft under control. Next, time permitting, is to attempt to determine the problem and, if possible, restart the engine. If an emergency landing becomes inevitable, the pilot should then try to find a reasonable spot to put the aircraft down.

When an engine failure occurs, while approaching or departing an airport, the initial reaction of most pilots is to attempt to land on the runway. For small aircraft, a runway landing should be possible if a landing traffic pattern is flown at a normal altitude and distance from the runway. If larger, multi-engine aircraft lose an engine, most are capable of continuing the flight to a normal landing. Of course, on takeoff, the aircraft is headed away from the runway. For single-engine aircraft, and some piston twins, a runway landing becomes difficult or, at low altitudes, impossible. As mentioned above, an airplane's descent rate and stall speed both increase while turning. This characteristic is the reason why attempting to return to the runway with a single-engine aircraft following an engine failure while on takeoff can have disastrous consequences. In certain respects, maintaining control of a multi-engine airplane, especially a twin-engine airplane, is more difficult following an engine failure than it is with a single-engine airplane. With the latter, a complete engine failure unavoidably results in descent (assuming the engine cannot be restarted) and the pilot has no choice but to respond accordingly. With a twin-engine aircraft, however, many pilots think that they can keep the aircraft in the air even when an engine failure occurs on takeoff at low altitude. Many light twins, though, do not have enough power to continue to remain airborne on one engine. Moreover, because of a twin-engine airplane's asymmetrical thrust characteristics, lack of immediate and proper pilot response during an engine failure on takeoff is more likely to lead to an uncontrolled accident than is the case with a single-engine plane. For many small, twin-engine airplanes, the prudent course of action if an engine fails at low altitude on takeoff is to reduce or shut off power to the good engine and glide back to the ground just like would be done in a single-engine plane. For larger twins and multi-engine aircraft, there is typically sufficient power available from the remaining engine(s) and sufficient control authority to continue the flight.

In the few moments that a pilot may have available in which to select an off-airport emergency landing site, there is no certainty that the best site can be spotted—particularly at night or under IFR weather conditions—or that it can be reached. A large, flat, open area is preferable; but, if one cannot be found, a small open space or a street or parking lot are often the best candidates. Because pilots sit on the left side of the plane, the tendency is to look toward the left for emergency landing sites as the view of the ground from the pilot's seat is better in that direction. Usually, an effort will be made to avoid people, buildings, large trees, and other such objects. Smaller objects, such as ditches and wires, may not be obvious until it is too late to avoid them. Luck consequently plays a significant role in such circumstances.

Helicopter Emergencies

As with airplanes, airspeed and altitude are also critical determinants of whether a pilot can maintain control of a helicopter in the event of an emergency involving an engine failure. Although helicopters cannot glide as far as airplanes can (a typical glide ratio at optimum airspeed is 300 to 500 feet horizontally per 100 feet of altitude lost), neither do they necessarily crash if an engine should fail while in flight. Indeed, because helicopters can safely descend much more steeply than airplanes, the area needed for an emergency off-airport landing can be much smaller. Also many of the newer, moderate-sized helicopters—especially turbine-powered ones—have twin engines driving the main rotor.

The procedure used for emergency helicopter landings following an engine failure is known as *autorotation*. In simple terms, autorotation involves disengaging the main rotor from the engine drive system, thus enabling the blades to rotate freely. Air traveling upward through the blades causes them to continue rotating and producing lift to slow the descent. Also, the rotation of the main rotor drives the tail rotor to allow directional control to be maintained.

The altitude from which an emergency autorotation descent can successfully be conducted is dependent upon several factors with airspeed generally being the most significant. From near cruising speeds, most helicopters can perform an autorotation from an altitude of 100 feet or even slightly less. However, when hovering at zero airspeed, 500 feet of altitude may be needed. In effect, the altitude must be traded for forward speed before successful autorotation can be accomplished.

AVAILABILITY OF ACCIDENT LOCATION DATA

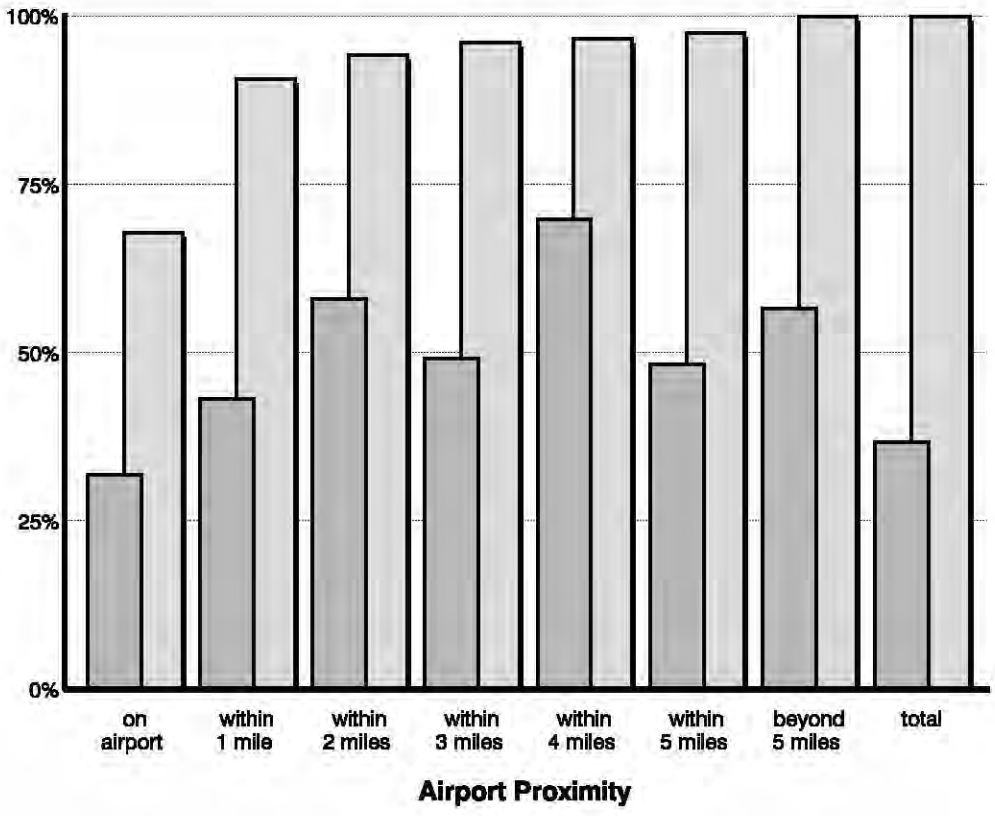
Approximate Location Data

For each accident which the National Transportation Safety Board investigates, a *Factual Report* (NTSB Form 6120.4) is completed. Included in the report are data entries for *distance from airport center* and *direction from airport*. This information could be valuable for land use compatibility planning purposes if it were precisely documented. Its usefulness is limited, however, because the accident investigation form requires only that the data be given to the nearest statute mile.

A compilation of the NTSB accident proximity data for the years 1990 through 2000 for general aviation accidents is shown in Figure E3. Figure E4 shows similar data for commercial aircraft.

The data reveals that over two-thirds of both general aviation (68%) and commercial (67%) aircraft accidents take place on a n airport. Another 3% of general aviation and 7% of commercial aviation are en route accidents— defined here as ones occurring more than 5 miles from an airport. This leaves 29% of general aviation and 26% of commercial aviation accidents which can be classified as airport-vicinity accidents, potentially including some en route accidents which happened to take place within 5 miles of an airport.

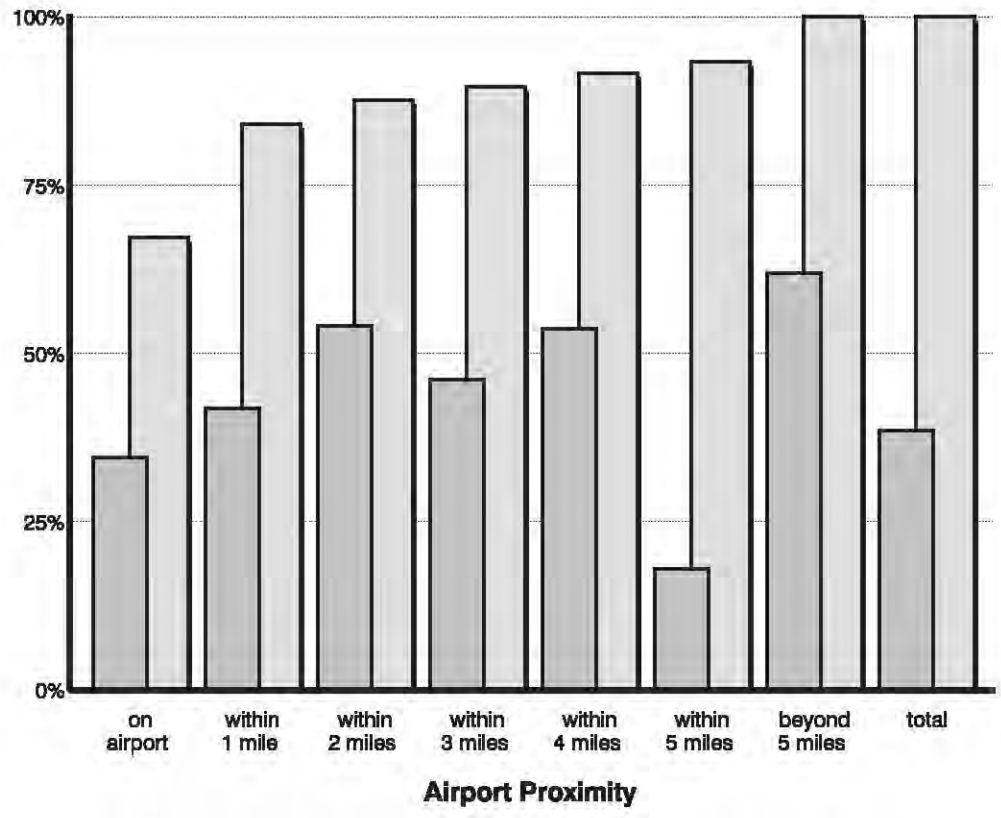
A somewhat more detailed set of data on commercial aircraft accident locations is one recently gathered by researchers in the United Kingdom (NATS–1997). Separate graphs show runway proximity of landing and takeoff accidents in two dimensions: distance from the runway end and distance from the extended runway centerline (see Figure E5).



Source: Data compiled from NTSB Aviation Accident Database: General Aviation — Calendar years 1990–2000

FIGURE E3

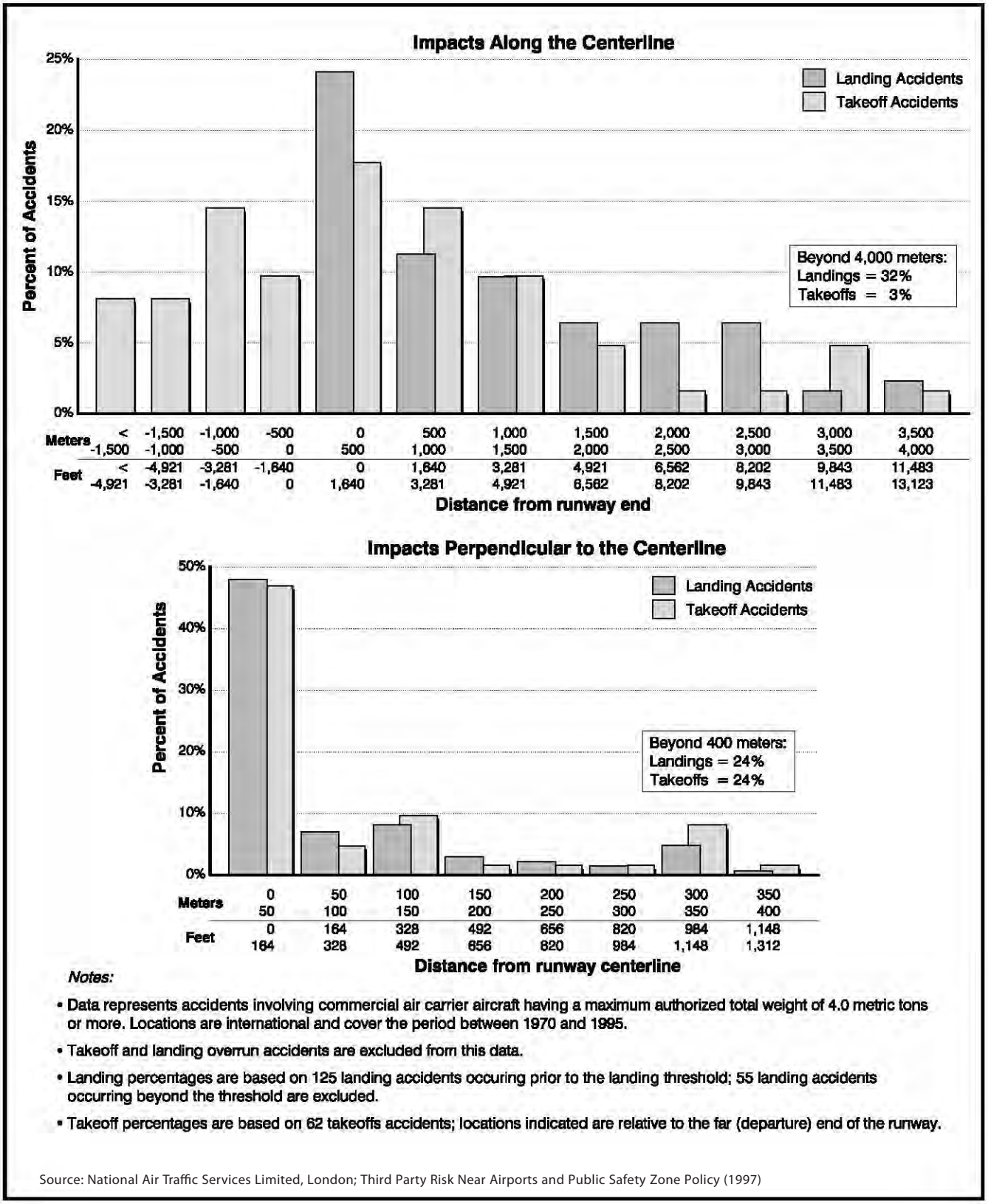
Proximity of General Aviation Accidents to Nearest Airport



Source: Data compiled from NTSB Aviation Accident Database: Air Carrier—Calendar years 1990–2000

FIGURE E4

Proximity of Air Carrier Accidents to Nearest Airport



Notes:

- Data represents accidents involving commercial air carrier aircraft having a maximum authorized total weight of 4.0 metric tons or more. Locations are international and cover the period between 1970 and 1995.
- Takeoff and landing overrun accidents are excluded from this data.
- Landing percentages are based on 125 landing accidents occuring prior to the landing threshold; 55 landing accidents occurring beyond the threshold are excluded.
- Takeoff percentages are based on 62 takeoffs accidents; locations indicated are relative to the far (departure) end of the runway.

Source: National Air Traffic Services Limited, London; Third Party Risk Near Airports and Public Safety Zone Policy (1997)

FIGURE E5

Runway Proximity of Air Carrier Accidents – International

Previous Location Data

Several previous research efforts endeavored to document the type of precise aircraft accident location data which would be pertinent to airport land use compatibility planning. Although each of the studies provides significant information, all are limited in scope.

- **Report of the President's Airport Commission**—This commission, best known as the Doolittle Commission in honor of its chairman, James Doolittle, conducted one of the first comprehensive studies of the noise and safety relationships between airports and surrounding communities. The commission's 1952 report is valuable today for the historical perspective it gives to current airport compatibility issues. Among other things, the commission plotted the location of over 30 off-airport commercial and military aircraft crashes which caused death or injury to persons on the ground (there is no indication in the report that any data was gathered regarding non-injury accidents). Despite the rather limited database, the commission's report lead to the establishment of what became known as clear zones and are now called runway protection zones at the ends of airport runways.

- **Department of Defense Air Installation Compatible Use Zone (AICUZ) Program**—The AICUZ program was established in 1973 as a joint effort of the several branches of the military. An element of the study leading to the creation of the program entailed assembly and analysis of data regarding the locations of military aircraft accidents around air bases. The data covered the period from 1968 through 1972 and included more than 300 major airfield-related accidents which occurred within 10 nautical miles of the runway. The study served to define areas of significant military aircraft accident potential, known as *Accident Potential Zones (APZs).*

- **FAA Commercial Aircraft Accident Study**—A 1990 FAA study (*Location of Aircraft Accidents/Incidents Relative to Runways*) compiled data regarding the location of commercial aircraft accidents relative to the runway involved. Data was gathered by review of National Transportation Safety Board dockets containing the complete record of the board's investigation of each accident. A total of 246 accidents and incidents occurring over a 10-year period (1978-1987) were included in the analysis. Of these, the majority (141) were limited to the immediate vicinity of the runway. Some 87 were classified as being either: a landing accident/incident in which the aircraft impacted with the ground more than 2,000 feet from the runway threshold; or a takeoff crash after the aircraft became airborne, but before it reached the first power reduction or VFR pattern altitude. Another 18 entries were landing undershoots occurring within 2,000 feet of the runway end. Figure E5 depicts the locations of the 16 landing (including 4 undershoots of more than 500 feet) and 23 takeoff accidents/incidents for which adequate locational data was available.

Theoretical Areas of High Accident Probability

By examining the available data on types and locations of accidents in conjunction with information on airplane operational parameters as discussed earlier, it is possible to ascertain

where accidents can theoretically be expected to occur most often. Particularly useful in this regard is data on the phase of operation of aircraft at the time of an accident. Table E2 contains a summary of published NTSB data on this subject.

Approach/Landing Accidents

The great majority of general aviation aircraft landing accidents take place on or immediately adjacent to the runway. Indeed, NTSB data for the 1990 to 2000 period indicates that some three-fourths (77%) of all general aviation landing accidents occur during touchdown or roll-out (usually hard or long landings, ground loops, etc.). Although frequent in occurrence, these types of accidents seldom (less than 11% of the time) result in serious or fatal injuries.

The remaining 23% of general aviation landing accidents take place in the landing pattern, on final approach, or during a go-around attempt. A common circumstance that can result in an approach accident is pilot misjudgment of the aircraft descent rate and failure to add power soon enough to keep the aircraft in the air. Poor visibility, unexpected downdrafts, or tall objects beneath the final approach course can intensify this problem. Another prospective type of landing accident can occur if a pilot overshoots a turn from base to final and inappropriately cross controls the airplane rudder and ailerons while attempting to return to the runway alignment. The result can be a stall, spin, and uncontrolled crash.

The pattern for commercial aviation is less heavily weighted to the area on or near the runway (Table E3); accidents on or near the runway range from 64% for air carrier operations, to 51% for commuter operations, to 58% for air taxi operations.

These types of events all will tend to place the accident site fairly close to the extended runway centerline. Also, because lower altitude decreases the chances of successful recovery from unexpected conditions, accidents can be expected to be more common closer to the runway end than at points farther away.

Takeoff/Departure Accidents

Data from the period 1974-1989 indicates that the greatest proportion of general aviation takeoff/departure accidents (some 65%) take place during the initial climb phase. (Equivalent data for commercial aviation is not available.) This finding is consistent with two factors:

- Aircraft engines are under maximum stress during the initial climb phase and thus somewhat more susceptible to mechanical problems than at other times; and

- On average-length runways, once an aircraft has begun to climb, it is often too late to make an emergency landing and stop on the runway without overshooting the far end.

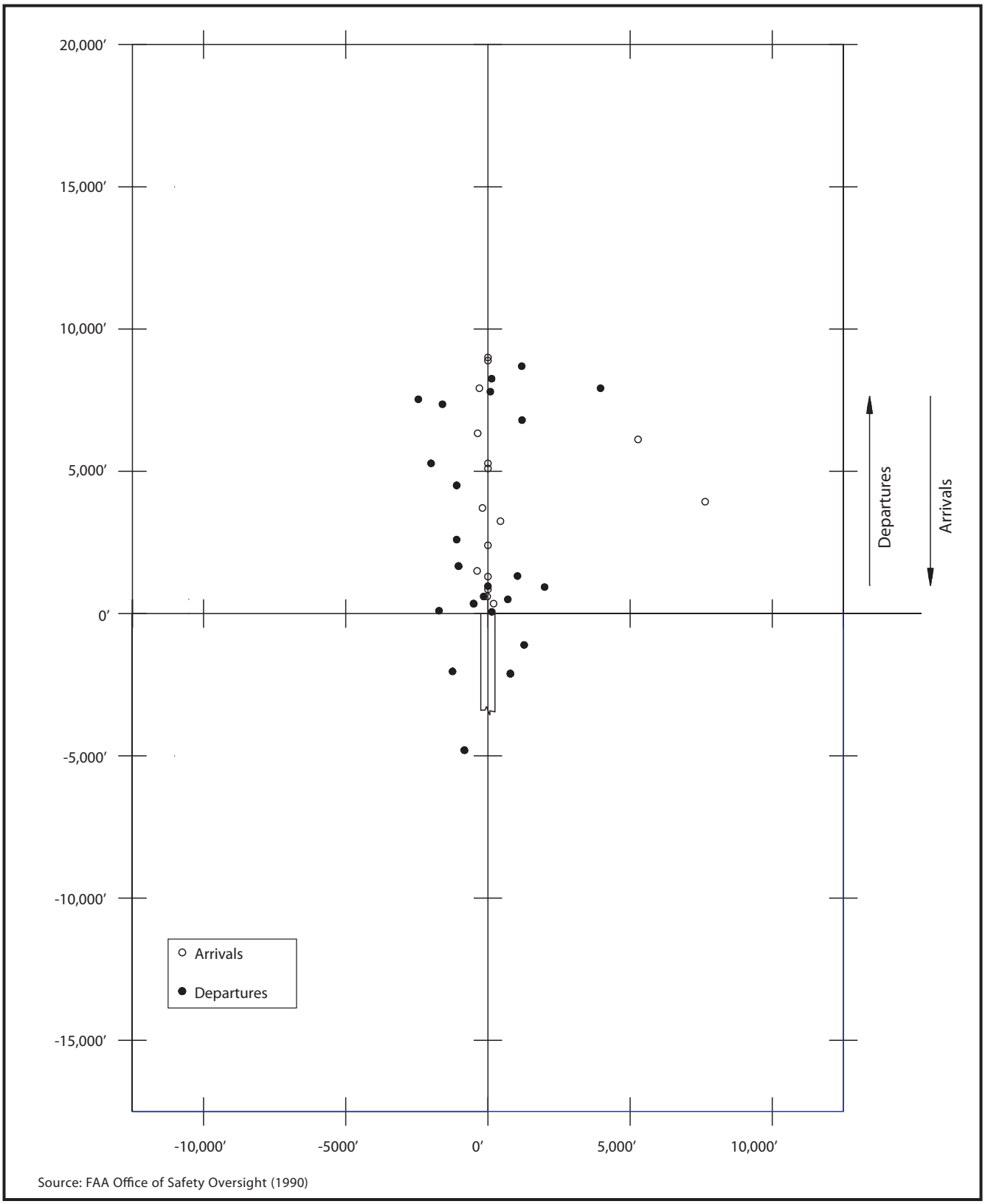


FIGURE E6

Commercial Aircraft Accident Location Pattern

Phase of Operation	Percent of Total	Proportion Fatal/Serious
Standing	1.1	34.6
Taxi	3.5	11.0
Takeoff	18.2	28.9
In Flight		
Climb	2.8	46.3
Cruise	11.8	41.5
Descent	4.9	58.9
Maneuver	12.6	58.4
Total	32.1	46.3
Landing		
Approach	10.0	42.5
Landing	33.9	11.3
Go-Around	0.3	27.3
Total	44.2	42.5
Other/Unknown	0.9	83.6
All Accidents	100.0	31.4

Note: Data includes all (20,399) U.S. general aviation accidents by all aircraft types for the period 1990–2000.

Source: NTSB Aviation Accident Database — General Aviation, 1990–2000

TABLE E2

Accidents by Phase of Operation – U.S. General Aviation Aircraft

Phase of Operation	FAR Part 121 Operations		Scheduled FAR Part 135 Operations		Nonscheduled FAR Part 135 Operations	
	Percent of Total	Proportion Fatal/Serious	Percent of Total	Proportion Fatal/Serious	Percent of Total	Proportion Fatal/Serious
Standing	10.3	11.4	7.0	4.3	2.3	2.3
Taxi	16.2	11.4	14.6	0.0	5.1	0.0
Takeoff	12.2	25.0	14.6	8.7	21.0	15.8
In Flight						
Climb	7.4	4.5	3.8	4.3	4.7	6.8
Cruise	18.5	13.6	9.7	23.9	21.8	30.6
Descent	10.3	0.0	5.9	4.3	3.0	4.9
Maneuver	1.1	0.0	5.9	13.0	8.1	12.8
Total	37.3	18.1	25.3	45.5	37.6	55.1
Landing						
Approach	7.0	15.9	16.8	37.0	13.3	21.5
Landing	12.2	4.5	17.8	0.0	18.7	2.6
Total	19.2	20.4	34.6	37.0	32.0	24.1
Other/Unknown	4.8	11.4	3.8	4.3	1.9	2.6
All Accidents	100.0		100.0		100.0	

Source: NTSB Aviation Accident Database — Air Carrier, 1986–1995

TABLE E3

Accidents by Phase of Operation – U.S. Air Carrier Aircraft

With respect to where takeoff accidents occur, a much greater dispersion of sites can be hypothesized than is the case for landings. Landings all involve aircraft descending at similar angles toward about the same point on the runway. By comparison, more variables affect the three-dimensional path of aircraft takeoffs, even under normal conditions. For one, climb rates and other takeoff performance characteristics differ substantially from one aircraft type to another. Also, even for similar types of aircraft, the flight track and the altitude above any given point along it will vary depending upon the aircraft payload, piloting techniques, and the intended direction of flight after takeoff.

The differences in performance characteristics of single-engine versus twin-engine propeller airplanes is particularly illustrative.

- **Single-Engine Airplanes**—For single-engine airplanes, a high percentage of accidents can be expected to occur within 7,000 to 9,000 feet of the start of takeoff roll. This distance is calculated based upon an assumed occurrence of an engine failure at an altitude of 500 feet with the aircraft then gliding back down to the ground (and also assuming the ground level to be equal to that of the runway). As previously discussed, at altitudes above 500 feet, it should be possible to return to the runway for an emergency landing and most pilots will attempt to do so rather than continue straight ahead. At lower altitudes, the most prudent pilot action is to seek a landing site as close to straight ahead as practical.

- **Twin-Engine Airplanes**—With a twin-engine piston airplane, an engine failure on takeoff does not necessarily mean that the aircraft will immediately glide back toward the ground. The altitude at engine failure and the manner in which the remaining engine is operated thus add more variables to where the plane can be most expected to put down. If an engine failure occurs at or below best single-engine rate of climb speed (V_{yse}), the aircraft would normally be just airborne and controllable, but sometimes unable to climb. At these low speeds, the proper pilot action should be to reduce or shut off power to the remaining engine and glide back to the ground as would a single-engine airplane. At speeds slightly above V_{yse}, twin-engines airplanes may theoretically be capable of climbing, but for a pilot to make this happen under emergency conditions is difficult. Sometimes, a pilot will try to maintain power in the functioning engine, but then lose directional control of the aircraft and crash. A relatively wide dispersal of accident sites—both in distance from the start of takeoff and to either side of the extended runway centerline—can thus be predicted in theory.

Recent Research

In order to obtain accident location data for general aviation aircraft, basic new research was conducted for the 1993 edition of this *Handbook*. After investigating several possible data sources—principally direct contact with individual airports versus review of the NTSB *Factual Reports*—the latter method was found to provide the most complete and consistent data. The research was conducted by the Institute of Transportation Studies at the University of California, Berkeley. For the 2002 edition of the *Handbook*, this database was expanded. The current database resulting from this research:

- Encompasses all 50 states (although several have no accidents represented);
- Covers a time period from 1983 into 1992;
- Contains data only on accidents, not incidents;
- Contains a total of 873 aircraft accident records (445 arrivals and 428 departures); and
- Includes all types of general aviation airplanes, but not airline air craft, helicopters, or other aircraft types (ultralights, blimps, etc.), or military aircraft.

A somewhat broad definition of airport vicinity was used for the purposes of this research. Airport size was recognized as being a significant determinant of whether an accident site a certain distance beyond the runway is on or off the airport property. Consequently, all accidents not confined to the immediate vicinity of the runway or its associated safety zones are included in the database. For the outer boundary of the airport vicinity, a 5-mile radius—measured from the airport center in accordance with the NTSB data format—was selected.

AIRCRAFT ACCIDENT LOCATION PATTERNS

The following paragraphs highlight notable findings from the expanded general aviation accident database. Comparative data from other sources is indicated where applicable. Table E4 presents a numeric summary of the percentages of various categories of accidents represented in the database. Selected distance data is listed in Table E5. Table E6 summarizes some comparative NTSB accident data for all U.S. general aviation aircraft accidents, both on-airport and off. Similar NTSB data for air carrier accidents is contained in Table E7.

The spatial distribution of general aviation aircraft arrival and departure accidents is illustrated in Figures E7, E8, and E9. As described below, the departure accident location patterns are presented in two different formats.

Arrival versus Departure Difference

The first question assessed in review of the accident location data was to determine how the pattern of aircraft landing accidents differs from the pattern for takeoff accidents. An important issue in this analysis is what point to use as a common reference within each of these accident categories.

- **Arrivals**—For landing accidents, this decision is easy. The landing threshold, whether it be the actual runway end or a displaced threshold, is the relevant point. Figure E7 illustrates the spatial distribution of all arrival accidents occurring within 25,000 feet of the runway landing threshold.

Category	All		Arrival		Departure	
Accidents Involving:	Accidents		Accidents		Accidents	
Total Database	873	100.0%	445	100.0%	428	100.0%
Runway Length						
Less than 4,000 ft.	344	39.4%	153	34.4%	191	44.6%
4,000 ft. to 5,999 ft.	281	32.2%	150	33.7%	131	30.6%
6,000 ft. or more	248	28.4%	142	31.9%	106	24.8%
Unknown	0	0.0%	0	0.0%	0	0.0%
Approach Type						
Visual Approaches			343	77.1%		
Nonprecision Approaches			27	6.1%		
Precision Approaches			70	15.7%		
Unknown			5	1.1%		
Time						
Dawn	10	1.1%	7	1.6%	3	0.7%
Day	603	69.1%	262	58.9%	341	79.7%
Dusk	37	4.2%	29	6.5%	8	1.9%
Night	222	25.4%	147	33.0%	75	17.5%
Unknown	1	0.1%	0	0.0%	1	0.2%
Weather Conditions						
VFR	688	78.8%	328	73.7%	360	84.1%
IFR	182	20.8%	117	26.3%	65	15.2%
Unknown	3	0.3%	0	0.0%	3	0.7%
Aircraft Type						
Single-Engine Propeller	636	72.9%	305	68.5%	331	77.3%
Twin-Engine Propeller	235	26.9%	140	31.5%	95	22.2%
Business Jet	2	0.2%	0	0.0%	2	0.5%
Pilot Control						
Some	164	18.8%	71	16.0%	93	21.7%
None	665	76.2%	357	80.2%	308	72.0%
Unknown	44	5.0%	17	3.8%	27	6.3%
In-Flight Collision with Object						
Yes	280	32.1%	148	33.3%	132	30.8%
No	593	67.9%	297	66.7%	296	69.2%
Aircraft Damage						
Destroyed	568	65.1%	260	58.4%	308	72.0%
Substantial	303	34.7%	185	41.6%	118	27.6%
Unknown	2	0.2%	0	0.0%	2	0.5%
Consequences						
Onboard Fatalities	463	53.0%	212	47.6%	251	58.6%
Ground Fatalities	6	0.7%	2	0.4%	4	0.9%
Onboard Serious Injury	228	26.1%	104	23.4%	124	29.0%
Ground Serious Injury	6	0.7%	2	0.4%	4	0.9%
Traffic Pattern Direction						
Left	684	78.4%	353	79.3%	331	77.3%
Right	117	13.4%	59	13.3%	95	13.6%
Unknown	72	8.2%	33	7.4%	2	9.1%

Note: Numbers in each category may not add to 100% because of mathematical rounding or missing data in some records.

TABLE E4

Accidents Characteristics: Proportions – General Aviation Aircraft Accident Database

	Mean Distances (Feet)			
	All Operations	Arrivals	Departures	Normalized Departures
Runway Length				
All Categories	4,938	5,152	4,715	
Accident Location				
All Categories		2,801	5,514	799
Aircraft Type				
Single-Engine		2,092	4,959	669
Twin-Engine		4,347	7,446	1,320
Pilot Control				
Some		2,422	5,581	1,083
None		2,767	5,404	562
Visibility				
VFR		1,716	5,196	700
IFR		5,844	7,150	1,152
Time of Day				
Dawn/Daylight/Dusk		2,006	5,038	594
Night		4,430	7,681	1,813
Swath Length				
All Accidents	197	236	158	
Pilot Control				
Some	220	186	244	
None	183	231	130	

	Median Distances (Feet)			
	All Operations	Arrivals	Departures	Normalized Departures
Runway Length				
All Categories	4,600	4,997	4,300	
Accident Location				
All Categories		1,000	4,684	600
Aircraft Type				
Single-Engine		520	4,177	500
Twin-Engine		2,276	6,946	1,131
Pilot Control				
Some		1,320	4,753	779
None		788	4,561	478
Visibility				
VFR		475	4,427	500
IFR		4,200	7,051	1,738
Time of Day				
Dawn / Daylight / Dusk		500	4,417	500
Night		2,798	7,337	1,481
Swath Length				
All Accidents	100	145	75	
Pilot Control				
Some	144	135	147	
None	89	140	54	

Notes: All distances rounded to nearest 10 feet.
Accident location distances calculated along runway centerline, ignoring offset to left or right. Arrival distances measured from landing threshold; departure distances measured from start of takeoff roll; normalized departure distances from departure (climb-out) end of runway.
Information on the degree of pilot control at the time of aircraft contact with the ground is unknown for many accidents, including some for which swath length data was available. This factor accounts for the "all accidents" swath length exceeding the lengths for both "some" pilot control and "none."

TABLE E5

Accident Characteristics: Distances – General Aviation Aircraft Accident Database

	Percent of Total Accidents	Proportion Fatal/Serious
Time of Day		
Dawn/Daylight/Dusk	85.6 [a]	28.5 [a]
Night	14.4	45.0
Weather Conditions		
VFR	55.5 [a]	26.4 [a]
IFR	45.5	46.7
Aircraft Damage		
Destroyed	25.3 [a]	
Substantial	72.5	
Minor/None	2.2	
Type of Injuries		
Fatal	19.7 [a]	
Serious	11.3	
Minor/None	69.0	
Aircraft Damage		
Single-Engine Airplanes	89.1 [b]	17.2 [b]
Twin-Engine Airplanes	8.9	29.9
Turboprop	0.5	32.0
Business Jet	8.3	15.0
Helicopter	2.8	11.5
Other	1.5	34.4

Notes:

Comparable data not available for all years. Data shown is tabulated for the following years:
[a] 1990–2000 [b] 1975–1997

Data includes all general aviation accidents, both on- and off-airport.

Source: [a] Data compiled from NTSB, Aviation Accident Database (1990–2000) and
[b] Annual Review of Aircraft Accident Data (1997) — General Aviation

TABLE E6

Selected NTSB Accident Data – U.S. General Aviation Aircraft

	Percent of Total Accidents	Proportion Fatal/Serious
Time of Day		
Dawn/Daylight/Dusk	60.7	29.7
Night	39.3	29.6
Weather Conditions		
VFR	33.4	29.4
IFR	66.6	28.3
Aircraft Damage		
Destroyed	16.7	
Substantial	42.2	
Minor/None	41.1	
Type of Injuries		
Fatal	15.6	
Serious	14.4	
Minor/None	70.7	

Notes:

Comparable data not available for all years. Data shown is tabulated for the years 1990–2000.

Data includes all air carrier accidents, both on- and off-airport.

Source: Data compiled from NTSB, Aviation Accident Database (1990–2000)

TABLE E7

Selected NTSB Accident Data – U.S. Air Carrier Aircraft

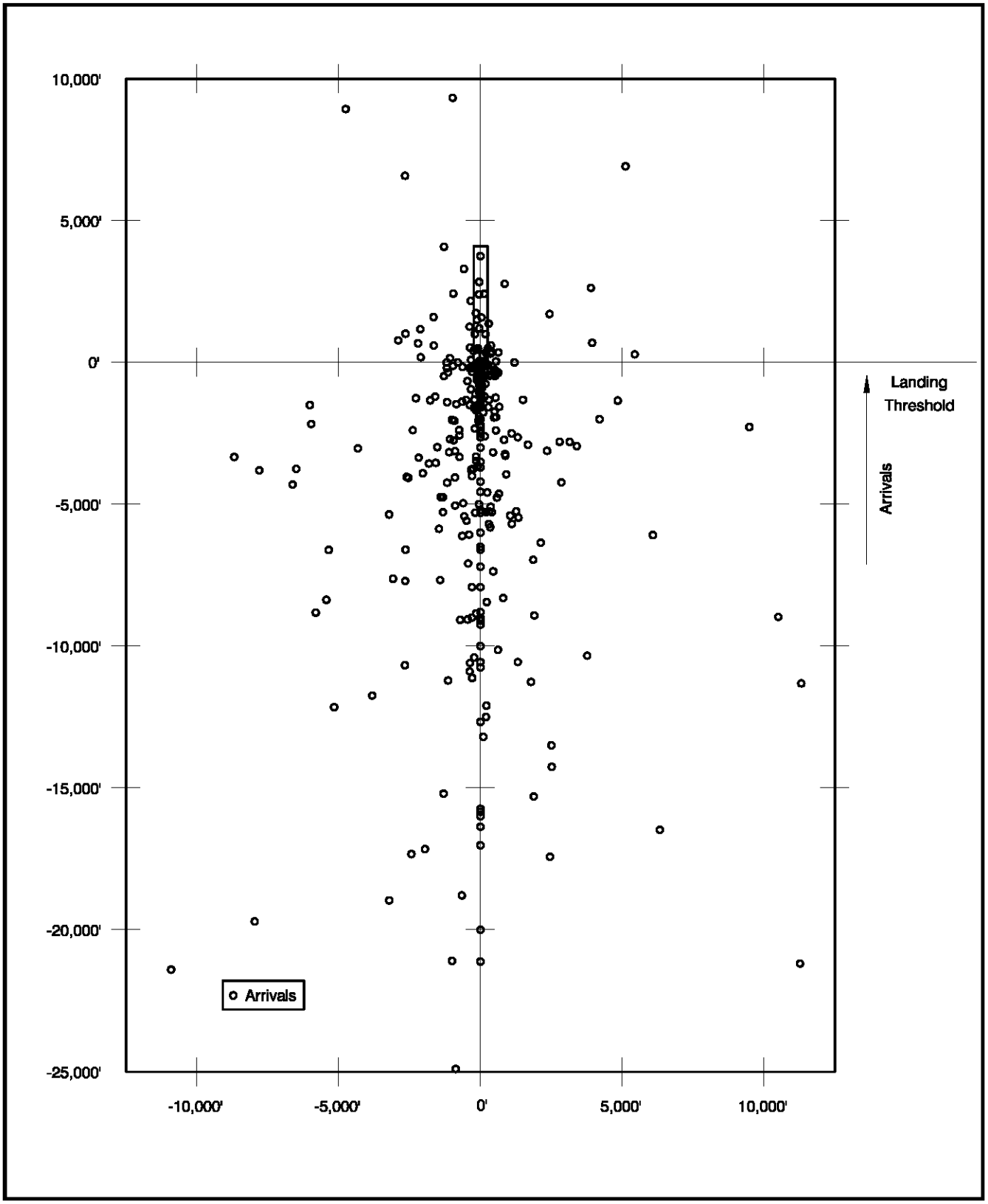


FIGURE E7

Arrival Accidents

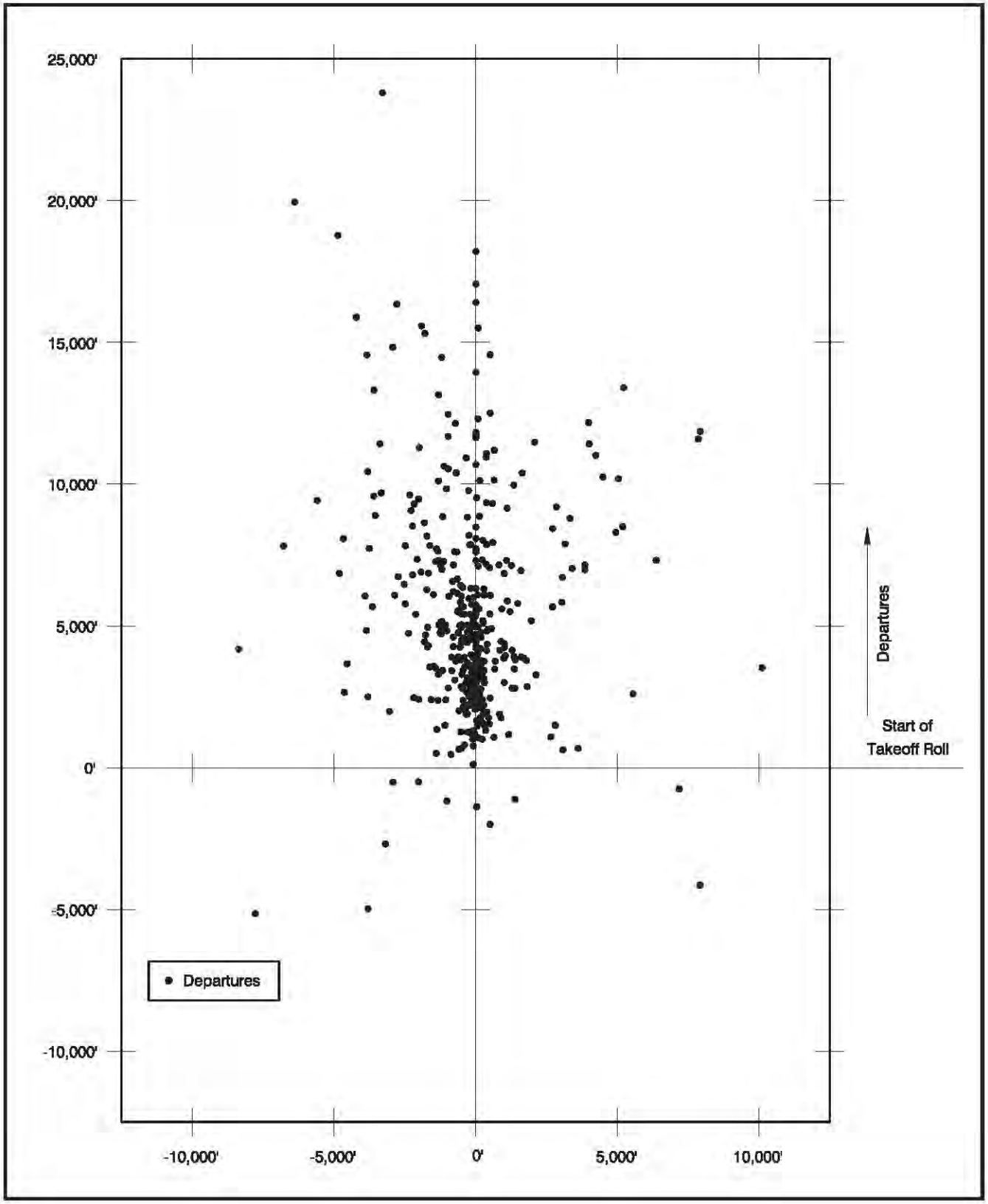


FIGURE E8

Departure Accidents

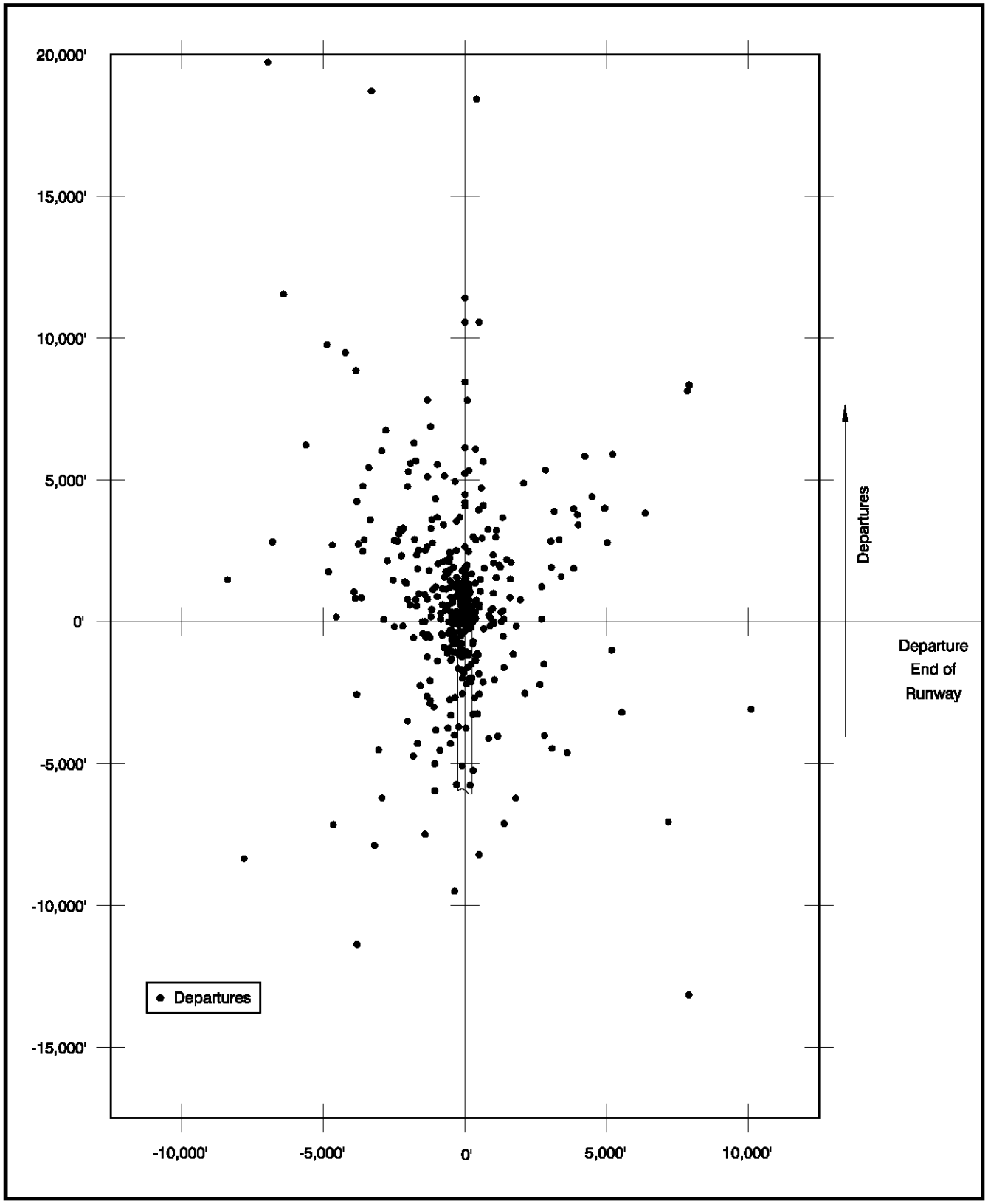


FIGURE E9

Departure Accidents – Normalized

- **Departures**—For takeoffs, two choices of common reference point are apparent: the beginning point of the takeoff roll and the departure end of the runway. Except for touch-and-goes and intersection departures, the runway length represents the difference between the two points. Each of these choices has theoretical merits as to the utility of the information provided.

  As used herein, the departure end of the runway is the end which the aircraft passes on takeoff and climb-out.

  - Measuring from the start of takeoff roll recognizes the fact that, once an aircraft is airborne, the location of many accidents is independent of the runway length.
  - On the other hand, circumstances resulting in an accident 2,000 feet beyond the end of a 5,000-foot runway might result in nothing more than an emergency landing on a 10,000-foot runway. *Normalizing* the data by measuring from the departure end of the runway thus takes into account the significance of runway length in many departure accidents.

- Figure E8 plots the departure accidents relative to the start of takeoff roll. Figure E9 shows the normalized location pattern. As can be expected, the clustering of points is much tighter when measured from the departure end of the runway.

The total number of accidents in the database is split almost equally between arrivals and departures. By comparison, NTSB data indicates that general aviation landing accidents occur about twice as often as takeoff accidents (Table E2); the substantial number of landing accidents, which take place on or near the runway, accounts for most of this difference. Since these accidents do not have land use compatibility implications, they are not included in the *Handbook* database.

Effects of Runway Length

Another means of factoring out the runway length variable for departure accidents is to individually assess the location distributions associated with different length runways.

One finding apparent from previous analysis is that the longer the runway, the greater the spread of departure accident locations. Nevertheless, the locations tend to be most closely bunched around the end of the median length runway in each of these groups. Another, perhaps somewhat surprising, variable revealed by the three charts is that arrival accidents also are more spread out for longer runways than for shorter ones. A review of the data suggest several possible explanations for this phenomenon:

- Almost half (49%) of all accidents on runways of 6,000 feet or more are by twin-engine aircraft compared to only 12% on runways under 4,000 feet.

- Long runways have more IFR accidents—44% for runways of 6,000 feet or more, 4% for runways of less than 4,000 feet.

- Similarly, for nighttime accidents, more occur on long runways (45%) than on short ones (16%).

Aircraft Type Variables

Single-Engine Propeller Airplanes

As hypothesized above, the accident locations for single-engine propeller planes tend to be clustered close to the runway ends and also relatively near the extended centerline. For approach/landing accidents, the median distance is 520 feet from the landing threshold. For takeoffs/departures, the median distance is 500 feet from the departure end of the runway and 4,177 feet from the start of takeoff roll. Also, almost 90% of the departure accident points lie within 9,000 feet of the start of takeoff roll.

Not certain from the accident records is whether accident locations reported as being on the extended runway centerline might actually be several hundred feet off to the side, especially for accidents occurring some distance from the runway end. It is apparent from NTSB reports that precision in terms of accident site location was not a high-priority objective. Every effort was made in the review of the records to determine the accident location as precisely as possible, but the actual number of points truly on centerline is probably less than shown in the database.

Multi-Engine Airplanes

The database indicates that the accident locations for twin and other multiengine airplanes, including jets, are comparatively more stretched out than those for single-engine airplanes. The majority of the approach/landing accidents are within 500 feet of the extended runway centerline, but the median distance is more than 2,200 feet from the landing threshold. The takeoff/departure accidents are widely scattered as conjectured in the earlier discussion of aircraft and pilot performance during emergencies. Although the median accident site distance is some 1,100 feet from the departure end of the runway, the sites are spread about evenly in the 5,000 to 10,000-foot range measured from the start of takeoff roll.

Airline Aircraft

The project database does not include airline aircraft accidents. For an assessment of these accidents, reference should be made to the FAA commercial aircraft accident study cited earlier in this appendix.

Helicopters

Data comparable to that presented here for airplanes may exist in NTSB *Factual Records*, but has not been compiled in any published source. The most detailed assessment of helicopter accident locations currently available is one documented in two reports prepared for the Federal Aviation Administration—*Analysis of Helicopter Mishaps at Heliports, Airports, and Unimproved Sites* and *Analysis of Helicopter Accident Risk Exposure near Heliports, Airports, and Unimproved Sites* (SCT–1991 and SCT–1992). This study found that (between 1977 and 1986) some 37% of helicopter accidents took place on or within 1 mile of a landing site whether it be at an airport, a heliport, or other location. Among all types of helicopter

mishaps (accidents plus incidents), 60% involved obstruction strikes—38% at the landing site and 22% within 1 mile. The majority of the latter group were wire strikes and in each case the wires were unmarked. This finding lead the authors of the study to recommend the marking of wires and other objects within a buffer zone below the standard 8:1 approach/departure surface slope of helicopter facilities. Three additional observations are worth noting regarding helicopter accident locations:

- Because helicopter landing sites are small, a substantial proportion likely occur, or affect locations, beyond the landing site boundaries.
- Helicopters can take off and land in almost any direction from a heliport, obstacles and wind direction permitting.
- Beyond the immediate vicinity of the landing site, helicopter flight tracks may be widely divergent unless specific procedures are established for a given airport or heliport (the FAR Part 77 approach/ departure surface for helicopter landing pads is 4,000 feet in length).

PILOT CONTROL VARIABLES

In the discussion of emergency procedures earlier in this appendix, the point was made that a pilot will, if possible, normally attempt to steer the aircraft to an open area when an emergency landing is unavoidable. A general assumption has been that most aircraft are under some control when forced down. The extent of pilot control was therefore one of the variables assessed in the review of the accident Factual Records.

The results of the research were surprising: in over three-fourths of the cases included in the database, the aircraft was not under control when it hit the ground. A probable explanation for this number being so high is that the database includes only accidents, not incidents. Thus, if a pilot makes a successful emergency landing without causing serious injuries or substantial damage, the event is classified as an incident and does not appear in NTSB records even if the landing site is not an airport runway.

Other Variables

Weather Conditions

A comparison of accident distributions which took place during visual flight rules (VFR) weather conditions versus those occurring during instrument flight rules (IFR) indicates that IFR arrival accidents tend to occur farther from the end of the runway than VFR accidents do—a median distance of nearly 4,200 feet from the runway approach end for IFR arrivals versus 475 feet for VFR landings.

Time of Day

NTSB data (for 1990 to 2000) reveals that approximately 86% of all general aviation accidents and 61% of commercial aircraft accidents take place during dawn, daylight, or dusk, with about 14% general aviation accidents and 39% of commercial aviation accidents

occurring in hours of darkness (officially, one hour after sunset to one hour before sunrise). No definitive data is available on the percentage of aircraft takeoffs and landings made at night. A reasonable estimate is 7% to 10%, although the number varies substantially from one airport to another. The higher incidence of commercial aviation accidents at night is consistent with the expected greater number of commercial operations at night.

Of all the accidents in the *Handbook* database, approximately 25% took place at night. Moreover, nighttime accounted for over 30% of the arrival accidents in the database. If these figures are representative of all off-airport accidents, they suggest that nighttime increases the propensity for accidents to occur beyond the runway environment. Furthermore, nighttime accident sites are generally farther from the runway than are the daytime accident sites—the median is some 2,300 feet greater for arrivals and 980 feet more for departures.

Single-Sided Traffic Patterns

For most runways, aircraft make left-hand turns as they approach for landing or when they takeoff and remain in the traffic pattern. On some runways, any of a variety of factors may dictate a right-hand pattern. Accidents in the *Handbook* database include a mixture of both situations. A reasonable expectation is that the distribution of accident sites would look somewhat different around runways which have the traffic pattern only on one side.

Surprisingly, though, no significant difference is apparent from a comparison between accidents for runways indicated to have left-hand patterns and without a single-sided traffic pattern.

NATURE OF IMPACT

The nature of the impact that occurs when a small aircraft comes down off airport can vary from a nearly normal landing to a catastrophic crash. When the aircraft remains under control and a reasonably open emergency landing site can be found, the impact can be relatively minor—the potential for injury to people on the ground is small and the aircraft occupants have a strong probability of surviving. The most serious accidents, in terms of risks to people on the ground as well as to the aircraft occupants, are those in which the pilot either:

- Loses control of the aircraft and, because of damage, low altitude, or improper procedures, is unable to regain control; or
- Is unable to select a reasonable forced landing spot because of darkness, fog, or the nonexistence of such a spot.

The following discussion examines available data and theoretical findings regarding the nature of the impact from an aircraft accident.

Severity

As can be expected, off-airport aircraft accidents tend to be more severe than those occurring on or near a runway. The accident database summary (Table E4) indicates that the aircraft is destroyed in some 65% of off-airport accidents. Moreover, fatal injuries occur about half of

the time—48% for arrival accidents and 59% for departure accidents. By comparison, NTSB data (Table E6) shows that for all accident locations, the rates for destroyed aircraft and fatal injuries have been only 25% and 20%, respectively. In commercial aviation accidents, the rates are slightly lower: in 17% of accidents the aircraft is destroyed and in 16% a fatality occurs (Table E5).

It must be remembered, however, that these figures are relative to the total number of *accidents*. No information is available regarding how often aircraft make an emergency landing on or off of an airport without incurring substantial damage or resulting in serious or fatal injuries. Nevertheless, the percentage involving severe consequences is undoubtedly much less when all mishaps (incidents as well as accidents) are taken into account.

Darkness and poor weather both adversely affect the severity of accidents. According to NTSB data, about 29% of dawn/daylight/dusk accidents involving general aviation aircraft result in serious or fatal injuries, compared to nearly 45% of the night accidents. About 30% of commercial aviation accidents during the dawn/daylight/dusk period result in fatalities or serious injuries with about the same percentage at night. Likewise, general aviation IFR accidents have serious or fatal results about half (47%) of the time, whereas only a quarter (26%) of VFR accidents have such severe consequences.

General Aviation Aircraft Accident Swath

One of the variables examined during the review of NTSB accident re cords was the swath length associated with each accident. Adequate information with which to assess this factor was available in only about 53% of the Factual Records. Among the conclusions reached regarding the accidents represented in the database are:

Swath length is defined as the distance between where an aircraft first touched the ground or an object on the ground and where it subsequently came to a rest.

- The median swath length for all general aviation accidents is only about 100 feet.
- Accidents in which the aircraft was under some pilot control typically have longer swath lengths (144 feet on average) than those where the aircraft was out of control (an average of 89 feet).

Accidents Involving Collisions with Objects

Aircraft collisions with objects on the ground can be the cause of accidents or simply a secondary factor in the consequences of the event. Historically, the NTSB's annual reviews of general aviation accident data included counts of accidents in which objects were a cause or factor. Unfortunately, the NTSB discontinued the detailed documentation of this information in 1990. Therefore, the most current data available have been used (1982-1989). Table E7 presents a summary of this data.

In evaluating the data's significance, several points should be recognized:

- The data includes accidents involving all types of aircraft helicopters, hot air balloons, etc.), not just airplanes.
- The location of the objects involved may be either on or off airport.
- The counts include accidents during all phases of aircraft operation—taxiing accidents, as well as those during approaches, departures, or en route.
- No distinction is made between accidents in which the objects listed were the cause versus ones in which they were only involved in a secondary manner.
- The severity of the accidents is not reflected in the data.

A particularly noteworthy finding of the data is the relative rarity of accidents involving residences or other buildings. For an 8-year period (1982–1989), the annual average was only 8.1 for residences and 9.9 p er year for other buildings. These numbers represent 0.3% and 0.4% of total accidents, respectively. An earlier study by the Aircraft Owners and Pilots Association (AOPA–1985) for the years 1964–1982 showed a higher average number of collisions with residences and other buildings—a total of 29.6 per year (also summarized in Table E6). However, more aircraft operations, as well as nearly 65% more accidents, took place annually during that period compared to the more recent data. The percentage of annual accidents involving residences and buildings thus averages only about 0.65% in both data sets.

Considering that the *Handbook* database contains only near-airport accidents and only those for which precise location data was available, the results are consistent with the NTSB data. Over the 10-year period covered by the database, some 30 of the 873 accidents involved a collision with a residence (3.0 per year) and 18 involved other buildings (1.8 per year).

Effects of an Aircraft Collision with a Building

Data regarding the probable effects of a small aircraft colliding with a typical house or other small building is documented in a 1985 study (H&S–1985). The research entailed a search for previous studies on the subject, review of historical accident records, and interviews with building demolition experts and aircraft salvage companies. Consideration was also given to what effects might theoretically be predicted.

Variables

The consequences of an aircraft collision with a building were found to be affected by many variables. Among the primary ones are:

- The aircraft weight;
- The amount of fuel on board;
- The speed of the aircraft, both horizontally and vertically, at the time of the collision;

- The angle of contact with the structure (i.e., glancing or head-on);
- The aircraft attitude when the collision occurs;
- The extent of aircraft disintegration upon impact;
- The type of building construction, particularly the composition of the surface struck by the aircraft; and
- The occurrence and extent of fire after the impact.

Conclusions

The study determined that the combination of these variables is so great as to preclude definitive conclusions. The effects can only be estimated within a wide range of possibilities. To the extent that any meaningful conclusions can be reached from the data obtained, they can be summarized as follows:

- **Significance of Aircraft Size**—Other factors being equal (which, for any two accidents, they never are), more damage will be produced by larger, faster aircraft than by smaller and slower ones. The amount of kinetic energy produced by a small, but fully loaded, single-engine airplane flying at minimum speed is equivalent to that of a small automobile traveling at about 55 miles per hour. By comparison, a cabin-class twin would generate kinetic energy similar to that of a loaded 10-ton truck traveling 60 miles per hour (McElroy–1973).
- **Aircraft Design Factors**—Unlike automobiles, aircraft are not designed to remain intact in collisions. The disintegration of the wings and fuselage of a small, general aviation aircraft as it collides with a building dissipates much of the kinetic energy that would otherwise be delivered to the structure.
- **Frequency of Occurrence**—As stated above, general aviation aircraft collisions with buildings of any kind, and residences in particular, happen infrequently.
- **Range of Consequences**—*When* an aircraft collides with a small building, the results can range from insignificant to catastrophic. Neither data nor analyses can predict the actual effects of a particular incident.

Non-Occupant Injuries

Injuries to people on the ground (i.e., people who are not occupants of the aircraft) as a result of general aviation aircraft accidents occur even less frequently than collisions with buildings. Most such incidents take place on-airport. National data on injuries to people in residences and other buildings over a 19-year period is summarized in the previously referenced Table E8. Over the period examined, only 3.1 accidents per year resulted in fatal or serious injuries to people in a building.

A direct comparison with accidents in the *Handbook* database cannot be made because the database includes only off-airport accidents and does not distinguish between people in buildings and elsewhere on the ground. Nevertheless, the results show a similarly infrequent occurrence of people on the ground being seriously or fatally injured by an aircraft accident. Only 12 such accidents are in the database.

	Average Number/Year	% of Category	% of All Accidents
Accidents Involving Objects on the Ground (1982–1989) [a]			
Type of Object Involved			
Residences	8.1	1.4	0.3
Other Buildings	9.9	1.7	0.4
Fences/Walls	88.0	15.1	3.2
Poles/Towers	26.4	4.5	1.0
Wires	108.3	18.6	3.9
Trees	242.5	41.7	8.8
Other Objects	98.3	16.9	3.6
Total - All Objects	581.4	100.0	21.2
All Accident Types	2,742.0		100.0
Accidents Involving Buildings and Residences (1964–1982) [b]			
Phase of Flight			
On-Ground	9.1	30.8	0.20
Traffic Pattern	17.8	60.1	0.40
In-Flight	2.7	9.1	0.06
Total	29.6	100.0	0.66
Type of Injuries On-Board or On-Ground			
Fatal	3.7	12.5	0.08
Serious	4.4	14.9	0.10
Minor/None	21.5	72.6	0.48
Total	29.6	100.0	0.66
Type of Injuries to People On-Ground			
Fatal	0.5	27.8	0.011
Serious	0.6	33.3	0.013
Minor/None	0.7	38.9	0.016
Total	1.8	100.0	0.040
All Accident Types (1964–1982)	4,510.0		100.0
Type of Injury			
Fatal	1.8	28.7	
Serious	1.3	20.5	
Minor/None	3.3	50.8	
Total	6.4	100.0	

Source: [a] NTSB, Annual Review of Aircraft Accident Data—General Aviation, 1982–1989
[b] Aircraft Owners and Pilots Association (1985)

TABLE E8

Accidents Involving Objects or People on the Ground

Appendix F

Risk Concepts

INTRODUCTION

Maintaining a high degree of safety as lands near airports are developed is clearly an important planning objective. Frequently, planners face issues that have a potential for compromising safety and look for guidance on how best to proceed. Established federal and state regulations are among the resources often examined. However, as outlined in the summary of safety policy foundations in Chapter 3, the narrow focus of official federal and state airport land use safety compatibility policies is apparent. Particularly lacking is guidance regarding protection of people and property on the ground in the event of aircraft accidents in the vicinity of airports. To adequately address this concern, ALUCs and local land use jurisdictions need to go beyond the basic policy foundations.

This task is not simple. While the basic concerns are clear, the extent to which the use of land around airports should be restricted in response to these concerns is not as evident. Defining appropriate safety compatibility policies based upon the available aircraft accident data thus represents a major challenge. To attempt this task requires an understanding of the concepts of *risk*.

Experts in the field of risk have done extensive amounts of research on the topic in general and on certain types of risks in particular. However, very little of this research is specifically concerned with the risks to people and property on the ground in the environs of airports. Even so, there is much of relevance to airport land use compatibility issues that can be gleaned from these broader analyses. Toward that end, the first portion of this appendix examines risk concepts as they concern hazards in general; the latter portion then focuses on how these concepts can specifically be applied to airport land use compatibility planning.

In simple terms, risk can be defined as "the chance of injury, damage, or loss." More technically, risk is "the potential for realization of unwanted, adverse consequences to human life, health, property, or the environment" (Society for Risk Analysis). In mathematical terms, risk equals the probability of occurrence of an unwanted event times the adverse consequences. Risk can be considered as the inverse of safety; the latter being defined as "relative protection from adverse consequences."

The discussion here focuses on risks which have two common characteristics. First, the associated activities are physical in nature (as opposed to being strictly financial, for example). Secondly, the adverse consequences of concern are measured in terms of a specific event (rather than the incremental effects of prolonged exposure). These both are characteristics common to aircraft accident risks.

RISK ASSESSMENT

The assessment of risks and determination of appropriate actions to be taken in response to those risks is a complex and often imprecise process. Some elements of risk can be quantitatively measured and delineated. Risk assessment done in this way is often referred to as technical risk assessment, probabilistic risk assessment, or quantitative risk assessment. These forms of risk assessment are generally equivalent and are most useful for comparing various alternatives in a decision problem, such as, for example, which of two engineering solutions or land use plans has the lower risk.

Most risks, though, also have equally significant qualitative components. Moreover, subjective judgment plays an especially important role in formulation of responses to risks. These characteristics exist even for risks involving only one individual or a small group of people, but are particularly evident when the effects extend to large segments of a community or to society as a whole. Risk assessment that is done from a qualitative perspective is useful in determining why and how risks differ in ways that are not captured or represented by their quantitative or statistical characteristics. This type of risk assessment also helps with understanding what makes some risks appear acceptable and others unacceptable even though they do not differ appreciably in quantitative terms.

Measurement of Risk

The beginning point for any efforts to develop public policies to address most risks is to measure the extent to which a particular risk exists. Risk measurement or analysis is concerned with the question of what might happen.

As noted in the definition above, the two fundamental components of risk measurement are frequency and consequences. *Frequency* measures when or how often an adverse event might occur. The *consequences* component describes what the effects of such an event might be (in terms of fatalities, injuries, property damage, service interruption, etc.).

For most risks involving physical hazards (and certainly those related to airport area land uses), it is useful to consider a third component. Accident frequency can be thought of not just in terms of how often accidents occur, but also in terms of their *distribution*. The distribution component of risk identifies where or for whom there is an exposure to accidents (geographically or to certain segments of the population).

While the frequency and distribution components of risk are measured in quantitative (even if sometimes only relative or rank order) terms, the consequences of accidents can have important qualitative characteristics. Depending upon the perspective taken with respect to the potential

consequences of accidents, the overall risk can be measured with respect to three fundamentally different metrics.

- Accident Risk—Most basic among these metrics is the accident risk rate (sometimes also referred to as crash or failure risk). This number simply measures the annual number of events predicted to occur within a specified unit of area. The consequences component is held constant—that is, the potential consequences are assumed to be the same regardless of where and how often the accidents might occur. The number of general aviation accidents projected to take place in the U.S. in a year is an example of accident risk. By combining the projected accident rate data with historical data on accident locations, the probability of an accident occurring in a given location can be calculated. With respect to aircraft accidents, the resulting information can be presented in the form of contours defining locations having the same probability of accident occurrence.

- Individual Risk—The individual risk rate changes the focus from events to people. Individual risk thus takes into account both the frequency of accidents as measured by the accident risk and the severity or consequences of the accident. Typically, only the most serious consequences to an individual are considered—the risk of death—although sometimes serious injuries are also taken into account. The risk is usually calculated on the basis of a person exposed to the hazard on a constant basis, 24 hours per day, 365 days per year.

- Societal Risk—The most broadly based form of risk metric is societal or collective risk. Societal risks are concerned with consequences that are wider than the discrete effects on individuals. Repercussions of certain events go beyond the immediate casualties and damage to the extent of provoking socio-political response. The need to avoid these types of accidents or events may thus be greater than statistical measurements would suggest. Indeed, societal risk often takes into account non-quantitative elements and can particularly be influenced by public perceptions.

Regardless of the precision to which a risk can be measured, a factor to be recognized is that even scientific measures of risk are inherently subjective in one respect. Scientists and experts typically measure risk in terms of mortality rates or probability of harm. There are many ways in which this information can be portrayed, however. This choice can affect how the data is judged. For example, in the context of transportation, the chance of someone being killed in an accident can be measured relative to total population (deaths per million population), passenger-miles for the transportation mode, or the number of trips. The way in which the data is numerically presented also makes a difference: 1 death per x people versus y deaths per million people. The point is that there is no right or wrong frame of reference— no universal set of characteristics—for measuring risk.

Risk Perceptions

While measurement of risks provides essential input to the making of public policy, it is not the only consideration. In our society, decisions about how to respond to many risks—particularly ones affecting many people or whole communities—are not the sole purview of experts. Moreover, such decisions are not based simply on technical analyses and data. The public's *perception* of risks plays a major role as well. Perception is a key component in any assessment of societal risk.

To those experts or others who evaluate risk in a strictly quantitative manner, public perceptions may seem to be irrational or even ignorant. While some component of public reaction may be attributable to these human qualities, other more definable factors are also apparent. Studies have shown that risks are usually perceived to be high when factors such as the following are prevalent:

- The general public has limited understanding of how the technology or system operates;
- After a failure in the technology or system, no one, including experts in the field, seems to know and understand the cause (as opposed to events for which the cause is clear);
- The possible consequences of the hazard evoke feelings of dread, especially concerns about death;
- The possible consequences seem unbounded (in magnitude or persistence over time) or are believed to be potentially catastrophic;
- The activity is not under one's own control (the risks are not affected by one's own skills);
- The risk exposure is not on a voluntary basis (the exposure cannot readily be reduced by changes in one's lifestyle);
- The hazard is unnatural (not an act of nature);
- The potential personal or societal benefits to be gained from the activity involved appear to be minimal or nonexistent;
- The distribution of risks and benefits among groups or geographically is inequitable;
- The groups at risk include children, elderly, the infirm, or others regarded as having comparatively little control over their own lives; and/or
- Highly negative imagery about the technology or system is widespread in the media (especially pictures on television, in newspapers, and on the internet).

To a significant extent, the manner in which we judge the importance of these factors depends upon our attitudes toward the underlying technology or system. Our attitudes, in turn, have their basis in social values. These judgments are inherently subjective—there is no right or wrong responses. Thus, at least from the perspective of social science, risk is not an objective concept. Danger is real, but there is no such thing as real risk—risk is socially constructed.

Because of these subjective elements, risk perceptions are frequently not consistent with statistical expectations. Risks are often misjudged, sometimes overestimated and sometimes underestimated. Moreover, judgments about the facts associated with risks may be held with unfounded confidence. As a consequence, technical risk analyses and statistics prepared by experts often do little to change people's attitudes and perceptions. Even news that studies of a potential risk are being conducted can add to public concerns. The rapidity with which information—both accurate and inaccurate—is transmitted today further adds to the challenge of placing risks in a proper perspective within society as a whole.

Another factor which affects how a risk is perceived is the scale on which the risk is measured. Experts typically measure risk in terms of fatalities. To most people, though, riskiness means more than the number of deaths per year. The manner in which the presence of the risk affects one's daily life also influences how the risk is viewed.

Even when annual fatalities is the accepted risk measure, statistically equivalent risks may be perceived differently. For example, a technology or system on which one accident with 100 fatalities has occurred is likely to be judged more risky than a system which has experienced 100 accidents having one fatality each. In effect, there is a penalty function which gives added weight to events with large consequences. On the other hand, our familiarity with particular technologies or systems can also affect how their associated risks are perceived. The apparent seriousness of an unfortunate event is determined in part by what the event signals or portends—what its potential social impact may be. An accident on an unfamiliar system, even if small in size, may be viewed as a harbinger of more catastrophic events and thus deemed to be worse than a large accident on a familiar system.

A final, not often acknowledged, element of risk perception is hindsight. Knowing that something has happened increases its perceived inevitability. What is more, not only do such occurrences seem in retrospect to have been inevitable, the judgment often is that they should have been anticipated in advance. "On the other hand, perhaps the handwriting on the wall was written in ink visible in hindsight alone" (Fischhoff–1975).

As one author summarized the topic: "…there is wisdom as well as error in public attitudes and perceptions. Lay people sometimes lack certain information about hazards. However, their basic conceptualization of risk is much richer than that of the experts and reflects legitimate concerns that are typically omitted from expert risk assessments" (Slovic–1987).

Risk Comparisons

Another approach to risk assessment is to compare a new or uncertain risk with risks which are better known and understood. Both the general public and risk experts engage in making these comparisons. Although such comparisons must be made with caution, they can be informative.

One situation in which risk comparisons can be useful is with respect to infrequently occurring events. For frequent events, risks can be measured with a great deal of precision. However, the probability of events which take place infrequently—even though they may be of high consequence— is very difficult to predict with any high degree of statistical accuracy. For many technologies, the very success of hazard reduction efforts has led to relatively few events from which to calculate the level of risk.

In general, observed data cannot lead to confident estimates of extremely rare events. The probability of events with 50-to-100-year intervals can be estimated with a reasonable degree of confidence, but not those with 10,000-year intervals. In such situations, an alternative approach is to measure risk levels in a relative rather than probabilistic manner. Experts in a particular technology often can identify the locations or circumstances which present higher-than-usual risks, even if they cannot estimate the probability of an event.

The danger of risk comparisons is that differences among risks can be oversimplified if both the quantitative and qualitative attributes are not considered. The general public may overlook important measurable factors. On the other hand, experts may gauge the acceptability of risk solely in terms of the probability of fatalities or other loss, but ignore the *context* within which the risk occurs. Context helps us to gain perspective on the size and scope of a risk and to determine what response may be appropriate.

> *It is because of the difference in context that comparisons between the chance of a person on the ground being injured or killed as a result of an aircraft accident and the chance of a similar result from being struck by lightning are not valid. Hazards from technological and natural events are not perceived the same.*

RESPONDING TO RISKS

Ultimately, the decisions we—as individuals or as a society—make in response to hazards come down to a question of our tolerance for or acceptance of the risks which are known or believed to be involved. This is not a question which can be answered in an absolute sense, however. Society's allocation of resources must be taken into account. It is always possible to reduce risk, but the cost of doing so increases as the risk becomes smaller.

One approach risk experts have taken to answering this question is to divide risk into three categories separated by two key boundary lines.

The three risk levels are described as follows:

- Intolerable risks;
- Significant but tolerable risks; and
- Acceptable risks.

The three levels of risk are then divided by the following boundary lines:

- The upper boundary line is the threshold of intolerable risk. Risks exceeding this threshold must be reduced below the line regardless of cost. From an individual perspective, these are risks which are not tolerable regardless of the amount of money offered in compensation.
- The lower boundary line is the threshold of acceptable risk. Risks below this level merge into the background risks of life and require no action. We generally do not concern ourselves with these risks as we go about our daily lives.

Given this categorization, the next question which might be asked is where any specific risk falls within the overall spectrum.

Judging Risk Acceptability

As indicated earlier, accident risks can be assessed as a combination of two things: the anticipated *frequency* of an occurrence at any given location and the potential magnitude of adverse *consequences*. One qualitative method of judging risk acceptability thus is to divide the

full range of frequencies and consequences into discrete increments and then evaluate the implications of each possible combination of the two components. The result will be a matrix such as the one shown below. The matrix illustrates the conceptual relationship between accident frequency, potential consequences, and judgments as to the overall risk acceptability. Frequency is calculated in terms of the number of events within a specific time period and location. Consequences are typically defined in terms of injuries, particularly fatalities and serious (life-threatening) injuries. Property damage can also be included, however.

Conceptual Relationship of Risk Components

		Potential Consequences				
		Negligible	Minor	Major	Severe	Disastrous
Anticipated Frequency of Occurrence	Frequent					
	Occasional					
	Uncommon					
	Rare					
	Extraordinary					

Legend	Acceptable Risk	Significant Risk	Intolerable Risk

This matrix suggests a variety of possible risk responses. For example:

- Risks which have negligible consequences do not warrant specific action regardless of how frequently the events occur. Even minor consequences do not make the risk significant unless the frequency is such as to be almost predictable.

- Activities with potentially major adverse consequences generally necessitate investigation into possible risk reduction measures unless the events rarely occur.

- A combination of relatively frequent occurrence and potentially high consequences means that action to reduce the risks to a tolerable level must be taken.

- While potentially disastrous consequences are always significant and the risk reduction measures need to be evaluated, action still may not be warranted when the events are rare or extraordinary.

Several additional points regarding this matrix are worth noting. First is that it pertains only to risks for which exposure is *involuntary*. People generally accept higher risks when they engage in an activity voluntarily and have a high degree of self control over its outcome. Greater risks also are tolerated when more *benefit* is to be gained from the activity. Thus, the public tends to accept higher risks from voluntary activities (such as driving a car) than from equally beneficial involuntary risks (food preservatives, for example). Another factor in judgment of risk acceptability is public perception. As a result, for certain risks, adjustments to the matrix may be necessary to reflect the influences noted earlier as having an effect on risk perception.

One further point is that both individual and collective risks are relevant to the assessment of acceptability. For some activities or circumstances, individual risk may be low either because accidents are rare or because the likelihood of severe consequences (death or serious injury) is

minimal even if more minor mishaps are comparatively common. Nevertheless, even when measurable individual risk is low, governmental regulations to prevent some harm may be warranted simply because a large number of people are exposed.

Lastly, no attempt to quantify either the frequency or consequences components of the matrix has been made here. Such a step may be possible although the ranges would vary depending upon the type of risk involved. Again, the only intent of the matrix is to illustrate the conceptual relationships among risk components and risk acceptability.

Of interest, though, is that—despite the variability in how frequency and consequences would need to be quantified depending upon the hazard involved—the combination of the two components has a quantifiably consistent relationship to acceptability regardless of the type of risk. That is, the measured level of risk which defines the boundaries between intolerable, significant, and acceptable risks has been found to remain relatively constant across a wide range of hazards. To be specific:

- The upper limit of tolerability for involuntary risks has been concluded to be on the order of one death per 10,000 people, or 10^{-4} chance of death to an individual, per year. Risks exceeding this level essentially mandate government intervention.

- Society also seems to have achieved a general consensus that governmental action to protect public health and safety is usually warranted if a hazard results in an annual death rate of more than 1:100,000 (10^{-5}).

- Risks of death as low as 1:1,000,000 (10^{-6}) per year are also commonly of sufficient concern to justify further investigation into possible actions.

- Lower levels of risk generally do not merit an explicit response unless the risk presents broader societal implications or is widely perceived in a manner which heightens its significance.

To emphasize the point, these numbers refer to risks to which people are exposed on an involuntary basis. As indicated above, people will accept a much greater risk when the exposure is on a voluntary basis. Indeed, risk researchers have concluded that acceptance of voluntary risks is roughly 1,000 times greater than for equally beneficial involuntary risks (Fischhoff–1979).

Weighing Responses to Risks

Risks which fall into the middle (significant) range—ones which are tolerable, but not particularly acceptable—represent the greatest challenge for determining appropriate responses. Intolerable risks must be dealt with in all cases and acceptable risks require no action. The mid-level risks, while significant, may or may not warrant a response depending upon the circumstances. In general, the objective in dealing with these risks is to make them as low as reasonably practical.

Various approaches have been devised as means of evaluating actions to be taken in response to the mid-range risks. Perhaps most common are cost-benefit analyses. The difficulty with cost-benefit analyses, though, is that they necessitate having data which is both meaningful and can

be quantified. This often requires judgments—determining the value of human life, for example.

> *The 1952 Report of the President's Airport Commission comments on this topic that: "…'calculated risk' is an American concept which gives mobility to the whole social structure. The phrase simply means a willingness to embark deliberately on a course of action which offers prospective rewards outweighing its estimated dangers."*

A further consideration is that a safety measure that seems appropriate on a cost-benefit basis may not be reasonable in a cost-effectiveness sense. That is, even if the benefits outweigh the costs, other measures may be available which could achieve greater benefits for the same cost or the same benefits for less cost. The range of possible safety measures thus generally also needs to be evaluated on a cost-effectiveness scale. The objective of cost-effectiveness analyses is to help set priorities among different risk reduction measures so as to achieve maximum safety for the amount spent. Cost-effectiveness analyses also can help to sort out the interactions among hazards. A risk reduction measure which may not manifest the highest benefit- cost ratio with respect to one particular hazard, may nevertheless be the most overall cost-effective measure because it can reduce multiple risks.

Another factor to be considered in cost-benefit or cost-effectiveness analyses of risk reduction measures is who bears the costs and who attains the benefits. For most risks which affect a large number of people, costs and benefits are seldom distributed equally. Governments, particularly the federal government, are usually better able to bear the costs of risk reduction measures than are private individuals or businesses, but even governments must balance the investment against the benefits. Economic feasibility has further implications where the costs are to be borne privately. When government-imposed measures are not affordable, the rules may be circumvented and enforcement can then become a problem.

Determining appropriate responses to risks associated with events which are extraordinarily rare but potentially catastrophic presents a particularly difficult test. An example of this type of hazard is a volcanic eruption. One study of this risk pondered whether anything at all should be done to protect against such an event given its extreme rarity (William Spangle and Associates–1987). On the other hand, the report notes that "the potential for a major catastrophe which could be averted begs for some kind of public response." As for where to strike the balance between acceptable risk and affordable protection, the report concludes:

> "Do what you can, politically and fiscally, to reduce the exposure and provide for effective emergency response and that becomes, by definition, acceptable risk. An official who proposes to go farther than his constituents want will find out quickly what the limits are."

Lastly, it is important to recognize that, whether accurate or not, public perceptions about risks play an influential role in determining the priorities of legislative and regulatory bodies. These entities, in turn, must exercise their own judgments about both the quantified risk data and the public perceptions of the risks. The amounts spent to reduce various types of risk can thus vary greatly and with little apparent rationality when viewed in light of the measured risks. For example, U.S. society has spent some 75 t imes as much to prevent each death due to

environmental toxin exposure as it has to prevent each death from transportation accidents (Tengs–1994).

One risk expert sums up this tendency toward inconsistency by noting that good analysis may be insightful, but need not be conclusive. "Uncertainty about facts and values in a disorderly social world means the various decision making approaches must be viewed as tools rather than ends in themselves." Thus, perhaps "the best we can hope for is some intelligent muddling through" (Fischhoff–1979).

PUTTING AIRPORT LAND USE RISKS INTO PERSPECTIVE

Assessing and responding to the risks which aircraft accidents pose for land uses around airports is a difficult process. Compared to aircraft noise, there is little data from which to work— risks cannot simply be measured with a "risk level" meter. Even if better data were available, the problem would remain as to how to determine appropriate responses. Again, there is relatively little with which to compare. A variety of studies address the topic of accident-related risks. Most of these studies focus on evaluating actions which can be taken to reduce the frequency with which the accidents occur. With land use compatibility planning around airports, however, reducing the frequency of accidents is not the objective—except for airspace obstructions, land uses have little effect on whether aircraft accidents occur. Rather, the purpose is to minimize the consequences of accidents when they happen.

From a risk reduction perspective, a fundamental objective of airport land use compatibility planning is to minimize the consequences of aircraft accidents when they happen.

Measuring the Risk

Conceptually, calculation of the risks associated with potential aircraft accidents near airports is easy. The risk consists of a combination of the three earlier described components: frequency, consequences, and distribution. The difficulty, though, lies in the fact that each of these components is complex to measure particularly with regard to any single airport. Errors and inaccuracies can easily be introduced into the equation. The following are some insights into factors which affect measurement of each of these components.

- Frequency of Occurrence—While the historical number of aircraft accidents nationwide has varied to some extent from year to year, future trends can nevertheless be predicted with a fair degree of accuracy. Even with respect to specific classes of aviation (air carrier, general aviation, military) or types of aircraft (business jets, helicopters, etc.), the frequency of accident occurrence is fairly constant and predictable. The difficulty with prediction arises when the focus is on a single airport rather than nationwide data. Even for busy airports, the frequency of occurrence may be once per some multiple number of years. As discussed earlier, predictions become less certain as the number of events becomes less frequent. A further complication with measuring frequency of occurrence lies in defining the types of events that are of interest. Clearly, accidents are the most significant events for airport land use planning purposes, but lesser mishaps are also relevant. Even though aircraft sometimes successfully land off airport—and thus the event is not treated as an accident— the potential exists that any such occurrence could have more serious consequences.

- Potential Consequences—The consequences of an aircraft accident on land uses near an airport can basically be described in terms of the number of people killed or injured and the size and value of the property damaged. However, as described in Appendix E, the consequences of any particular accident depends upon numerous variables involving the aircraft characteristics, the manner of its descent, and the nature of the terrain and land uses at the site. Because of the wide range of each of these variables, the outcome is highly uncertain. Therefore, even though the vast majority of near-airport aircraft accidents do not result in serious land use consequences, the emphasis in any analysis needs to be on the potential consequences—that is, on what could happen. Moreover, in terms of airport land use compatibility planning, the issue is what could happen if incompatible development is allowed to occur.

> *An important point to realize with respect to near-airport aircraft accidents is that the consequences have historically most often been minimal because of the extent of undeveloped or low-intensity uses near many airports. Allowing more intensive nearby development can only increase the frequency with which more severe consequences occur.*

- Spatial Distribution—Although not huge by many standards, the aircraft accident data described in Appendix E is sufficient to enable the spatial distribution of accidents to be well defined for each category of airport (air carrier, general aviation, and military). This distribution is broadly applicable to most airports within each category. Nevertheless, to more accurately predict where future accidents are most likely to occur at a particular airport, the physical characteristics and usage patterns of the airport need to be considered. The risks will generally be most concentrated along the flight routes which aircraft use most frequently.

To summarize measurable airport land use risks in the context of the preceding discussion of risk concepts, near-airport aircraft accidents are events which occur infrequently, but have potentially high consequences. Moreover, despite the relative rarity of the events, the spatial distribution of aircraft accidents near airports can be delineated quite well as indicated by the data presented in Appendix E and the potential consequences can be directly related to the characteristics of land use in the areas of concern.

Risk Perceptions and Comparisons

Proponents of land use development near airports sometimes attempt to quantitatively assess the risks of an aircraft accident and then dismiss the risk on the basis of comparison with other types of risks. Caution should be exercised in the preparation and review of such analyses.

One factor to be recognized is that, while the spatial distribution of aircraft accidents is quite predictable close to the ends of runways, it is less so at greater distances. This is particularly true for general aviation airports because their aircraft flight tracks are comparatively more spread out than at major air carrier airports. Analyses thus need to be done with respect to relatively broad-scale areas. Otherwise, by defining a sufficiently small site of interest, the accident probability can be calculated as near zero (the probability of an accident occurring somewhere in the airport vicinity is much greater than the probability of an accident occurring on a particular one-acre site).

Several studies have sought to take the step of broadly quantifying the individual risk which aircraft accidents represent for people on the ground. The results from two of these studies (NATS–1997; Shutt Moen Associates–1999) are useful in putting airport land use risks into a context with other types of risks.

- The level of individual risk for a given location near an airport is dependent to a significant extent upon the number of aircraft operations and to a lesser degree upon the type of aircraft. The greater potential consequences of a large air carrier aircraft accident compared to that of a small general aviation aircraft is balanced by the fact that the larger aircraft have fewer accidents per a given number of operations.

- Not surprisingly, the data shows the highest level of risk occurs immediately beyond the runway ends. These risks are on the order of 1:10,000 (10^{-4}) per year and are typically contained within the limits of the airport's runway protection zones (RPZs).

- The extent of risks at the 1:100,000 (10^{-5}) level is more dependent upon the volume of aircraft operations on a runway, but generally is within an area immediately surrounding the RPZs.

- The 1:1,000,000 (10^{-6}) risk level, although also dependent upon aircraft operations numbers, is much more extensive. Even for a moderately busy general aviation airport, risks of this magnitude can extend two miles from the runway. For major air carrier airports, the distance is greater, but the risk is more concentrated along the extended runway centerline than is the case at general aviation airports. The risk tends to be more dispersed for general aviation airports because aircraft follow more varied flight tracks than do larger aircraft.

Another consideration with regard to comparisons between airport land use and other risks is that subjective characteristics must be similar. In the context of the previously mentioned factors which influence public perceptions, the risks of off-airport aircraft accidents can be characterized as:

- Not voluntary except to the extent that people choose to live near an airport;

- Not controllable as a function of the individual's skills;

- Generally not well understood;

- Including consequences which are unpredictable;

- Not an act of nature;

- Giving no advance warning of an impending event; and

- Usually not balanced by potential personal benefits of the activity.

Because of these factors, comparisons with the chance of fatal injury as an occupant in an automobile accident or from being stuck by lightening, for example, are not directly relevant to the issue of airport land use compatibility planning.

Responding to the Risk

Regardless of the method used to assess the risks, a decision still must be made as to what the public-policy response should be. The basic question to be asked is *how much risk is acceptable?* As discussed earlier in this appendix, acceptability can be evaluated as a function of the frequency and consequences of undesirable events. The chart on page F-6 is helpful in showing the conceptual relationship between these two components. When applying this chart to the defining of safety compatibility criteria, though, two factors should be kept in mind:

- To be of value to airport land use compatibility planning, the frequency scale needs to be considered primarily in terms of the relative concentration of aircraft accidents near airport runways. If the scale is set relative to the wide range of physical risks, then aviation-related risks to land uses near airports would probably all fall in the rare category.

- For most airports, the risks to nearby land uses are dominated by the consequences side of the risk equation. Even a small airplane could cause major to severe harm if it were to strike an exposed, densely populated site. Only in essentially unoccupied locations such as range lands or wilderness areas can the potential consequences to people on the ground be considered negligible or minor.

As also indicated in the earlier discussion of risk concepts, the acceptability of a risk is not the only consideration in the establishment of public policy in response to that risk. An additional question to be weighed is *how much protection can society afford to provide?* Or, to put the issue another way, *how safe is safe enough?*

To answer these questions, the benefit-cost ratio of the risk reduction measures must be taken into account. When an airport is situated in a rural area, well away from development pressures, the cost—to the landowner, the community, and the airport—for a high degree of protection may be low. Important land use development can usually be redirected toward areas where the prospects of an aircraft accident are minimal. At the other end of the spectrum, the need for developable land around urban area airports typically is such that avoidance of only very risky forms of development— those in the most accident-prone locations or ones which greatly increase the potential severity—may be affordable. It is for this reason that some ALUCs allow infill development to occur in established urban areas even though the development would typically not conform to compatibility criteria.

Also an element of any cost-benefit evaluation of acceptable land uses near airports is that the outcome is different for existing development than it is for proposed new construction. While the benefits of having compatible land uses are the same whether development already exists or not, the cost of eliminating incompatible uses is usually much greater than the cost of avoiding them in the first place. Safety compatibility policies developed for use in Great Britain acknowledge this distinction (NATS–1997). Specifically, the British policy is:

- To eliminate existing incompatible development, if any, within areas where the individual risk exceeds 1:10,000 (10^{-4}).

- Except for low-intensity nonresidential uses, new development should be avoided in locations where the risk exceeds 1:100,000 (10^{-5}). However, existing development—other

than highly risk-sensitive uses such as schools, hospitals, and places of assembly—can remain.

- In locations where the risk level is less than 1:100,000 (10^{-5}), the only necessary restrictions on new development are to avoid schools, hospitals, and places of assembly.

Accident Distribution Contours

One approach to identifying accident location patterns is to group the accident data points according to their relative degrees of geographic concentration. A particularly illustrative perspective on the distribution of accidents near runways is the three-dimensional view shown in Figure F1. The vertical dimension to the graph represents the number of accident sites within each of the cells in the grid (the grid spacing used was 300 feet by 300 feet). The approach end of the runway is at the center of the graph and the runway extends up and to the right from there. Clearly evident is the concentration of accident sites—primarily arrivals—near the runway's approach end. The second hump lies along the runway and its extended centerline and is mostly comprised of departure accidents. (Note that this chart is derived from the accident database contained in the 1993 *Handbook*. Although smaller in size than the database analyzed in the 2002 edition, the spatial distribution of accident sites is similar to that of the expanded database.)

While informative in a visual sense, the three-dimensional chart is not very useful for analytical purposes. More valuable is to depict the data in the form of a set of accident distribution contours.

Figures F2 through F9 portray contours for various subsets of the general aviation aircraft accident location data from Appendix E. (No comparable analyses of air carrier and military aircraft accidents have been conducted.) Any number of contours can be defined. In this case, the contours divide the accident data sets into five equal groups of 20% each. The contours encompass the most highly concentrated 20%, 40%, 60%, and 80% of the data points. The remaining 20% occur beyond the outermost contour, including some points beyond the limits of the diagrams. The contours are irregular in shape. No attempt has been made to create geometric shapes.

The accident distribution contours depict where an aircraft accident is most likely to happen when one occurs. Because these contours do not take into account either the accident frequency over time or the consequences of the accidents, they technically are not risk contours.

Various computer programs potentially can be used to create contours from scattered, individual *x/y* data points such as those represented by the accident location data. The results may vary depending upon the type of program used and the assumptions applied to measuring the degree to which a group of points is concentrated. The contours shown here were developed using geographic information system software to count the number of other points within a certain radius of each specific point, then ranking the results.

All Runway Lengths

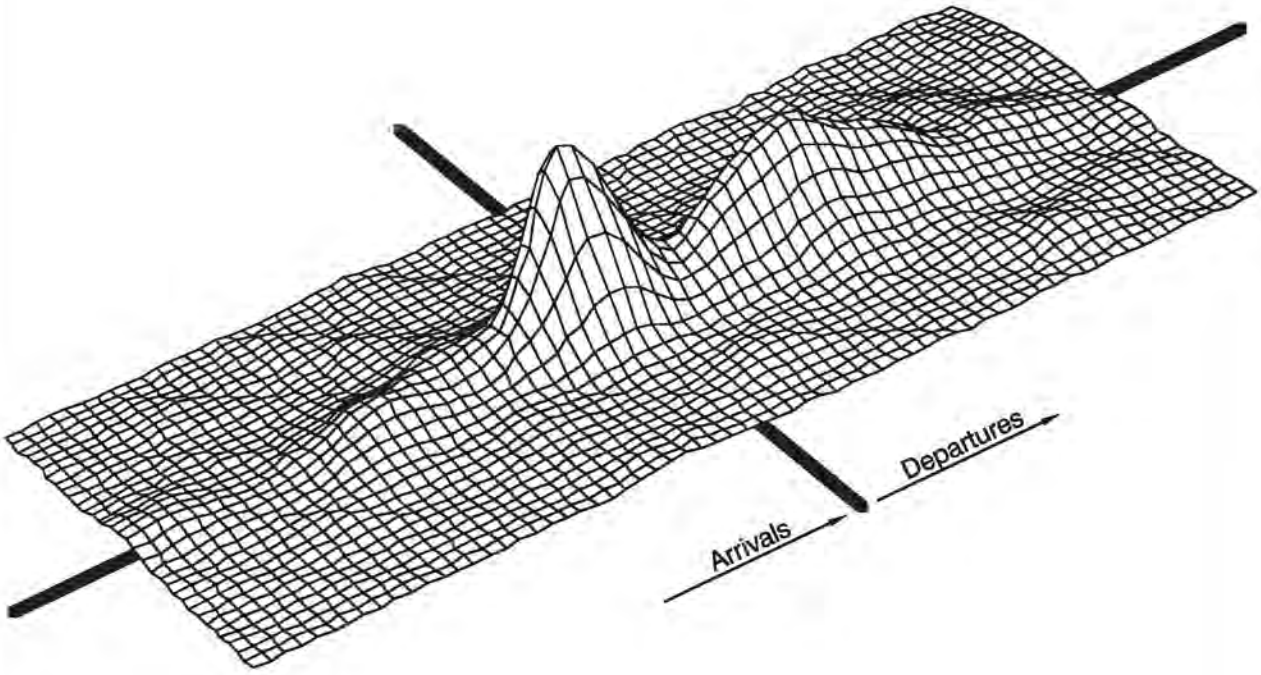
Figure F2 depicts the accident distribution contours for all general aviation arrival accidents in the database; Figure F3 shows the contours for departure accidents. In both instances, all runway lengths are represented. Several geometric patterns are evident from a look at the two graphs:

- Arrival Accident Patterns (The zero/zero point on the axes is the landing end of the runway.)
  - Arrival accident sites tend to be located close to the extended runway centerline.
  - Some 40% fall within a narrow strip, approximately 500 feet wide and extending some 2,000 feet from the runway end.
  - Over 80% of the arrival accident sites are concentrated within just 2,000 feet laterally from the extended runway centerline, but extending outward to approximately 11,000 feet (about 2.0 miles) of the runway end.
- Departure Accident Patterns (The zero/zero point on the axes is the takeoff end of the runway.)
  - Departure accident sites also tend to be clustered near the runway end, but are not as concentrated close to the runway centerline as are the arrival accident sites.
  - The most tightly bunched 40% of the points lie within an area 1,500 feet wide, extending approximately 2,000 feet beyond the runway end, but also adjacent to the edges of the runway.
  - The 80% contour extends some 6,000 feet beyond the runway end plus along the sides of the runway and spreads laterally approximately 2,000 feet from the runway centerline.
  - Two factors account for the substantial number of departure accident sites lateral to the runway.
    1. As defined for the purposes of the database, departing aircraft that crash while attempting to return to the runway are counted as departure accidents unless the aircraft became established in the traffic pattern or on final approach.
    2. On long runways, aircraft may begin to turn before reaching the far end of the runway.

Another variable for which an accident location pattern diagram is included in Appendix F is for single-sided traffic patterns. Intuitively, the distribution of accidents at airports with a pattern on only one side can be expected to differ from that at airports with dual traffic patterns. However, as discussed in Appendix E, the information in the database is insufficient to adequately assess the differences.

Variations by Runway Length

From the data and discussions in Appendix E, it is evident that the patterns of general aviation aircraft accident locations near runways differ substantially depending upon characteristics of the runway and aircraft involved in each instance. Particularly notable in this regard are the



Source: University of California, Berkeley, Institute of Transportation Studies (1993)

FIGURE F1

Three-Dimensional Plot of Accident Distribution Pattern – General Aviation Aircraft Accident Database

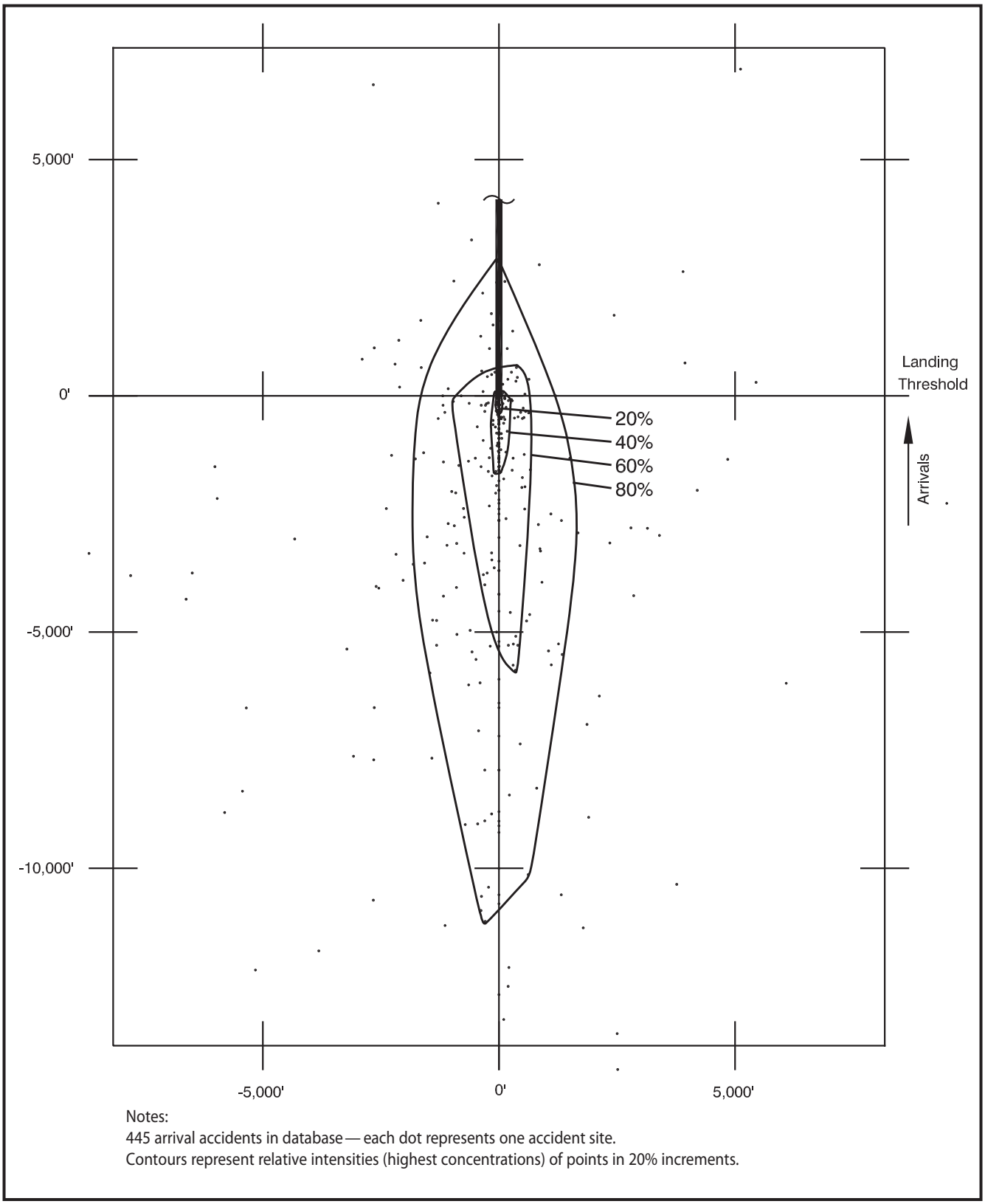
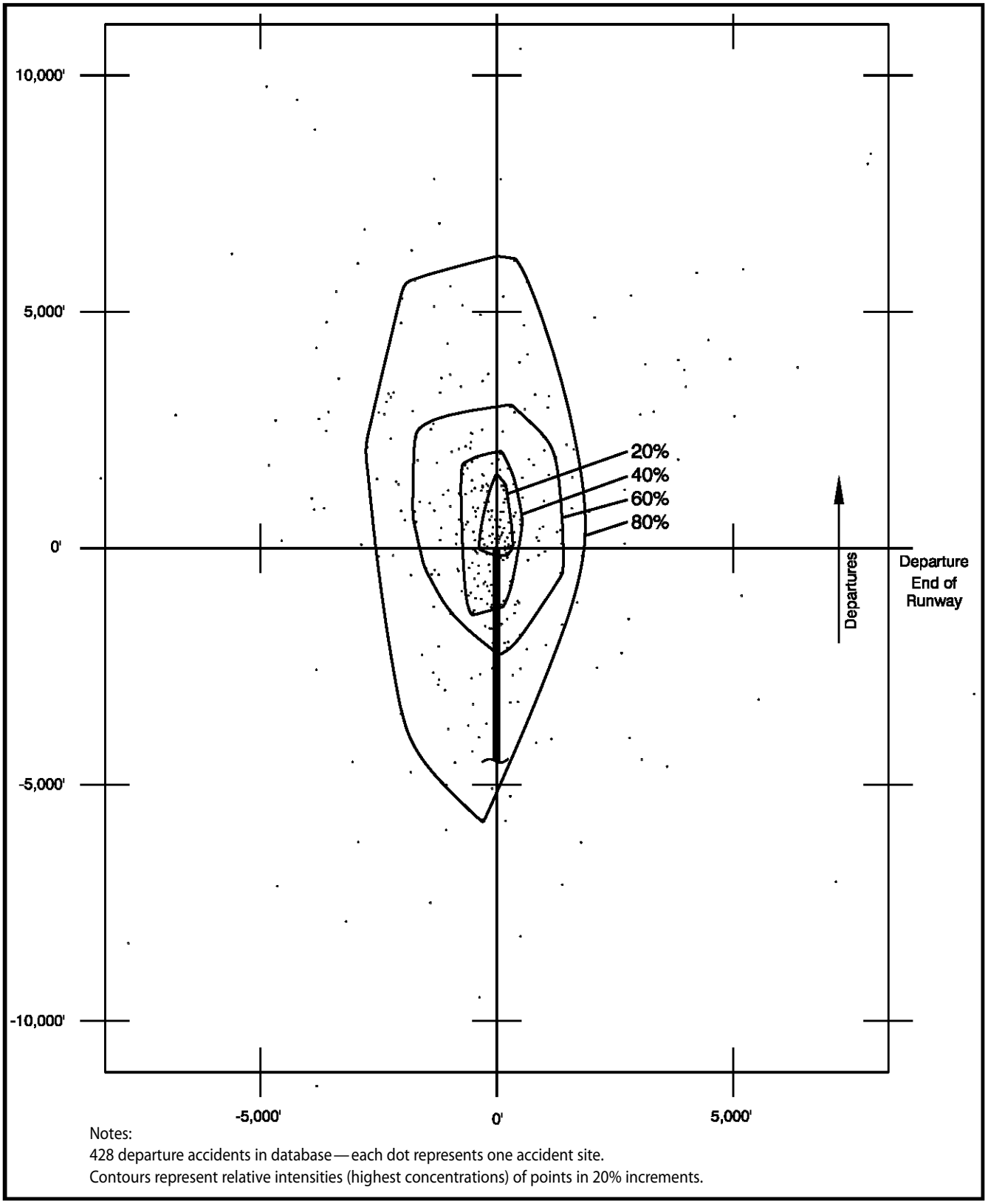


FIGURE F2

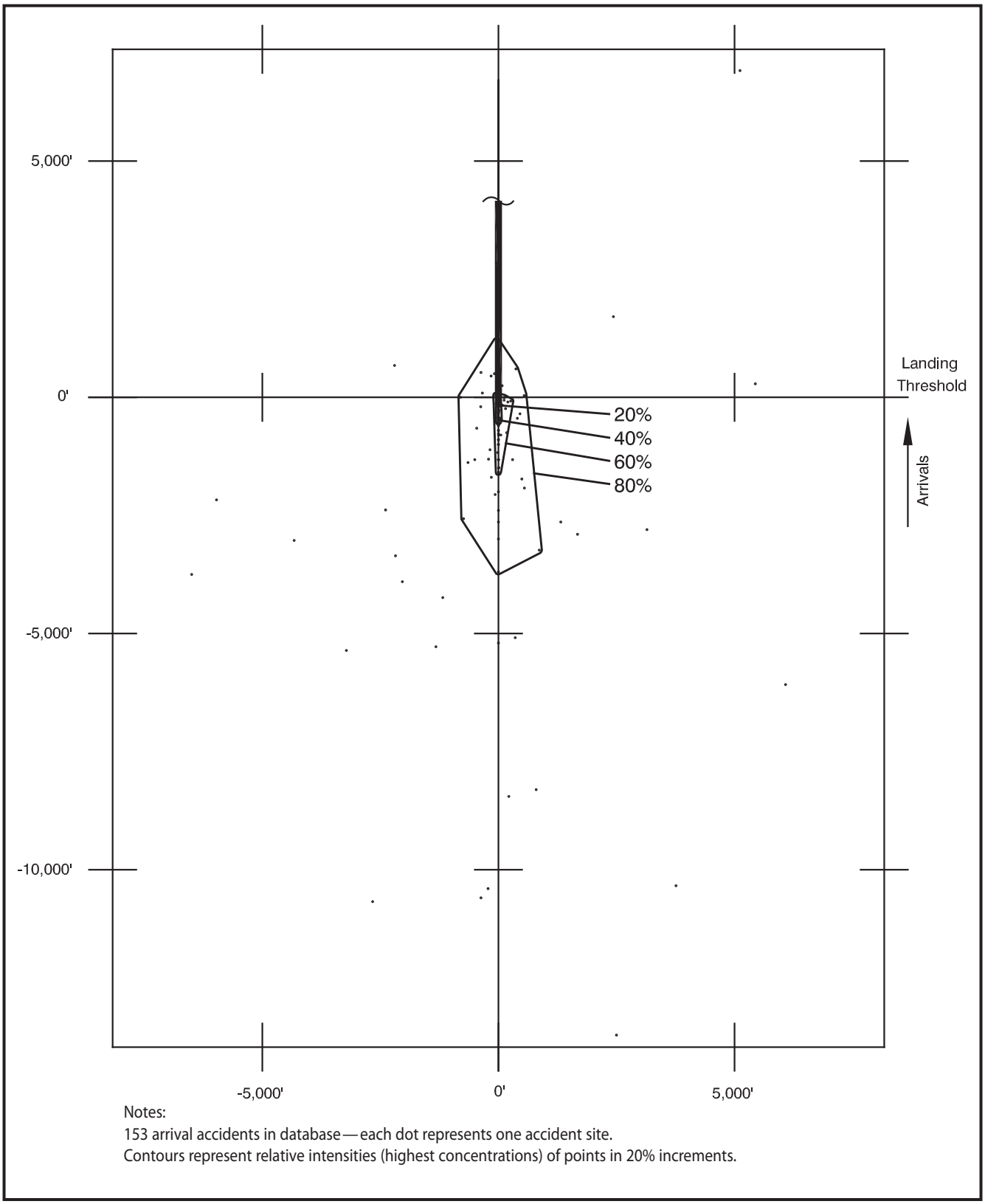
General Aviation Accident Distribution Contours – All Arrivals



Notes:
428 departure accidents in database — each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE F3

General Aviation Accident Distribution Contours – All Departures



Notes:
153 arrival accidents in database — each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE F4

General Aviation Accident Distribution Contours – Arrival Accidents on Runways of Less than 4,000 Feet

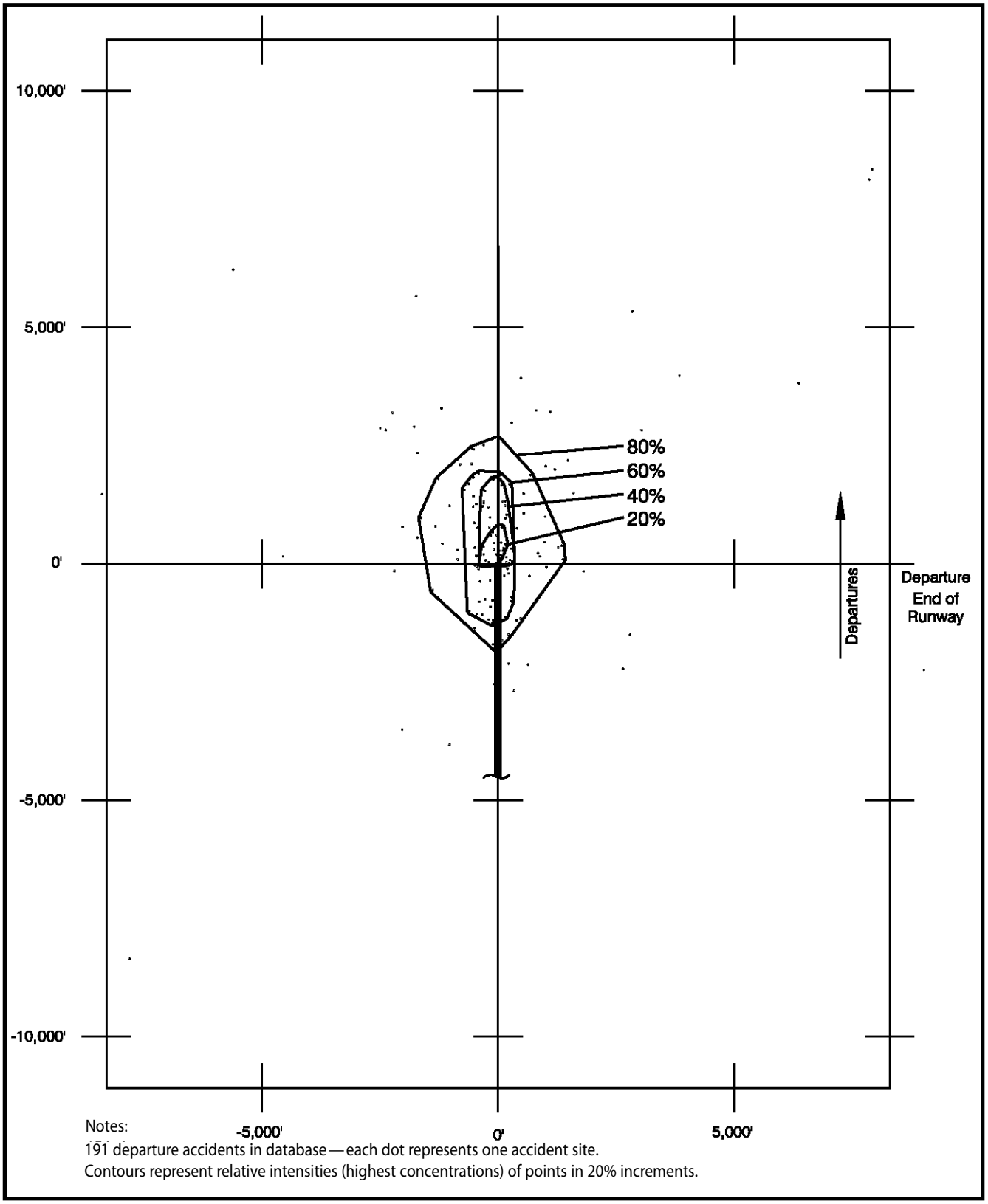
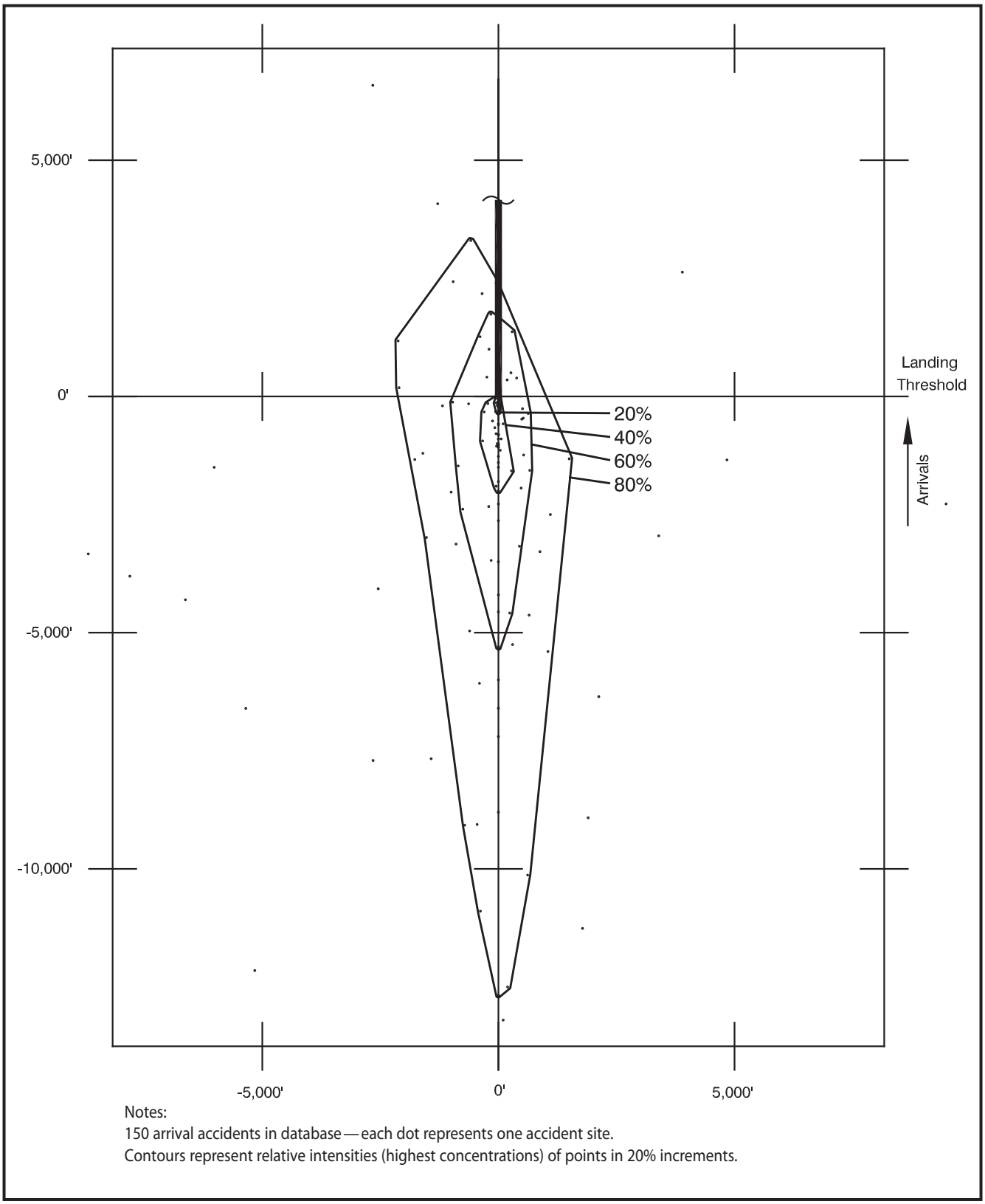


FIGURE F5

General Aviation Accident Distribution Contours – Departure Accidents on Runways of Less than 4,000 Feet



Notes:
150 arrival accidents in database — each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE F6

General Aviation Accident Distribution Contours – Arrival Accidents on Runways of 4,000 Feet to 5,999 Feet

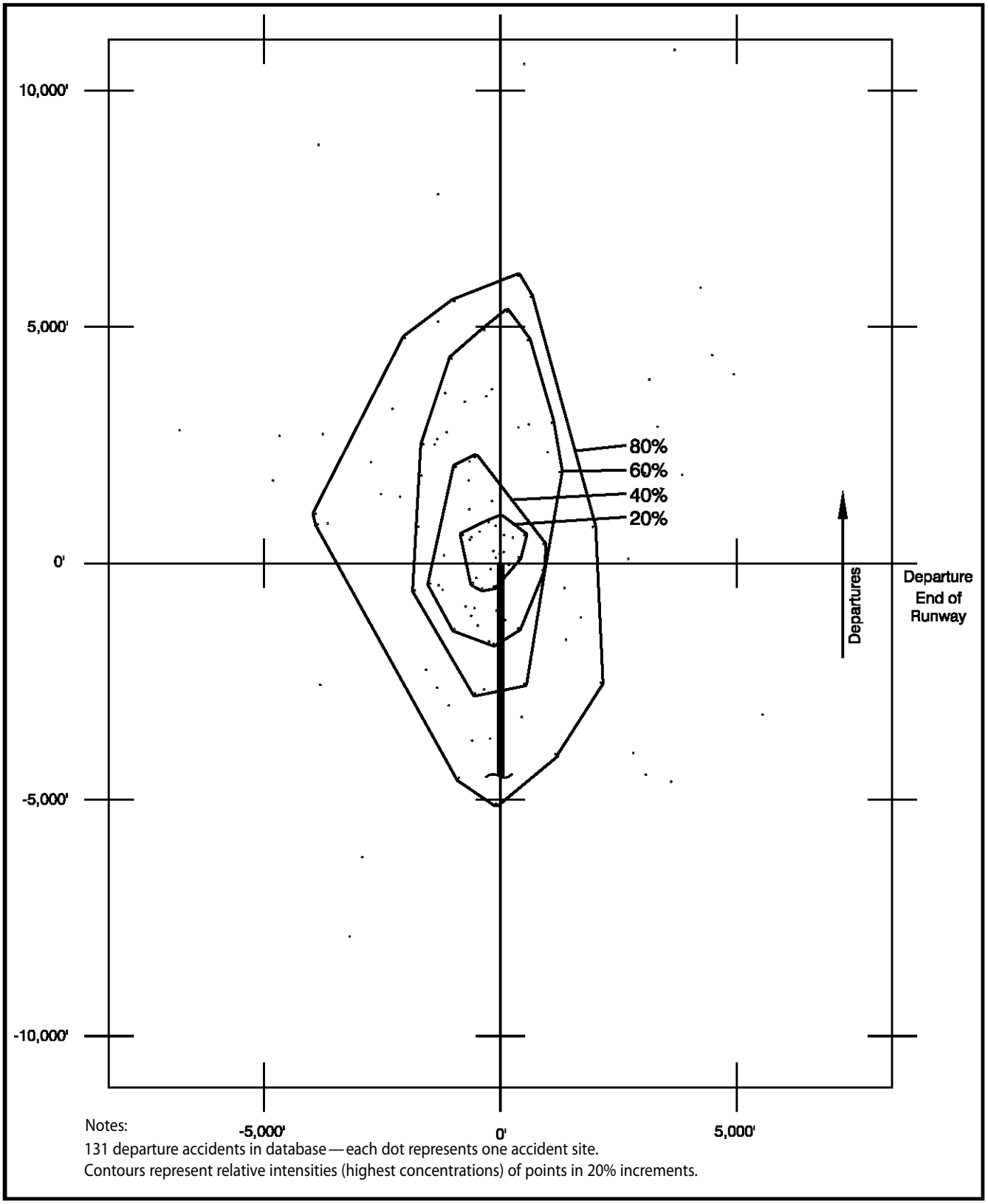
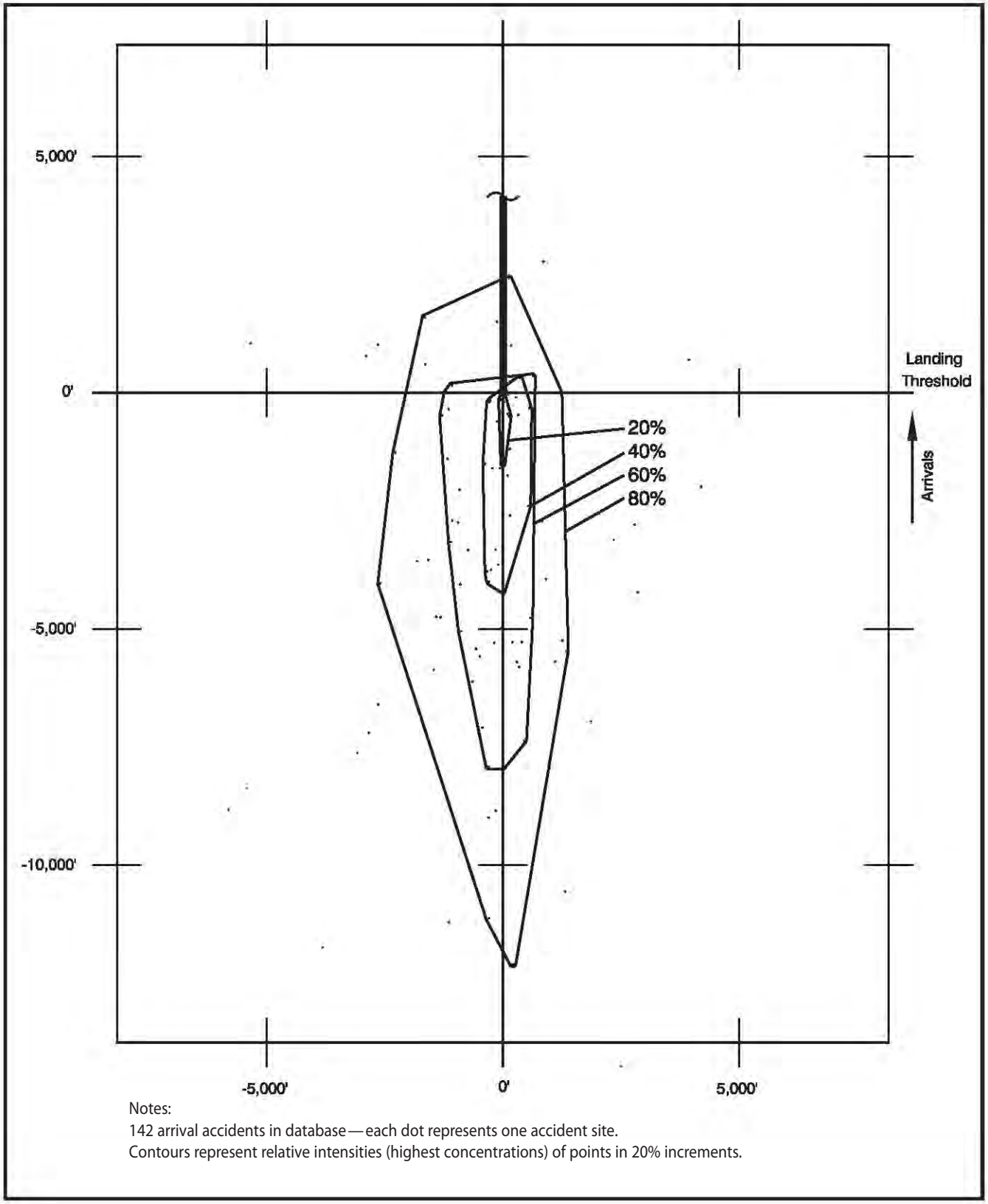


FIGURE F7

General Aviation Accident Distribution Contours – Departure Accidents on Runways of 4,000 to 5,999 Feet



Notes:
142 arrival accidents in database — each dot represents one accident site.
Contours represent relative intensities (highest concentrations) of points in 20% increments.

FIGURE F8

General Aviation Accident Distribution Contours – Arrival Accidents on Runways of 6,000 Feet or More

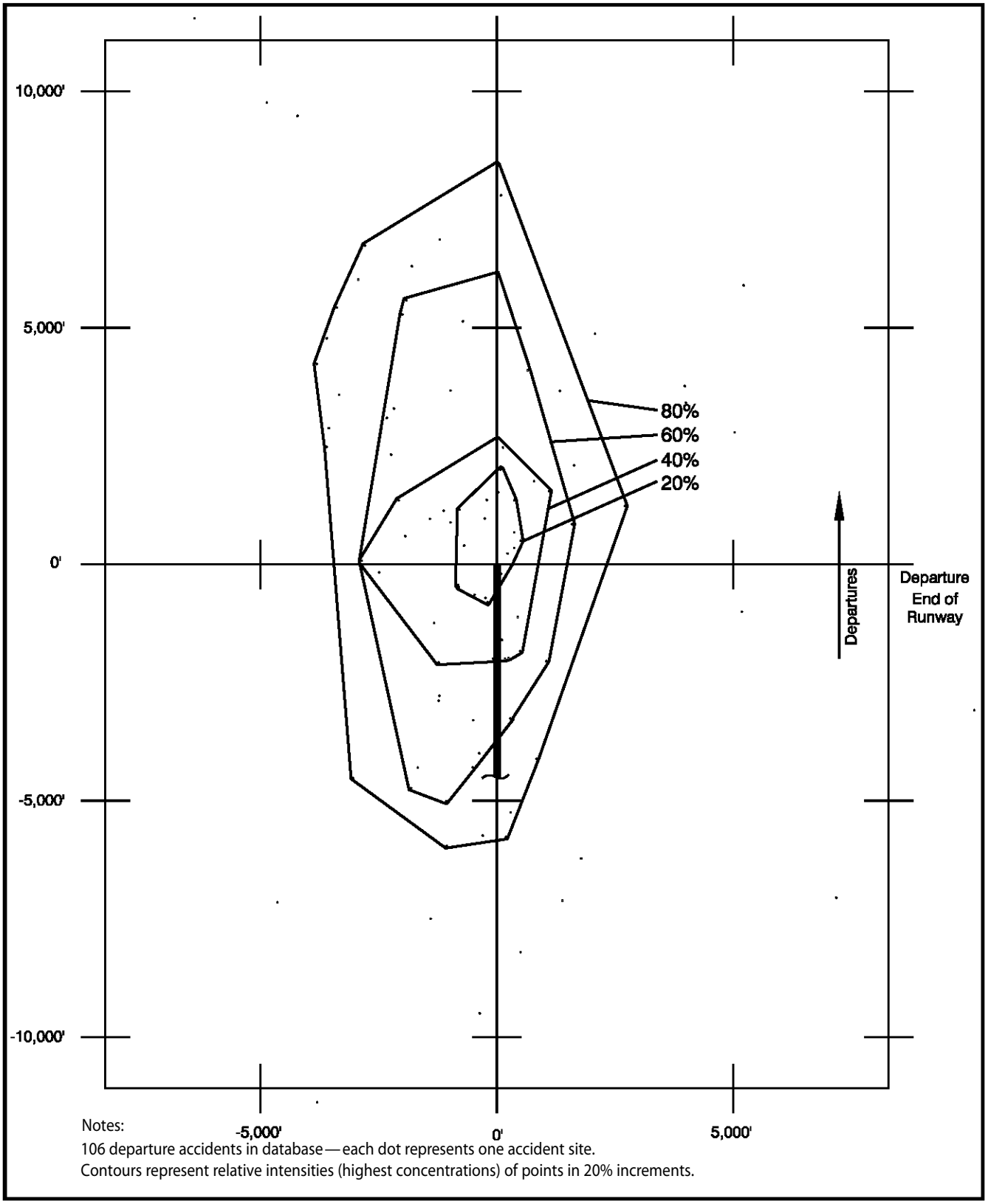


FIGURE F9

General Aviation Accident Distribution Contours – Departure Accidents on Runways of 6,000 Feet or More

differences based on runway length. To portray these differences, the database was divided into three groups according to the length of the runway associated with the accident and accident distribution contours like those described above were developed.

- Runway lengths of less than 4,000 feet: Figures F4 (arrivals) and F5 departures).
- Runway lengths of 4,000 to 5,999 feet: Figures F6 (arrivals) and F7 (departures).
- Runway lengths of 6,000 feet or more: Figures F8 (arrivals) and F9 (departures).

Note that some of the contours, particularly the outer ones, are quite lopsided in shape. This irregularity can at least partially be attributed to the limited numbers of data points in these subsets (only 100 to 150 in most cases). Remaining unknown is whether an extensive expansion of the database would result in more uniformly shaped contours. It could well be that there truly is a geographic bias in the distribution of accident sites reflecting, for example, the left-hand traffic pattern of most runways. Given this uncertainty, no attempt is made here to produce more refined contours.

Because of the data limitations, the accident distribution contours presented here are considered to be more useful in support of regular, geometrically shaped, safety zones than directly representing the size and shape of the zone. Also, the contours are purely statistical and do not reflect where aircraft fly at a specific airport.

Appendix G

Methods for Determining Concentrations of People

One criterion used in many compatibility plans is the maximum number of people per acre that can be present in a given area at any one time. If a proposed use exceeds the maximum density, it is considered inconsistent with compatibility planning policies. This appendix provides some guidance on how the people-per-acre determination can be made.

The most difficult part about making a people-per-acre determination is estimating the number of people likely to use a particular facility. There are several methods which can be utilized, depending upon the nature of the proposed use:

Parking Ordinance—The number of people who could be present in a given area can be calculated based upon the number of parking spaces required by the zoning ordinance. Some assumption regarding the number of people per vehicle needs to be developed to calculate the number of people on-site. The number of people per acre can then be calculated by dividing the number of people on-site by the size of the parcel in acres. This approach is appropriate where the use is expected to be dependent up on access by vehicles. Conversely, this approach may not be appropriate for more urban developments, including transit-oriented development, where fewer parking spaces are provided to discourage single occupancy vehicle trips. Depending upon the specific assumptions utilized, this methodology typically results in a number in the low end of the likely intensity for a given land use.

Maximum Occupancy—The California Building Code (CBC) can be used as a standard for determining the maximum occupancy of certain uses. The chart provided as Exhibit G1 indicates the required number of square feet per occupant. The number of people on the site can be calculated by dividing the total floor area of a proposed use by the minimum square feet per occupant requirement listed in the table. The maximum occupancy can then be divided by the size of the parcel in acres to determine the people per acre. Surveys of actual occupancy levels conducted by various agencies have indicated that many retail and office uses are generally occupied at no more than 50% of their maximum occupancy levels, even at the busiest times of day. Therefore, the number of people calculated for office and retail uses should usually be adjusted (50%) to reflect the actual occupancy levels before making the final people-per-acre determination. Even with this adjustment, the CBC-based methodology typically produces intensities at the high end of the likely range.

Other Methodologies—Some uses (such as theaters or churches) may be calculated based on the number of fixed seats. This is likely to produce a range between the two methods described above. Certain uses may require an estimate based upon a survey of similar uses. This approach is more difficult, but is appropriate for uses which, because of the nature of the use, cannot be reasonably estimated based upon parking or square footage.

Exhibit G1 provides standard floor are per occupant (in square feet) for a variety of spaces, while Exhibit G2 shows sample calculations.

EXHIBIT G1: MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Function of Space	Floor area per occupant (sq. ft.)
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal	
Baggage claim	20 gross
Baggage handling	300 gross
Concourse	100 gross
Waiting areas	15 gross
Assembly	
Gaming floors (keno, slots, etc.)	11 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats	
Concentrated (chairs only-not fixed)	15 net
Standing space	5 net
Unconcentrated (tables and chairs)	7 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross
Courtrooms-other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas	
Inpatient treatment areas	240 gross
Outpatient treatment areas	100 gross
Sleeping areas	120 gross
Kitchens, commercial	200 gross
Laboratory	
Educational	50 net
Laboratories, non-educational	100 net
Laboratory suite	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mercantile	
Areas on other floors	60 gross
Basement and grade floor areas	30 gross
Storage, stock, shipping areas	300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools	
Rink and pool	50 gross
Decks	15 gross
Stages and platforms	15 net
Warehouses	500 gross

Source: California Building Code (2007), Table 1004.1.1

EXHIBIT G2 : OCCUPANCY LEVELS—CALIFORNIA BUILDING CODE

Example 1

Proposed Development: Two office buildings, each two stories and containing 20,000 square feet of floor area per building. Site size is 3.0 net acres. Counting a portion of the adjacent road, the gross areas of the site is 3.5± acres.

A. Calculation Based on Parking Space Requirements

For office uses, assume that a county or city parking ordinance requires 1 parking space for every 300 square feet of floor area. Data from traffic studies or other sources can be used to estimate the average vehicle occupancy. For the purposes of this example, the number of people on the property is assumed to equal 1.5 times the number of parking spaces.

The average usage intensity would therefore be calculated as follows:

1) 40,000 sq. ft. floor area x 1.0 parking space per 300 sq. ft. = 134 (rounded from 133.3)required parking spaces
2) 134 parking spaces x 1.5 people per space = 201 maximum people on site
3) 200 people / 3.5 acres gross site size = 57.4 people per acre average for the site

Assuming that occupancy of each building is relatively equal throughout, but that there is some separation between the buildings and outdoor uses are minimal, the usage intensity for a single acre would be estimated to be:

1) 20,000 sq. ft. bldg. / 2 stories = 10,000 sq. ft. bldg. footprint
2) 10,000 sq. ft. bldg. footprint / 43,560 sq. ft. per acre = 0.23 ace bldg. footprint
3) Building footprint < 1.0 acre; therefore maximum people in 1 acre = bldg. occupancy = 100 people per single acre

B. Calculation Based on California Building Code

Using the CBC as the basis for estimating building occupancy yields the following results for the above example:

1) 40,000 sq. ft. bldg. / 100 sq. ft. per occupant = 400 people max. bldg. occupancy
2) 400 max. bldg. occupancy x 50% adjustment = 200 people maximum on site
3) 200 people / 3.5 acres gross site size = 57 people per acre average for the site.

Conclusions: In this instance, both methodologies give the same results. For different uses and/or assumptions, the two methodologies are likely to produce different numbers. In most such cases, the CBC methodology will indicate a higher intensity.

Example 2

Proposed Development: Single-floor furniture store containing 24,000 square feet of floor area on a site of 1.7 net acres. Counting a portion of the adjacent road, the gross area of the site is 2.0 acres.

A. Calculation Based on Parking Space Requirements

For furniture stores, the county requires 1 parking space per 400 square feet of use area. Assuming 1.5 people per automobile, the average usage intensity would be:

1) 24,000 sq. ft. bldg. x 1.0 parking space per 400 sq. ft. = 60 required parking spaces
2) 60 parking spaces x 1.5 people per space = 90 people maximum on site
3) 90 people / 2.0 acres gross sire size = 45 people per acre average for the site

Again, assuming a relatively balanced occupancy throughout the building and that outdoor uses are minimal, the usage intensity for a single acre would be estimated to be:

1) 24,000 sq. ft. bldg. footprint / 43,560 sq. ft. per acre = 0.55 acre bldg. footprint
2) Building footprint < 1.0 acre; therefore maximum people in 1 acre = bldg. occupancy = 90 people per single acre

B. Calculation Based on California Building Code

For the purposes of the CBC-based methodology, the furniture store is assumed to consist of 50% retail sales floor (at 30 square feet per occupant) and 50% warehouse (at 500 square feet per occupant). Usage intensities would therefore be estimate as follows:

1) 12,000 sq. ft. retail floor area / 30 sq. ft. per occupant = 400 people max. occupancy in retail area
2) 12,000 sq. ft. warehouse floor area / 500 sq. ft. per occupant = 24 people max occupancy in warehouse area
3) Maximum occupancy under CBC assumptions = 400 + 24 = 424 people
4) Assuming typical peak occupancy is 50% of CBC numbers = 212 people maximum expected at any one time
5) 212 people / 1.26 acres gross site size = 168 people per acre average for the site

With respect to the single-acre intensity criteria, the entire building occupancy would again be within less than 1.0 acre, thus yielding the same intensity of 168 people per single acre.

Conclusions: In this instance, the two methods produce very different results. The occupancy estimate of 30 square feet per person is undoubtedly low for a furniture store even after the 50% adjustment. The 72 people-per-acre estimate using the parking requirement methodology is probably closer to be realistic. As part of the general plan consistency process, ALUCs and local jurisdictions should decide which method or combination of methods is to be used in reviewing development proposals.

Appendix H

Sample ALUC Documents

This appendix is divided into two parts. The first part contains several examples of implementation documents, including sample avigation easements, deed restrictions, and project review tools. Project review tools include information on fee structures and several forms for application and review of projects by the ALUC.

The second part is a simplified template for creation of an airport land use compatibility plan. Obviously, the format, content, and complexity of an ALUCP will vary tremendously. The sample template provided here is intended to assist ALUC staff preparing a plan for a general aviation airport in a rural or suburban (as opposed to highly urbanized) area. The sample template is meant to complement the information in Chapters 2 through 4 of the *Handbook*.

Sample Implementation Documents

Avigation Easement—Avigation easements transfer certain property rights from the owner of the underlying property to the owner of an airport. ALUCs may require avigation easement dedication as a condition for approval of development on property subject to high noise levels or a need to restrict heights of structures and trees to less than might ordinarily occur on the property. A sample of a standard avigation easement is included in Exhibit H-1.

Recorded Deed Notice—Deed notices are a form of buyer awareness measure whose objective is to ensure that prospective buyers of airport area property, particularly residential property, are informed about the airport's impact on the property. Unlike easements, deed notices do not convey property rights from the property owner to the airport and do not restrict the height of objects. They only document the existence of certain conditions which affect the property—such as the proximity of the airport and common occurrence of aircraft overflights at or below the airport traffic pattern altitude. ALUCs may make recording of deed notices a requirement for project approval within portions of the airport influence area where avigation easements are not essential. Exhibit H-2 contains a sample of a deed notice.

An additional type of implementation document available to local jurisdictions is an airport combining zone ordinance. This is discussed further in Chapter 5.

EXHIBIT H1
Typical Avigation Easement

This indenture made this_____day of _____, 20___, between_____herein after referred to as Grantor, and the [Insert County or City name], a political subdivision in the State of California, hereinafter referred to as Grantee.

The Grantor, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant to the Grantee, its successors and assigns, a perpetual and assignable easement over the following described parcel of land in which the Grantor holds a fee simple estate. The property which is subject to this easement is depicted as _____ on "Exhibit A" attached and is more particularly described as follows:

[Insert legal description of real property]

The easement applies to the Airspace above an imaginary plane over the real property. The plane is described as follows:

The imaginary plane above the hereinbefore described real property, as such plane is defined by Part 77 of the Federal Aviation Regulations, and consists of a plane [describe approach, transition, or horizontal surface]; the elevation of said plane being based upon the _____ Airport official runway end elevation of _____ feet Above Mean Sea Level (AMSL), as determined by [Insert name and Date of Survey or Airport Layout Plan that determines the elevation] the approximate dimensions of which said plane are described and shown on Exhibit A attached hereto and incorporated herein by reference.

The aforesaid easement and right-of-way includes, but is not limited to:

1. For the use and benefit of the public, the easement and continuing right to fly, or cause or permit the flight by any and all persons, or any aircraft, of any and all kinds now or hereafter known, in, through, across, or about any portion of the Airspace hereinabove described; and
2. The easement and right to cause or create, or permit or allow to be caused or created within all space above the existing surface of the hereinabove described real property and any and all Airspace laterally adjacent to said real property, such noise, vibration, currents and other effects of air, illumination, and fuel consumption as may be inherent in, or may arise or occur from or during the operation of aircraft of any and all kinds, now or hereafter known or used, for navigation of or flight in air; and
3. A continuing right to clear and keep clear from the Airspace any portions of buildings, structures, or improvements of any kinds, and of trees or other objects, including the right to remove or demolish those portions of such buildings, structures, improvements, trees, or other things which extend into or above said Airspace, and the right to cut to the ground level and remove, any trees which extend into or above the Airspace; and
4. The right to mark and light, or cause or require to be marked or lighted, as obstructions to air navigation, any and all buildings, structures, or other

improvements, and trees or other objects, which extend into or above the Airspace; and

5. The right of ingress to, passage within, and egress from the hereinabove described real property, for the purposes described in subparagraphs (3) and (4) above at reasonable times and after reasonable notice.

For and on behalf of itself, its successors and assigns, the Grantor hereby covenants with the [Insert County or City name], for the direct benefit of the real property constituting the _____ Airport hereinafter described, that neither the Grantor, nor its successors in interest or assigns will construct, install, erect, place or grow in or upon the hereinabove described real property, nor will they permit to allow, any building structure, improvement, tree or other object which extends into or above the Airspace, or which constitutes an obstruction to air navigation, or which obstructs or interferes with the use of the easement and rights-of-way herein granted.

The easements and rights-of-way herein granted shall be deemed both appurtenant to and for the direct benefit of that real property which constitutes the _____ Airport, in the [Insert County or City name], State of California; and shall further be deemed in gross, being conveyed to the Grantee for the benefit of the Grantee and any and all members of the general public who may use said easement or right-ofway, in landing at, taking off from or operating such aircraft in or about the _____ Airport, or in otherwise flying through said Airspace.

Grantor, together with its successors in interest and assigns, hereby waives its right to legal action against Grantee, its successors, or assigns for monetary damages or other redress due to impacts, as described in Paragraph (2) of the granted rights of easement, associated with aircraft operations in the air or on the ground at the airport, including future increases in the volume or changes in location of said operations. Furthermore, Grantor, its successors, and assigns shall have no duty to avoid or mitigate such damages through physical modification of airport facilities or establishment or modification of aircraft operational procedures or restrictions. However, this waiver shall not apply if the airport role or character of its usage (as identified in an adopted airport master plan, for example) changes in a fundamental manner which could not reasonably have been anticipated at the time of the granting of this easement and which results in a substantial increase in the impacts associated with aircraft operations. Also, this grant of easement shall not operate to deprive the Grantor, its successors or assigns, of any rights which may from time to time have against any air carrier or private operator for negligent or unlawful operation of aircraft.

These covenants and agreements run with the land and are binding upon the heirs, administrators, executors, successors and assigns of the Grantor, and, for the purpose of this instrument, the real property firstly hereinabove described is the servient tenement and said _____ Airport is the dominant tenement.

DATED: _____

STATE OF

COUNTY OF

On _____, before me, the undersigned, a Notary Public in and for said County and State, personally appeared _____, and _____ known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

_____

Notary Public

EXHIBIT H-2
Sample Deed Notice

A statement similar to the following should be included on the deed for any real property subject to the deed notice requirements set forth in the [Insert ALUC name] Airport Land Use Compatibility Plan. Such notice should be recorded by the county of [Insert County name]. Also, this deed notice should be included on any parcel map, tentative map, or final map for subdivision approval.

The [Insert ALUC name] Airport Land Use Compatibility Plan and [Insert County/City name] Ordinance (Ordinance No. _____) identify a [Insert Airport name] Airport Influence Area. Properties within this area are routinely subject to overflights by aircraft using this public-use airport and, as a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. State law (Public Utilities Code Section 21670 et seq.) establishes the importance of public-use airports to protection of the public interest of the people of the state of California. Residents of property near such airports should therefore be prepared to accept the inconvenience, annoyance, or discomfort from normal aircraft operations. Residents also should be aware that the current volume of aircraft activity may increase in the future in response to [Insert County name] County population and economic growth. Any subsequent deed conveying this parcel or subdivisions thereof shall contain a statement in substantially this form.

Fee Structures—As discussed in Chapter 6, the legal basis giving ALUCs the authority to charge fees for review of land use proposals and airport plans comes from Section 21671.5(f) of the State Aeronautics Act. A commission is only permitted to charge fees if it has adopted a compatibility plan for the airport involved. The fees charged cannot exceed the estimated reasonable cost of providing the review.

The fees charged for project reviews vary substantially from one ALUC to another. Some commissions charge a flat fee for any type of review. Others distinguish between different types of actions—for example, actions initiated by a public agency (e.g., a new general plan) versus ones which are privately initiated (e.g., individual development projects). Other commissions charge an hourly rate for review in order to cover the full cost of the staff time. A flat fee is easier to implement because the cost is known and fixed, however, an hourly fee rate more accurately reflects to actual cost of review time. Table H-1 provides some examples of fees charged by various ALUCs.[1]

[1] The fees in Table H-1 were reported by responding ALUCs in a 2009 survey conducted by the Division of Aeronautics.

Table H-1. Airport Land Use Commission Fee Schedules

	Review Type							
ALUC	**Zone Change, Use Permit, Site Plan Review**	**Tract Map Review**	**General Plan Element Review**	**Environmental Assessment Review**	**Specific Plan Review**	**Community Plan Review**	**EIR Review**	**Building Permit Review**
Amador	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bakersfield	$1,955 - 6,171.75	$800 + $31/lot	$7,071.75 - $9,931.75	$255 / Administration Cost	$695 - $5,601.75	$695 - $5,601.75	$255 / Administration Cost	$50 + Project Valuation
Butte	$3,912 Deposit and $163/hr with 40 hour maximum							
Colusa	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Contra Costa	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
El Dorado	$55 - $500	$150 - $400	$400	$400	$250	$250	$400	$55 - $500
Fresno	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Glenn	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Humboldt	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Imperial	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Inyo	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Los Angeles	Minor Project Review - $997, Major Project Review - $3,000							
Madera	$3,500 for review and a consistency report							
Needles	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Placer	Minor Project Review - $35, Major Project Review - $70, Subdivision/EIR Review - $150							
Plumas	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Riverside	$792 - $1,188	$908 - $1,353	$2,195 - $3,300	$990 - $1,492	$1,947 - $2,911	$2,145 - $3,300	$1,815 - $2,723	$347 - $512
SACOG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
San Bernardino	Flat Rate Charges of $130/hr for Planner III Review and $160 for Supervising Planner Review							
San Mateo	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Santa Barbara	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Santa Clara	Minor Project Review - $600, Major Project Review $2,500							
San Diego	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SoCal Logistics	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Solano	$200 + $110/hr professional time and $29/hr support staff time							
Sonoma	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tuolumne	The County does not charge a separate ALUC review fee; the County's cost for review is incorporated into applications fees which range from $290.75 - $9,326.00.							

ALUC Project Review Documents—Several example documents are included to assist the ALUC in the project review process. The process, timing, and informational needs for compatibility reviews are dicussed in Chapter 6. T he first step is to receive an application. A sample "application form," with instructions, is included here. The ALUC staff will review the application for adequacy and issue the "completeness letter" indicating the application is either complete or identifying the missing items. Following review by the ALUC, staff can then issue a letter with the results of the compatibility determination—the "determination letter."

EXHIBIT H-3
Application Form and Instructions

Land Use Compatibility Determination Application Form	ALUC Identification No.

Project Proponent (TO BE COMPLETED BY APPLICANT)

Date of Application _____

Property Owner _____ Phone Number _____

Mailing Address _____

_____

_____

Agent (if any) _____ Phone Number _____

Mailing Address _____

_____

_____

Project Location (TO BE COMPLETED BY APPLICANT)
Attach an accurately scaled map showing the relationship of the project site to the airport boundary and runways

Street Address _____

_____

Assessor's Parcel No. _____ Parcel Size _____

Subdivision Name _____ Lot Number _____

Zoning Classification _____

Project Description (TO BE COMPLETED BY APPLICANT)
Attach applicable plans, elevations, and other pertinent details

Existing Land Use (describe) _____

_____

Proposed Land Use (describe) _____

_____

For Residential Uses — Number of Parcels of Units on Site _____

For Other Land Uses — Hours of Use _____

Number of People on Site _____ Maximum Number _____

Height Data — Height above Ground or Tallest Object (including antennas and trees) _____ ft.

Highest Elevation (above sea level) of Any Object or Terrain on Site _____ ft.

Flight Hazards — Does the project involve any characteristics which could create electrical interference, confusing lights, glare, smoke, or other electrical or visual hazards to aircraft flight? YES _____ NO _____

If yes, describe _____

_____

Applicant Signature: X _____ Date: _____

Land Use Compatibility Determination Application Instructions

Introduction

The purpose of this application is to implement provisions of the Airport Land Use Compatibility Plan (ALUCP) as adopted by the Airport Land Use Commission (ALUC). The ALUC is a separate agency enabled by the State of California pursuant to the provisions of the State Aeronautics Act (PUC Section 21670). Certain projects are under the jurisdiction of the ALUC and require that a determination be made that the project is consistent with applicable Airport Land Use Compatibility Plans. Application is made upon referral by a local agency reviewing the project, to the ALUC, in order to determine whether a proposed project is consistent with the provisions of the applicable airport land use plan.

The following is an example from one ALUC, and does not necessarily represent Caltrans guidance or recommendation; it only serves as one possible approach to this process.

Application Review Instructions

Step 1: File Application

The following information must be submitted as a minimum requirement:

☐	Complete compatibility application form for determination of project consistency with Airport Land Use Plans.
☐	Local agency environmental documentation for the project (initial study, draft environmental impact report, etc.) that may have been prepared for the project.
☐	Property location, street address, location map.
☐	Assessor's parcel map with project property identified, assessor’s parcel number, subdivision lot number.
☐	An accurately scaled map showing the relationship of the project site to the airport boundary, runways, and compatibility zone boundaries.
☐	Completed site plan drawn to scale and fully dimensioned including topographical information. Topographical information should include ground elevations, the location of structures, open spaces and water bodies, and the heights of structures, trees, and other topographic features. In addition, please submit an 8½ x 11 inch reduction of site plan.
☐	Elevations showing height of all structures above both sea level and ground level. In addition, please submit an 8½ x 11 inch reduction of elevations.
☐	Description of existing and proposed land uses. If project is located wholly or partly within safety zones, project description shall include percentage of lot coverage by structures and estimated maximum persons per acre at any one time and supporting documentation showing basis for calculation of persons per acre. The project description shall also identify and discuss any characteristics that could create electrical interference, interference with aircraft communications or navigation, radio signals, confusing or distracting lights, glare, dust, smoke, steam, attraction of an increased number of birds, or other electrical or visual hazards to aircraft or aircraft operations.
☐	Description of the type of land use action being sought from the local jurisdiction (e.g., zoning amendment, general plan amendment, tentative map, building permit, etc.).

☐	For residential uses, an indication of the potential or proposed number of dwelling units per acre (including any secondary units on a parcel); or, for non-residential uses, the maximum number of people potentially occupying individual buildings and/or the total site and/or portions thereof at any one time.

Step 2: Environmental Documents

While the ALUC is not a responsible agency under the California Environmental Quality Act, the ALUC requires the submission of the local agency's CEQA documents along with the application materials identified above. While not requiring a final certified version, the ALUC does require the latest copy that has been circulated for public review before finding the ALUC's Application complete.

Step 3: Payment of Fees

Applicable fees for processing a Land Use Compatibility Determination must be paid at the time of submittal. These fees help pay for processing, advertising, and reviewing the application. If review of the proposed project requires that outside consulting or other needed contract services be obtained, the estimated amount of associated fees and costs must be deposited before the application can be considered complete. After project review is completed, the applicant will either receive a bill for additional payment due or a refund depending on actual fees and costs.

Step 4: Application Completeness

The application will be reviewed for completeness. State law requires staff to determine whether or not the application is complete within 30 days from submittal. The applicant will be sent a notice informing them whether their application is complete or incomplete and, if incomplete, what items must be submitted before processing can begin. Additionally, plans and any other pertinent materials will be sent to relevant public agencies and airports for review and comment.

Step 5: Project Review

After an application is found complete, the ALUC reviews applications for compliance with the criteria and policies set forth in the applicable ALUCP. The application will be scheduled for hearing before the ALUC within thirty days. A written staff report will be prepared providing an analysis of the proposed project and a recommended action for the ALUC's consideration.

Step 6: Public Hearing Phase

One advertised public hearing is required for each application. At least fifteen days prior to the hearing, a public notice must be published in a newspaper of general circulation and/or posted in the vicinity of the project location. This public notice is to inform the public of their right to appear and be heard on the matter. The applicant or a designated representative should be present at the public hearing.

Step 7: Project Determination

The applicant and local agency will be notified in writing of the determination made by the ALUC.

Step 8:Appeal/ Override

A local agency may overrule an ALUC consistency determination pursuant to California Public Utilities Code §21670 by taking the following mandatory steps: (i) provide the ALUC and the Division a copy of the proposed decision and findings at least 45 da ys prior to any decision to overrule the commission.; (ii) hold a public hearing; (iIi) make specific findings that the action proposed is consistent with the purposes of the ALUCP; and (iv) approve the proposed action by a two-thirds vote of the agency's governing body.

EXHIBIT H-4
Completeness Letter

Month-Day-Year

Applicant Name
Street Number / Name
City, State Zipcode

Re: ALUC Land Use Compatibility Determination Application Completeness

Dear Applicant Name,

The ALUC would like to thank you for submitting your application for a land use compatibility determination. Your application was received DATE. The following materials were submitted:

- Land Use Compatibility Determination Application Form
- Plans, elevations, descriptions, etc.
-
-
-

In order for staff to make a compatibility determination, please provide the following items:

- Missing application items…
- Additional required information…
- Missing fees, etc.
-
-

Once the application is found complete, it will be scheduled for hearing before the ALUC within thirty days. If you have any questions or require additional information, please contact the ALUC at (XXX) XXX-XXXX.

Sincerely,

ALUC Contact

EXHIBIT H-5
Determination Letter

Land Use Compatibility Determination
ALUC Staff Evaluation

1. Noise. ALUCP Noise consistency discussion.

2. Safety. ALUCP Safety Zone compatibility discussion.

3. Airspace Protection. ALUCP Airspace Protection zone compatibility dicussion.

4. Overflights. ALUCP overflight provisions discussion.

Staff Determination :

A. Compatible

☐

B. Compatible subject to Conditions (see ALUC staff comments)

☐

C. Incompatible because of:

☐

- ☐ Noise
- ☐ Safety
- ☐ Height
- ☐ Density/Intensity

Reviewed by: X Date:

Sample ALUCP Template

Overview of the Plan

This section may include the following:

- Introduction. [Example] The basic function of airport land use compatibility plans is to promote compatibility between airports and the land uses that surround them to the extent that these areas are not already devoted to incompatible uses. With limited exceptions, the California State Aeronautics Act (Public Utilities Code Sections 21670 et seq.) required the preparation of a compatibility plan for each public-use and military airport in the state.
- An overview of the plan, including the geographic area (and whether it is a county-wide plan or for a specific airport);
- A description of the ALUC preparing the plan (type of organization, composition, etc.);
- A history of previous compatibility plans; and
- An overview of the document (describing the chapters or sections).

Policies: General

Purpose

Define the basic purpose of the plan.

Geographic Scope

Describe the area covered, refering to the airport influence area map. Provide the map here or include reference to a compatibility map that shows the airport influence area.

Definitions

Include relevant definitions. Appendix L of the *Handbook* can be used as a starting point for the definitions list. Terms that do not apply to this particular ALUCP can be removed.

Types of Impacts

The four compatibility concerns covered by the ALUCP will include:

- exposure to aircraft noise;
- land use safety with respect both to people and property on the ground and the occupants of aircraft;
- protection of airport airspace; and
- general concerns related to aircraft overflights.

Relationship to Local General Plans and Zoning

Identify the current general plans, specific plans, zoning ordinances and other development codes that cover the ALUCP area. Identifying potential conflicts and recommendations on updating the local plans to be consistent with the ALUCP should be discussed.

Review of Individual Development Actions

Land use proposals requiring ALUC review (mandatory review projects) should be identified (see Chapter 6 of the *Handbook*). The information required for the review should be identified. If the local agency will be referring certain non-mandatory types of land use project to the ALUC for review, those project types should be clearly identified.

Relationship to Airport Plans

This section should identify the airport master plan (or plans, if multiple airports) that was used in preparing the ALUCP. Furthermore, this section can also identify the types of actions related to airport planning that must be reviewed by the ALUC. These plans include updates to the master plan, construction plans, and expansion plans (see Chapter 6 of the *Handbook*).

Policies: Basic Compatibility Criteria

Noise

The following sample policies are provided. These policies should be adapted to the ALUCs unique circumstances.

1. Objective: The purpose of noise compatibility policies is to avoid establishment of noise-sensitive land uses in the portions of airport environs that are exposed to significant levels of aircraft noise.
2. Evaluating Acceptable Noise Levels for New Development: The noise compatibility of proposed land uses within the influence area of [airport] shall be evaluated in accordance with the policies set forth in this section, including the criteria listed in Table 1 and the noise contours depicted on Map 1.
    a. The noise contours shall depict the greatest annualized noise impact, measured in terms of Community Noise Equivalent Level (CNEL), anticipated to be generated by the airport over the planning time frame. The planning time frame shall extend at least 20 years into the future.
    b. The noise contours depicted in Map 1 are as set forth in the [date] Airport Master Plan. The ALUC should periodically review the projected noise level contours and update them if appropriate.
3. Measures of Noise Compatibility: The criteria in Table 1 indicate the maximum acceptable CNEL exposure for new residential and a range of nonresidential land uses.
    a. Factors considered in setting the criteria include the following:

i. Established federal and state regulations and guidelines.

ii. The ambient noise levels in the community. Ambient noise levels influence the potential intrusiveness of aircraft noise upon a particular land use and vary greatly between rural, suburban, and urban communities.

iii. The extent to which noise would intrude upon and interrupt the activity associated with a particular use.

iv. The extent to which the activity itself generates noise.

v. The extent of outdoor activity associated with a particular land use.

vi. The extent to which indoor uses associated with a particular land use may be made compatible with application of sound attenuation in accordance with the Interior Noise Level Policy.

b. Land uses not specifically listed shall be evaluated using the criteria for similar listed uses together with the above factors.

4. Single-Event Noise Levels: Single-event noise levels resulting from aircraft overflight should be considered when evaluating the compatibility of highly noise-sensitive land uses such as residences, schools, libraries, and outdoor theaters. Noise from individual aircraft overflights can be especially important in areas that are regularly overflown by aircraft, but that do not produce significant CNEL contours (helicopter overflight areas are a particular example). Flight patterns for the [airport name] or any proposed heliport should be considered in the review process. Acoustical studies or on-site noise measurements may be required to assist in determining the compatibility of sensitive uses.

5. Interior Noise Levels: Land uses for which interior activities may be easily disrupted by noise shall be required to comply with the following interior noise level criteria.

   a. The maximum, aircraft-related, interior noise level that shall be considered acceptable for land uses near airports is:

      i. CNEL 45 dB in:

         - Any habitable room of single- or multi-family residences;
         - Hotels and motels;
         - Hospitals and nursing homes;
         - Churches, meeting halls, theaters, and mortuaries; and
         - Schools, libraries, and museums.

      ii. CNEL 50 dB in offices and office areas of industrial facilities.

   b. The noise contours depicted in Map 1 s hall be used in calculating compliance with these criteria. The calculations should assume that windows are closed.

c. When a proposed building lies within multiple CNEL ranges, the 5 dB range within which 75% or more of the building is located shall apply for the purposes of determining sound attenuation requirements.

d. When structures are part of a proposed land use action, evidence that proposed structures will be designed to comply with the criteria in Paragraph (a) of this policy shall be submitted to the applicable local jurisdiction under the following circumstances:

   i. Any mobile home situated where the projected exposure to airport noise is 55-dB CNEL or greater. [A typical mobile home has an average exterior-to-interior noise level reduction (NLR) of approximately 15 dB with windows closed.]

   ii. Any single- or multi-family residence situated where the projected exposure to airport noise is 60-dB CNEL or greater (note that these uses are allowed only as infill or on existing residential lots). [Wood frame buildings constructed to meet current standards for energy efficiency typically have an average NLR of approximately 20 dB with windows closed.]

   iii. Any hotel or motel, hospital or nursing home, church, meeting hall, office building, mortuary, school, library, or museum situated where the projected exposure to airport noise is 60 dB CNEL or greater.

e. Exceptions to the interior noise level criteria in Paragraph (a) of this policy may be allowed where evidence is provided that the indoor noise generated by the use itself exceeds the listed criteria.

6. Avigation Easement Dedication Requirements: Dedication of an avigation easement for aircraft noise is required as a condition for approval of any proposed development situated within the CNEL 60 dB contour. See Easement Dedication Policy.

Safety

The following sample policies are provided. These policies should be adapted to the ALUCs unique circumstances.

1. Policy Objective: [Example] The intent of land use safety compatibility criteria is to minimize the risks associated with an off-airport aircraft accident or emergency landing.

   a. Risks both to people and property in the vicinity of an airport and to people on board the aircraft shall be considered.

   b. The most stringent land use controls shall be applied to the areas with the greatest potential risks.

2. Evaluating Safety Compatibility for New Development: The safety compatibility of proposed land uses within the airport influence area of [airport

name] shall be evaluated in accordance with the policies set forth in this section, including Table 2 and the safety zones depicted on Map 2.

3. Measures of Safety Compatibility: To minimize risks to people and property on the ground and to people on board aircraft, the safety compatibility criteria in Table 2 set limits on:

    a. The intensity of nonresidential development measured in terms of the number of people concentrated in areas most susceptible to aircraft accidents.

    b. The density of residential development, fundamentally measured in terms of dwelling units per acre. The residential density limitations cannot be equated to the usage intensity limitations for nonresidential uses. Consistent with pervasive societal views and as suggested by the *California Airport Land Use Planning Handbook* guidelines, a greater degree of protection is warranted for residential uses.

    c. Development or expansion of certain uses that represent special safety concerns regardless of the number of people present.

    d. The extent to which development covers the ground and thus limits the options of where an aircraft in distress can attempt an emergency landing.

4. Factors Considered in Setting Safety Compatibility Criteria: The principal factors considered in setting criteria applicable within each safety zone are:

    a. The airport proximity within which aircraft accidents near general aviation airports typically occur and the relative concentration of accidents within these locations. The most stringent land use controls shall be applied to the areas with the greatest potential risks. The risk information utilized is the general aviation accident data and analyses contained in the California Airport Land Use Planning Handbook.

    b. For each runway at [airport name], the runway length, approach categories, normal flight patterns, and aircraft fleet mix. These factors are reflected in the safety zone shapes and sizes. The safety zones depicted in Map 2 a re based upon z ones suggested in the *California Airport Land Use Planning Handbook*.

5. Residential Development Criteria: In determining compliance with the residential density limits in Table 2, the following factors shall be considered.

    a. For projects that are solely residential, the acreage evaluated equals the project site size which may include multiple parcels. See Mixed-Use Policy with regard to mixed-use development.

    b. Secondary units, as defined by state law, shall be excluded from density calculations.

    c. As indicated in the Development by Right Policy, construction of a single-family home, including a second unit as defined by state law, on a legal lot of record as of the date of adoption of this Compatibility Plan is

allowed in all safety zones except Safety Zone 1 if such use is permitted by local land use regulations.

6. Nonresidential Development Criteria: In determining compliance with the nonresidential intensity limits in Table 2, the following factors shall be considered.

    a. The number of people expected to occupy a nonresidential development may be calculated through any of several methods including relationships to International Building Code occupancy levels, parking space requirements, floor area ratios, or actual counts at other similar facilities.

    b. Usage intensity calculations shall include all people (e.g., employees, customers/ visitors) who may be on the property at any single point in time, whether indoors or outdoors.

    c. Local jurisdictions may make exceptions for rare special events (e.g., an air show at an airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.

7. Land Uses of Special Concern: Certain types of land uses represent special safety concerns irrespective of the number of people associated with those uses. Land uses of particular concern and the nature of the concern are listed below. Table 2 indicates the criteria applicable to these uses. In some cases, these uses are not allowed in portions of the airport environs regardless of the number of occupants associated with the use. In other instances these uses should be avoided— allowed only if a site outside the zone would not serve the intended function. When allowed, special measures should be taken to minimize hazards to the facility and occupants if the facility were to be struck by an aircraft.

    a. Uses Having Vulnerable Occupants: These uses are ones in which the majority of occupants are children, elderly, and/or disabled—people who have reduced effective mobility or may be unable to respond to emergency situations. The primary uses in this category are:

        i. Children's schools (grades K–12).

        ii. Day care centers (facilities with 15 or more children, as defined in the California Health and Safety Code).

        iii. Hospitals, health care centers, and similar facilities, especially where patients remain overnight.

        iv. Nursing homes.

        v. Inmate facilities.

    b. Hazardous Materials Storage: Materials that are flammable, explosive, corrosive, or toxic constitute special safety compatibility concerns to the extent that an aircraft accident could cause release of the materials and thereby pose dangers to people and property in the vicinity. Facilities in this category include:

i. Facilities such as oil refineries and chemical plants that manufacture, process, and/or store bulk quantities of hazardous materials generally for shipment elsewhere.

ii. Facilities associated with otherwise compatible land uses where hazardous materials are stored in smaller quantities primarily for on-site use.

c. Critical Community Infrastructure: This category pertains to facilities the damage or destruction of which would cause significant adverse effects to public health and welfare well beyond the immediate vicinity of the facility. Among these facilities are:

i. Emergency services facilities such as police and fire stations.

ii. Emergency communications facilities; power plants, and other utilities.

8. Mixed-Use Development: For projects involving a mixture of residential and nonresidential uses, the following policies apply.

a. Where the residential and nonresidential uses are proposed to be situated on separate parts of the project site, the project shall be evaluated as if it were two separate developments. The residential density shall be calculated with respect to the area to be devoted to residential development and the nonresidential intensity calculated with respect to the area proposed for nonresidential uses. This provision means that the residential density cannot be averaged over the entire project site when nonresidential uses will occupy some of the area and the same limitation applies in reverse.

b. Development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or nearby buildings on the same site must meet both residential density and nonresidential intensity criteria. The number of dwelling units shall not exceed the density limits indicated in Table 2. Additionally, the normal occupancy of the residential portion shall be added to that of the nonresidential portion and the total occupancy shall be evaluated with respect to the nonresidential usage intensity criteria cited in Table 2.

c. Mixed-use development shall not be allowed where the residential component would be exposed to noise levels above the limits set in Table 1.

9. Open Land: In the event that a small aircraft is forced to land somewhere other than at an airport, the risks to the people on board can best be minimized by providing as much open land area as possible within the airport vicinity. This concept is based upon the fact that the majority of aircraft accidents and incidents occurring away from an airport runway are controlled emergency landings in which the pilot has reasonable opportunity to select the landing site.

a. To qualify as open land, an area should:

i. Be free of most structures and other major obstacles such as walls, large trees or poles (greater than 4 inches in diameter, measured 4 feet above the ground), and overhead wires.

ii. Have minimum dimensions of approximately 75 feet by 300 feet (0.5 acres).

b. Open land areas should be oriented with the typical direction of aircraft flight over the location involved.

c. Roads and automobile parking lots are acceptable as open land areas if they meet the above criteria.

d. Open land criteria for each safety zone are most appropriately applied with respect to the entire zone. Individual parcels may be too small to accommodate the minimum-size open area requirement. Consequently, the identification of open land areas must initially be accomplished at the general plan or specific plan level or as part of large (10 acres or more) development projects.

e. Clustering of development, subject to the limitations noted in Policy 10 below, and providing contiguous landscaped and parking areas is encouraged as a means of increasing the size of open land areas.

f. Building envelopes and the airport safety zones should be indicated on all development plans and tentative maps for projects located within the [airport name] influence area. Portraying this information is intended to ensure that individual development projects provide the open land areas identified in the applicable general plan, specific plan, or other large-scale plan.

10. Limits on Clustering: As used in this Compatibility Plan, "clustering" refers to the concentration of development (measured in terms of dwellings or people per acre) into a portion of the site, leaving other portions of the site relatively less developed or as open land. To a degree, clustering of development is desirable from an airport land use safety compatibility perspective in that more places where an aircraft can attempt an emergency landing would then potentially remain. However, clustering poses the risk that an out-of-control aircraft could strike the location where the development is clustered. To guard against this risk, limitations on the maximum concentrations of dwellings or people in a small area of a large project site are appropriate.

    a. For residential land uses, the number of dwelling units in any single acre shall not exceed four times the average density indicated in Table 2.

    b. For nonresidential land uses, the maximum usage intensity on a single acre is as listed in Table 2.

    c. For the purposes of the above policies, the one-acre areas to be evaluated shall be rectangular (reasonably close to square, not elongated or irregular) in shape.

    d. In no case shall a proposed development be designed to accommodate more than the total number of dwelling units per acre (for residential

uses) or people per acre (for nonresidential uses) indicated in Table 2 times the gross acreage of the project site.

11. Avigation Easement Dedication Requirements: Dedication of an avigation easement is required as a condition for approval of any proposed development situated within the Safety Zones 1 through 5. See Easement Dedication Policy.

Airspace Protection

The following sample policies are provided. These policies should be adapted to the ALUCs unique circumstances.

1. Policy Objective: Tall structures, trees, and other objects, particularly when located near airports or on high terrain, may constitute hazards to aircraft in flight. Other land use features also can create hazards to flight by attracting wildlife, causing visual impairment, or generating electronic interference. Federal regulations establish the criteria for evaluating these hazards, but the federal government does not have the authority to prevent their creation. The purpose of these airspace protection policies, together with regulations established by the state government, is to ensure that hazards to the navigable airspace do not occur.
2. Evaluating Airspace Protection Compatibility for New Development: The airspace protection compatibility of proposed land uses within the influence area of [airport name] shall be evaluated in accordance with the policies in this section, including the airspace protection surfaces depicted on Map 3, Compatibility Policy Map: Airspace Protection.
3. Measures of Airspace Protection Compatibility: In establishing airspace protection policies, the ALUC shall rely upon regulations enacted by the Federal Aviation Administration (FAA) and the state of California as outlined in this section.
4. Airspace Obstruction Criteria: The criteria for determining the acceptability of a project with respect to height shall be based upon: the standards set forth in Federal Aviation Regulations (FAR) Part 77, Subpart C, Objects Affecting Navigable Airspace; the United States Standard for Terminal Instrument Procedures (TERPS); and applicable airport design standards published by the FAA.
    a. Except as provided in Paragraphs (b) and (c) of this policy, no object, including mobile object such as a vehicle or temporary object such as construction crane, shall have a height that would result in penetration of the airspace protection surface depicted for [airport name] in Map 3, Compatibility Policy Map: Airspace Protection. Any object that penetrates one of these surfaces is, by FAA definition, deemed an obstruction.
    b. Other than within the Primary Surface and beneath the Approach or Transitional Surface, no object shall be limited to a height of less than 35 feet above the ground even if the object would constitute an obstruction.

c. A proposed object having a height that exceeds the airport's airspace protection surface shall be allowed only if all of the following apply:

   i. As the result of an aeronautical study, the FAA determines that the object would not be a hazard to air navigation.

   ii. Marking and lighting of the object will be installed as directed by the FAA aeronautical study or the California Division of Aeronautics and in a manner consistent with FAA standards in effect at the time the construction is proposed (Advisory Circular 70/7460-1J, Obstruction Marking and Lighting, or any later guidance).

   iii. An avigation easement is dedicated to the [public agency owner of the airport].

   iv. The use complies with all policies of this Compatibility Plan related to noise and safety compatibility.

5. Other Flight Hazards: Land uses that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft in flight or taking off or landing at the airport shall be allowed within the airport influence area only if the uses are consistent with FAA rules and regulations.

   a. Specific characteristics to be avoided include:

      i. Sources of glare (such as from mirrored or other highly reflective buildings or building features) or bright lights (including search lights and laser light displays);

      ii. Distracting lights that could be mistaken for airport lights;

      iii. Sources of dust, steam, or smoke that may impair pilots' vision;

      iv. Sources of steam or other emissions that cause thermal plumes or other forms of unstable air;

      v. Sources of electrical interference with aircraft communications or navigation; and

      vi. Any proposed use that creates an increased attraction for wildlife and that is inconsistent with FAA rules and regulations including, but not limited to, FAA Order 5200.5A, Waste Disposal Sites on or Near Airports, and Advisory Circular 150/5200-33, Hazardous Wildlife Attractants On or Near Airports. Of particular concern are landfills and certain recreational or agricultural uses that attract large flocks of birds which pose bird strike hazards to aircraft in flight.

   b. To resolve any uncertainties with regard to the significance of the above types of flight hazards, local jurisdictions should consult with FAA officials.

6. Requirements for FAA Notification of Proposed Construction: Proponents of a project containing structures or other objects that may exceed the height standards defined in FAR Part 77, Subpart C, as applied to the [airport name]

must submit notification of the proposal to the FAA where required by the provisions of FAR Part 77, Subpart B, and by the California Public Utilities Code, Sections 21658 and 21659. (Notification to the FAA under FAR Part 77, Subpart B, is required even for certain proposed construction that does not exceed the height limits allowed by Subpart C of the regulations.) The FAA will conduct an "aeronautical study" of the object(s) and determine whether the object(s) would be of a height that would constitute a hazard to air navigation.

a. The FAA notification requirements apply to all objects including structures, antennas, trees, mobile objects, and temporary objects such as construction cranes.

b. The boundaries of the FAA notification area for [airport name] are depicted on Map 3.

c. In addition to the notification requirements pertaining to individual airports, FAR Part 77, Subpart B, requires notification be submitted regarding any proposal for construction or alteration of a structure (including antennas) taller than 200 feet above the ground level at the site.

d. Local jurisdictions shall inform project proponents of the requirements for notification to the FAA.

Overflight

The following sample policies are provided. These policies should be adapted to the ALUCs unique circumstances.

1. Policy Objective: Noise from individual operations, especially by comparatively loud aircraft, can be intrusive and annoying in locations beyond the limits of the mapped noise contours. Sensitivity to aircraft overflights varies from one person to another. The purpose of overflight compatibility policies is to help notify people about the presence of overflights near airports so that they can make more informed decisions regarding acquisition or lease of property in the affected areas. Overflight compatibility is particularly important with regard to residential land uses.
2. Overflight Compatibility Policies: The overflight compatibility policies set forth in this section do no restrict the manner in which land can be developed or used. The policies serve only to establish the requirements for notice of airport proximity to be given in conjunction with real estate transactions.
3. Overflight Notification Area: The boundaries of the area around [airport name] within which airport proximity notification is required by state law as described in Policy 2.4.4 are depicted on Map 4 of this chapter. Map 4 also depicts the locations where this Compatibility Plan requires avigation easement dedication as a development condition.
4. State Law Requirements Regarding Real Estate Transfer Disclosure: Effective January 1, 2004, California state statutes (Business and Professional Code Section 11010 and Civil Code Sections 1102.6, 1103.4, and 1353) require that,

as part of many residential real estate transactions, information be disclosed regarding whether the property is situated within an airport influence area.

a. These state requirements apply to the sale or lease of newly subdivided lands and condominium conversions and to the sale of certain existing residential property.

b. The statutes define an airport influence area as "the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission." The airport influence area for the [airport name] is identified on M ap 4, Compatibility Policy Map: Overflight.

c. Where disclosure is required, the state statutes dictate that the following statement shall be provided:

   NOTICE OF AIRPORT IN VICINITY: This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

d. For the purposes of this Compatibility Plan:

   i. The disclosure provisions of state law are deemed mandatory for new development and shall continue in effect as ALUC policy even if the state law is revised or rescinded.

   ii. Although not required by state law, the policy of the ALUC is that the above airport proximity disclosure should be provided as part of all real estate transactions involving private property within the airport influence area, especially any sale, lease, or rental of residential property.

   iii. City and county policy is that signs providing the above notice be prominently posted in the real estate sales office and/or other key locations at any new development within the airport influence area.

Additional Compatibility Policies

The following sample policies are provided. These policies should be adapted to the ALUCs unique circumstances.

Special Conditions

1. Nonconforming Uses: Existing uses (including a parcel or building) not in conformance with this Compatibility Plan are subject to the following restrictions:
    a. Nonconforming residential uses:
        i. A nonconforming single-family residence may be reconstructed or expanded in building size provided that the reconstruction or expansion does not increase the number of dwelling units. For example, a bedroom could be added to an existing residence, but an additional dwelling unit could not be built unless that unit is a secondary dwelling unit as defined by state law. Also, a new single-family residence may be constructed in accordance with the Development by Right Policy, below.
        ii. A nonconforming multi-family use may be reconstructed in accordance with the Reconstruction Policy, but not expanded in number of dwelling units or floor area of the building.
        iii. The sound attenuation and avigation easement dedication requirements set by the Interior Noise Level and Easement Dedication Policies shall apply.
    b. Nonconforming nonresidential uses:
        i. A nonconforming nonresidential use may be continued, leased, or sold and the facilities may be maintained, altered, or, if required by state law, reconstructed provided that neither the portion of the site devoted to the nonconforming use nor the building's floor area are expanded (unless the expansion is intended to meet accessibility requirements) and that the usage intensity (the number of people per acre) is not increased above the levels existing at the time of adoption of this Compatibility Plan.[2]
        ii. The sound attenuation and avigation easement dedication requirements set by the Interior Noise Level and Easement Dedication Policies shall apply.
2. Reconstruction: An existing nonconforming development that has been fully or partially destroyed as the result of a calamity (not planned reconstruction or redevelopment) may be rebuilt only under the following conditions:
    a. Nonconforming residential uses may be rebuilt provided that the reconstruction does not result in either more dwelling units than existed on the parcel at the time of the damage or, for multi-family residential uses, an increase in the floor area of the building. Addition of a secondary dwelling unit to a single-family residence is permitted if in accordance with state law.

[2] If only tenant improvements are required, this likely would be a ministerial approval and would not be subject to ALUCP policies as it is an existing land use.

b. A nonconforming nonresidential development may be rebuilt provided that the reconstruction does not increase the floor area of the previous structure or result in an increased intensity of use (i.e., more people per acre).

c. Reconstruction under Paragraphs (a) or (b) above:

   i. Must have a permit deemed complete by the local jurisdiction within twenty-four (24) months of the date the damage occurred.

   ii. Shall incorporate sound attenuation features to the extent required by the Interior Noise Level Policy and consistent with the California Noise Standards.

   iii. Shall be conditioned upon dedication of an avigation easement to the airport proprietor if required under the Easement Dedication Policy.

   iv. Shall comply with Federal Aviation Regulations Part 77 requirements.

d. Reconstruction in accordance with Paragraphs (a), (b), and (c) above shall not be permitted in Safety Zone 1 or where it would be in conflict (not in conformance) with the general plan or zoning ordinance of the local jurisdiction. (e) Nothing in the above policies is intended to preclude work required for normal maintenance and repair.

3. Development by Right:

   a. Nothing in these policies prohibits:

      i. Other than in Safety Zone 1, construction of a single-family home, including a second unit as defined by state law, on a legal lot of record as of the date of adoption of this Compatibility Plan if such use is permitted by local land use regulations.

      ii. Construction of other types of uses if local government approvals qualify the development as an existing land use.

      iii. Lot line adjustments provided that new developable parcels would not be created and the resulting density or intensity of the affected property would not exceed the applicable criteria indicated in the Table 2.

   b. The sound attenuation and avigation easement dedication requirements shall apply to development permitted under this policy.

4. Avigation Easement Dedication: As a condition for approval of projects meeting the conditions in Paragraphs (a) and (b) below, the property owner shall be required to dedicate an avigation easement to the [public agency airport owner].

   a. Avigation easement dedication is required for projects situated within the following portions of the [airport name] influence area:

      i. All locations within the CNEL 55 dB contour depicted in Map 1.

ii. All locations within Safety Zones 1 through 5 as depicted in Map 2.

iii. All locations beneath the approach or transitional surfaces or in areas of terrain penetration of airspace protection surfaces as depicted in Map 3.

b. Avigation easement dedication shall be required for any proposed development except ministerial actions associated with modification of existing single-family residences.

c. The avigation easement shall:

i. Provide the right of flight in the airspace above the property;

ii. Allow the generation of noise and other impacts associated with aircraft overflight;

iii. Restrict the height of structures, trees and other objects in accordance with the airspace protection policies and the [airport name] Airspace Plan (Map 3) herein;

iv. Permit access to the property for the removal or aeronautical marking of objects exceeding the established height limit; and

v. Prohibit electrical interference, glare, and other potential hazards to flight from being created on the property.

Airport Development Plans

1. Airport Improvement Plans: When reviewing a future master plan or other plan for improvement of [airport name], land use compatibility issues should be evaluated with respect to potential changes in noise, overflight, and safety impacts or height restrictions which would result from the plans' implementation. Inconsistencies between such plans and the compatibility policies herein may occur if the airport improvement plans include:

a. New activity forecasts that are: (1) significantly higher than those used in developing the [airport name] Compatibility Map; or (2) assume a higher proportion of larger or noisier aircraft.

b. Proposals for facilities or procedures not assumed herein; specifically:

i. Construction of a new runway or helicopter takeoff and landing area.

ii. Change in the length, width, or landing threshold location of an existing runway.

iii. Establishment of an instrument approach procedure.

iv. Modification of the flight tracks associated with existing visual or instrument operations procedures.

2. New Heliports: If a heliport should be proposed for construction within the [AIA or county], it should be reviewed for compatibility with surrounding land uses.

The review should examine the impacts that the facility would have upon both existing and planned land uses. Questions to be considered include:

a. Would the existing or planned land uses be considered incompatible with the heliport if the latter were already in existence?

b. What measures are included in the proposal to mitigate the noise, safety, and height restriction impacts on surrounding land uses? Such measures might include:

   i. Locating flight tracks so as to minimize the impacts.

   ii. Other operational procedures to minimize impacts.

   iii. Acquisition of property interests (fee title or easements) on the impacted land.

Maps and Tables

Table 1 : Noise Compatibility Table (see Chapter 4)

Table 2 : Safety Compatibility Table (see Chapter 4)

Map 1 : Noise Compatibility Map (noise contours)

Map 2 : Safety Compatibility Map (safety zones)

Map 3 : Airspace Protection Map (imaginary surfaces)

Map 4 : Overflight Compatibility Map (aviagatin easement and deed notice requirement zones)

Background Data

Can be summarized from current Master Plan and operational data.

Appendix I

Sample CEQA Initial Study Checklist

The following template is provided for the preparation of an initial study for adoption or amendment of an (Airport Land Use Compatibility Plan) ALUCP. As discussed in Chapter 3, an ALUCP is considered a "project" as defined by CEQA. Consequently , an initial study should be prepared prior to the adoption of an ALUCP (unless an exemption is found to apply). The purposes of an initial study are to:

1) Provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or a Negative Declaration.

2) Enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared, thereby enabling the project to qualify for a Negative Declaration.

3) Assist in the preparation of an EIR, if one is required, by:

   (A) Focusing the EIR on the effects determined to be significant,

   (B) Identifying the effects determined not to be significant,

   (C) Explaining the reasons for determining that potentially significant effects would not be significant, and

   (D) Identifying whether a program EIR, tiering, or another appropriate process can be used for analysis of the project's environmental effects.

4) Facilitate environmental assessment early in the design of a project;

5) Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;

6) Eliminate unnecessary EIRs;

7) Determine whether a previously prepared EIR could be used with the project (CEQA Guidelines §15063[c]).

The initial study template is based on Appendix G of the CEQA Guidelines. Appendix G is only a suggested form, and lead agencies are free to use different formats; however, lead agencies

should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected. The guidance for ALUC staff is imprinted in *blue italic* to differentiate from the standard Appendix G checklist. This guidance is not legal advice and is not meant to be exhaustive; and is merely intended to aid staff and commissioners in identifying environmental issues that should be considered in the context of an ALUCP.

Instructions to Preparers

1) Adoption or amendment does not directly affect the environment, as the ALUCP does not authorize particular development projects. Policies set forth in the ALUCP are developed to guide the location, distribution, and density of both residential and non-residential land uses in a way that is intended to reduce potential noise impacts and safety concerns. ALUCPs, however, do have the potential to induce indirect population growth in areas beyond the airport influence area (AIA) when planned land uses within an airport's environ are considered incompatible and must be relocated elsewhere. The potential impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns.

2) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant with Mitigation Incorporation" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level.

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. (See CEQA Guidelines Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:

a) Earlier Analyses Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the checklist were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analyses.

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. This includes relevant information included in the ALUCP or an airport master plan.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion. A general note on references: Include appropriate references for each impact discussion, such as an EIR prepared for the applicable general plan(s), specific plans, or zoning ordinance. If prior environmental review, including review under the National Environmental Policy Act, has been done for either the airport or a previous compatibility plan, that reference may be used to the extent the analysis is still valid. Technical documents, such as FAR Part 150 studies, may also be referenced in the initial study.

8) The explanation of each issue should identify:

a) the significance criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significant.

9) Substantial evidence of potential impacts that are not listed on this form must also be considered. The sample questions in this form are intended to encourage thoughtful assessment of impacts, and do not necessarily represent thresholds of significance

ENVIRONMENTAL CHECKLIST

Initial Study

1. **Project Title:** [enter text here]

2. **Lead Agency Name and Address:** [enter text here]

3. **Contact Person and Phone Number:** [enter text here]

4. **Project Location:** [enter text here]

5. **Project Sponsor's Name and Address:** [enter text here]

6. **General Plan Designation(s):** [enter text here]

7. **Zoning Designation(s):** [enter text here]

8. **Description of Project:** (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   The geographic scope (typically the airport influence area), purpose and objectives of the ALUCP should be described. Where the action is an amendment, the changes from the previous ALUCP should be described. If revised compatibility maps are included in the proposed action, it is useful to include or attach those with the initial study.

9. **Surrounding Land Uses and Setting.** (Briefly describe the project's surroundings.)

   This section should focus on the existing land uses and the physical environment. The existing general plan and zoning designations are briefly identified above. Land use goals, policies, standards, and classifications are discussed in Item 10 of the checklist, Land Use and Land Use Planning.

10. **Other public agencies whose approval is required** (e.g., permits, financing approval, or participation agreement. Indicate whether another agency is a responsible or trustee agency.)

    When changes to a local general plan, zoning ordinance, or other development regulations are required to maintain consistency with the ALUCP, these actions should be identified here. While the approval of other local agencies (cities and/or county) is not required for the Commission to adopt or amend an ALUCP, achieving the objectives of compatible land use planning will require implementation by local agencies.

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☐ Aesthetics	☐ Agriculture and Forestry Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology, Soils and Seismicity
☐ Greenhouse Gas Emissions Quality	☐ Hazards and Hazardous Materials	☐ Hydrology and Water
☐ Land Use and Land Use Planning	☐ Mineral Resources	☐ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☐ Transportation and Traffic	☐ Utilities and Service Systems	☐ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Signature _____ Date _____

Printed Name _____ For _____

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS — Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☐

Discussion

a - c) *Any state scenic highways or identified scenic vistas within the project area should be identified. Given the potentially large geographic area of an AIA, it is appropriate to summarize the scenic resources and visual quality of the area, or refer to another document, such as a General Plan or General Plan EIR which contains this information. The potential visual impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

d) *ALUCPs generally restrict or limit the types of land uses that can generate light or glare. The potential light and glare impacts are generally indirect, related to changes in future development patterns.*

References

Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☐

Discussion

a-e) *The potential farmland impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Air Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**	☐	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☐

Discussion

a-e) *The potential impacts to air quality from an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below). Air emissions related to aircraft operations are federally regulated and are not within the scope of an ALUCP.*

References

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES — Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐

Discussion

a-f) *The potential biological impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below). The potential effects of wildlife hazard management plans, and protection of airspace from trees, for example, would typically be addressed in the context of operations (such as an airport master plan) rather than the ALUCP.*

References

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☐

Discussion

a-d) *The potential cultural impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☐
iv) Landslides?	☐	☐	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☐

Discussion

a-d) *The potential geological impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☐

Discussion

a-b) *The potential greenhouse gas (climate change) impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below). As with air quality, emissions related to aircraft operations are not within the jurisdiction of local agencies, although they may be described in local greenhouse gas inventories.*

References

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☐

Discussion

a-d) *The potential hazards/hazardous materials impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

e) *Changes to safety zones or policies that increase the risk to residential or commercial development should be discussed and the significance of such changes analyzed. As the objective of the ALUCP is to increase safety in the vicinity of the airport, the effect would typically be characterized as beneficial—which would be "No Impact" in the above checklist.*

f) *While an ALUCP is not prepared for a private airstrip, the presence of a private airstrip within the plan area should be noted, and any safety issues related so such airstrips discussed.*

g) *An ALUCP will not typically interfere with an emergency response plan.*

h) *See items a-d, above.*

References

Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☐
c) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☐
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☐

Discussion

a-j) *The potential hydrological impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Land Use and Land Use Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. LAND USE AND LAND USE PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☐

Discussion

a) *An ALUCP does not regulate existing development, and typically does not specifically authorize linear infrastructure projects (such as roads) that could divide an established community. The potential for the physical division of a community resulting from the adoption or amendment of an ALUCP would be an indirect effect, related to changes in future development patterns (discussed in Population and Housing, below).*

b) *Inconsistencies between the proposed ALUCP or amendment, and an applicable land use plan, including general plan, specific plan, or zoning ordinance, must be identified and analyzed. Where the adoption of the ALUCP will require changes to the general plan, the effect of these changes on the environment should be discussed. This includes the potential for development displacement, discussed further under Item 13. The ability of the local agency to overrule actions of the ALUC should not be used to avoid analysis of any potential conflicts with adopted local plans and or regulations.*

c) *This item will mirror the analysis of Item 4f, Biological Resources, and can reference that discussion.*

References

Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐

Discussion

a-b) *This impact is most often related to the loss of future access to known mineral resources due to presence of residential or other urban development. The potential impacts of an ALUCP adoption or amendment on mineral resources are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. NOISE — Would the project:				
a) Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☐
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☐
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☐
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☐
e) For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☐
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐

Discussion

a-e) *The analysis should focus on the noise compatibility criteria of the proposed ALUCP. As with safety (item 8e, above), the desired outcome of the ALUCP process is to reduce impacts to sensitive receptors.*

f) *While an ALUCP does not address private airstrips, this issue should be addressed if the ALUCP would allow new development in the vicinity of a private airstrip resulting in increased noise exposure.*

References

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. POPULATION AND HOUSING — Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☐
b) Displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐

Discussion

a) *The potential for displaced development is an example of indirect growth effects that should be considered in the checklist. If not described here, it should be analyzed under Item 10, Land Use Planning. Displaced development may result when the ALUCP includes restrictions on development (use, density, or intensity) in areas previously identified for development in local plans, and future economic and/or population growth results in additional development occurring elsewhere in the surrounding environment. The CEQA Guidelines state that growth is not assumed to be necessarily beneficial, detrimental, or of little significance to the environment (CEQA Guidelines § 15126.2[d]). Factors to be considered in a displacement analysis should include the amount of development that would be restricted, the likely need for additional housing or commercial construction indicated in local general plans, the existence of other available land that is planned for such development. Relevant information sources include the Housing Element of the General Plan, which will include the approved housing need projections and vacant land inventory. It is also noteworthy to consider that a reasonable CEQA analysis will require some level of forecasting (both airport activity and population and housing), but that speculation is not sufficient to determine a potentially significant impact (CEQA Guidelines § 15144 and 15145).*

b-c) *As ALUCP restrictions do not apply to existing development, the potential to remove and replace existing housing or relocate existing residents is typically low or nonexistent.*

References

Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☐	☐
ii) Police protection?	☐	☐	☐	☐
iii) Schools?	☐	☐	☐	☐
iv) Parks?	☐	☐	☐	☐
v) Other public facilities?	☐	☐	☐	☐

Discussion

a) *The potential public service impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☐

Discussion

a-b) *The potential geological impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below). If appropriate, the lead agency should also consider, either here or elsewhere in the checklist, the potential impacts of the proposed action upon the continued use of recreational facilities. For example, changes in allowable noise levels within open space uses, could be considered as a recreational impact, a noise impact, or a land use consistency impact.*

References

Transportation and Traffic

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☐
e) Result in inadequate emergency access?	☐	☐	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☐

Discussion

a-b) *The potential surface transportation impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

c) *Note that the ALUCP does not cause changes in air traffic patterns, but addresses land use compatibility issues related to current and future patterns. Nevertheless, it may be appropriate to reference the hazard discussion in Item 8 as it relates to air traffic patterns.*

d-f) *See items a-b.*

References

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☐
c) Require or result in the construction of new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☐

Discussion

a) *The potential public utilities impacts of an ALUCP adoption or amendment are generally indirect, related to changes in future development patterns (discussed in Population and Housing, below).*

References

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☐

Discussion

a) *Mandatory findings of significance are discussed in CEQA Guidelines §15065. If there is substantial evidence, in light of the whole of the record, that any of the conditions identified in Item 18 would occur, the lead agency must prepare an EIR. The information necessary to address (a) should be found in the previous initial study checklist answers.*

b) *This item is a reminder to the lead agency, that while the project by itself may not have significant impacts on the environment, as discussed in the previous seventeen checklist items, the cumulative effects of the project in connection with other current, past, and probable future projects must be considered before the lead agency may make a determination that an EIR is not necessary.*

c) *While this impact is not further defined in the CEQA Guidelines, for purposes of an ALUCP, adverse effects on human beings may include significant hazard or noise impacts.*

References

Appendix J

Checklist for Commissioners

Familiarize Yourself With The Law

- Study Public Utilities Code sections 21670 through 21679.5.

Execute Your Primary Public Utilities Code Section 21674 Responsibilities

- Prepare and adopt airport land use compatibility plans for public use and military airports, including necessary environmental documentation.
    - Identify the extent of public outreach that is appropriate given local concerns and issues.
        - Consider whether to establish a stakeholders working group and/or technical advisory committee. Potential members include:
            - Local agencies;
            - Regional planning agencies;
            - FAA;
            - Caltrans;
            - Pilots' association;
            - Commercial air carriers;
            - Airport owners and operators;
            - Development community.
    - Consult with local agencies when establishing airport influence area boundaries.
    - Components:
        - Discussion of plan's application, including review procedures and pertinent definitions (e.g., existing land use; infill; redevelopment);
        - Compatibility criteria and policies for noise, safety, airspace protection and overflight;
        - Maps illustrating the geographic area impacted by the compatibility plan;
        - Background information on the airport and its environs.

- *May* consider political, economic, other non-compatibility-related ramifications of criteria and policies. However, ALUCs need not independently undertake cost-benefit analyses.
- *May* adopt compatibility plans for heliports and certain special use airports.
- Partial List of Resources:
  - General:
    - This *Handbook*;
    - Airport Master Plans;
    - Airport Layout Plans;
    - FAA's National Plan of Integrated Airport Systems;
    - *ACRP Report 27: Enhancing Airport Land Use Compatibility*, Transportation Research Board (2010)[1]
  - Noise:
    - FAA Advisory Circular 150/5020-1 (Noise Control and Compatibility Planning for Airports);
    - Federal Aviation Regulations, Part 150 (Airport Noise Compatibility Planning)
  - Safety:
    - FAA Advisory Circular 150/5200-33B (Hazardous Wildlife Attractants On or Near Airports);
    - FAA Advisory Circular 150/5200-34 (Construction or Establishment of Landfills Near Public Airports);
    - FAA Advisory Circular 150/5300-13 (Airport Design)
    - FAA Airports Division, Policy and Procedure Memorandum 5300.1B (Runway Protection Zone and Airport Object Clearing Policy);
    - Federal Aviation Regulations, Part 77 (Objects Affecting Navigable Airspace)

➢ Review the plans, regulations and other actions of local agencies and airport operators.

- Identify local agencies within the ALUC's jurisdiction that are subject to the provisions of the Public Utilities Code.
  - Such agencies include:

[1] Volume 3 of this publication contains an extensive annotated bibliography for the following topics: airport land use compatibility planning; military compatibility planning; community response to aircraft noise; hazards and third-party risk; land use regulations and takings; economic considerations; state and local compatibility guidance; environmental considerations. Reference should be made to this annotated bibliography, as appropriate.

        - Counties;
        - Cities;
        - Special Districts;
        - School Districts;
        - Community College Districts;
        - Airport Proprietors.
    - Other federal, state or regional agencies may request advisory opinions from the ALUC, which should be provided as ALUC's are required to coordinate planning at the state, regional, and local levels.
- Identify local agency actions within the airport influence area that require ALUC review.
    - Such actions may include, but are not limited to, the adoption or amendment of:
        - General Plan;
        - Community Plan;
        - Specific Plan;
        - Zoning Ordinance;
        - Other Land Use Development Regulation;
        - Airport Master Plan;
        - Airport Layout Plan;
        - Plans for the Construction of a New Airport;
        - Plans for Expansion of Airport that Requires a New or Modified Permit.
    - ALUC and local agency also may agree that certain other actions, as a matter of course, will always come to the ALUC for an advisory determination.
- Consider whether the proposed action is consistent with adopted compatibility criteria and policies.
    - *Do not* consider non-compatibility-related ramifications (e.g., economic interests) during the implementation phase. ALUCs must strive to uniformly apply criteria and policies.
- Advise the local agency of the consistency determination.

- If the proposed action is found not to be consistent with adopted compatibility criteria and policies, but the local agency intends to revise the action to ensure that

it is consistent, coordinate with the local agency to ensure that all potential inconsistencies are eliminated in a timely manner.

- If the proposed action is found not to be consistent with adopted compatibility criteria and policies, and the local agency intends to overrule the determination, review and comment on the local agency's proposed findings.

- Adopt rules and regulations that are consistent with the State Aeronautics Act that enable the ALUC to carry out its responsibilities.

Other Considerations

- Comply with the Ralph M. Brown Act, which governs open meetings for local government bodies.
  - Resources: California Government Code, §54590 et seq.; see also *The Brown Act: Open Meetings for Local Legislative Bodies*, California Attorney General's Office (2003), available at http://www.ag.ca.gov/publications/2003_Intro_BrownAct.pdf.
- Be wary of potential conflicts of interest or duty.
  - Depending upon the Commissioner's relationship to a particular project or land use action, it may be appropriate for the Commissioner to recuse him/herself from any related decision making.
  - Depending upon the Commissioner's other roles on certain commissions, boards, or advisory committees, it may be appropriate for the Commissioner to recuse him/herself from any related decision making.
- Establish consistent protocol and clear policy regarding the responsibilities of ALUC staff.
  - Answer the following:
    - Are resources available to retain aviation planning and environmental consultants to assist in the preparation of the ALUCP(s)?
    - Will staff be authorized to unilaterally render consistency determinations?
      - As a matter of course, any potentially compatible or incompatible projects/actions should be presented to the ALUC for review.

Appendix K

Reference Documents

Note: In the *Handbook* text, document references are cited using the short form indicated in the left column below.

U.S. GOVERNMENT SOURCES

Air Force – 1999 Department of the Air Force. 1999 (March). *Air Installations Compatible Use Zones (AICUZ) Program Manager's Guide.* No. 32-7084.

DOD – 1977 Department of Defense. 2011 (May). *Air Installations Compatible Use Zones (AICUZ)*. No. 4165.57.

HUD – 1985 Department of Housing and Urban Development. Office of Environment and Energy. Environmental Planning Division. 1985. *The Noise Guidebook*.

FAA – 1983 Department of Transportation. Federal Aviation Administration. 1983 (August). *Noise Control and Compatibility Planning for Airports*. Advisory Circular 150/5020-1.

FAA – 1985 _____. Office of Environment and Energy. 1985 (March). *Aviation Noise Effect*s. Report No. FAA-EE-85-2.

FAA – 1986 _____. 1986 (December). *Policies and Procedures for Considering Environmental Impacts.* FAA Order 1050.1D, Changes 1 through 3.

FAA – 1987 _____. 1987 (December). *A Model Zoning Ordinance to Limit Height of Objects Around Airports.* Advisory Circular 150/5190-4A.

FAA – 1990a _____. Office of Airport Safety and Standards. 1990 (January). *Waste Disposal Sites on and Near Airports*. FAA Order No. 5200.5A.

FAA – 1990b _____. Office of Safety Oversight. 1990 (July). *Location of Commercial Aircraft Accidents/Incidents Relative to Runways*. Report No. DOT/FAA/AOV 90-1.

FAA – 2011 _____. 2011 (January). *Federal Aviation Regulations, Part 77: Safe, Efficient Use and Preservation of the Navigable Airspace*. Through Amendment 77-11.

FAA – 1993b _____. 1993 (July). *Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations*. Advisory Circular 150/5000-9A.

FAA – 1997 _____. 1 997 (May). *Hazardous Wildlife Attractants On or Near Airports*. Advisory Circular 150/5200-33.

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Appendix L

Glossary of Terms

Accident Potential Zone (APZ): Areas based on hi storical accident and operations data throughout the military and the application of margins of safety within those areas if an accident were to occur. The three types of Accident Potential Zones are:

- **Runway Protection Zone-** The trapezoidal area lying immediately beyond the end of the runway and outward along the extended runway centerline for a distance of 3,000 feet.

- **APZ I-** The rectangular area beyond the Clear Zone, APZ One is typically 3,000 feet wide by 5,000 feet long and may be rectangular or curved to conform to the predominant flight track.

- **APZ II-** The rectangular area beyond APZ I, typically 3,000 feet wide by 7,000 feet long, and like APZ I, may be curved to correspond to the predominant flight track.

Air Carriers: The commercial system of air transportation, consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

Air Installation Compatible Use Zone (AICUZ): A land use compatibility plan prepared by the U.S. Department of Defense for military airfields. AICUZ plans serve as recommendations to local government bodies having jurisdiction over land uses surrounding these facilities.

Aircraft Accident: An occurrence incident to flight in which, as a result of the operation of an air craft, a person (occupant or non-occupant) receives fatal or serious injury or an aircraft receives substantial damage.

- Except as provided below, *substantial damage* means damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component.

- Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered substantial damage.

Aircraft Incident: A mishap associated with the operation of an aircraft in which neither fatal nor serious injuries nor substantial damage to the aircraft occurs.

Aircraft Mishap: The collective term for an aircraft accident or an incident.

Aircraft Operation: The airborne movement of aircraft at an airport or about an en route fix or at other point where counts can be made. There are two types of operations: local and itinerant. An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations. (FAA Stats)

Airport: An area of land or water that is used or intended to be used for the landing and taking off of aircraft, and includes its buildings and facilities, if any. (FAR 1)

Airport Compatibility Zones: Areas on and near an airport in which land use and development restrictions are established to protect the safety of the public and include the Runway Protection Zone, Inner Approach/Departure Zone, Inner Turning Zone, Outer Approach/Departure Zone, Sideline Zone, and the Traffic Pattern Zone.

Airport Elevation: The highest point of an airport's usable runways, measured in feet above mean sea level. (AIM)

Airport Influence Area: An Airport Influence Area (AIA) is the area or areas in which current or future airport-related noise, over flight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. The ALUC establishes its jurisdictional authority by designating one or more AIA(s). If the ALUC has not designated an AIA, PUC Section 21675.1(b) states that land within two miles of a public airport must be used instead.

Airport Land Use Commission (ALUC): A commission authorized under the provisions of California Public Utilities Code, Sections 21670 et seq. and established (in any county within which a public-use airport is located) for the purpose of promoting compatibility between airports and the land uses surrounding them.

Airport Land Use Compatibility Plan (ALUCP): A planning document that contains policies for promoting safety and compatibility between public use airports and the communities that surround them. The ALUCP is the foundation of the airport land use compatibility planning process. The ALUCP is adopted by the ALUC (or the body acting in that capacity per PUC Section 21670.1), and is based on a current Airport Master Plan (AMP) or Airport Layout Plan (ALP).

Airport Layout Plan (ALP): A scaled drawing of existing and proposed airport facilities including airport property lines and the information required to demonstrate conformance with applicable FAA regulations. A current FAA-approved ALP is required for NPIAS airports that receive Federal assistance. ALPs remain current for a five-year period or until major changes are made or are planned to be made at the airport. The ALP is one of the components of an Airport Master Plan (AMP).

Airport Master Plan (AMP): An airport master plan is an airport-sponsored, comprehensive planning study that usually describes existing conditions as well as interim and long-term development plans for the airport that will enable it to meet future aviation demand. An AMP contains an FAA-approved activity forecast and an Airport Layout Plan (ALP).

Airport Reference Code (ARC): A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at an airport. (Airport Design AC)

Airports, Classes of: For the purposes of issuing a Site Approval Permit, the California Department of Transportation, Division of Aeronautics classifies airports into the following categories. (CCR)

- *Agricultural Airport or Heliport:* An airport restricted to use only by agricultural aerial applicator aircraft (FAR Part 137 operators).

- *Emergency Medical Services (EMS) Landing Site:* A site used for the landing and taking off of EMS helicopters that is located at or as near as practical to a medical emergency or at or near a medical facility and

  (1) has been designated an EMS landing site by an officer authorized by a public safety agency, as defined in PUC Section 21662.1, using criteria that the public safety agency has determined is reasonable and prudent for the safe operation of EMS helicopters and

  (2) is used, over any twelve month period, for no more than an average of six landings per month with a patient or patients on the helicopter, except to allow for adequate medical response to a mass casualty event even if that response causes the site to be used beyond these limits, and

  (3) is not marked as a permitted heliport as described in Section 3554 of these regulations and

  (4) is used only for emergency medical purposes.

- *Heliport on Offshore Oil Platform:* A heliport located on a structure in the ocean, not connected to the shore by pier, bridge, wharf, dock, or breakwater, used in the support of petroleum exploration or production.

- *Personal-Use Airport:* An airport limited to the non-commercial use of an individual owner or family and occasional invited guests.

- *Public-Use Airport:* An airport that is open for aircraft operations to the general public and is listed in the current edition of the *Airport/Facility Directory* that is published by the National Ocean Service of the U.S. Department of Commerce.

Seaplane Landing Site: An area of water used, or intended for use, for landing and takeoff of seaplanes.

- *Special-Use Airport or Heliport:* An airport not open to the general public, access to which is controlled by the owner in support of commercial activities, public service operations, and/or personal use.

- *Temporary Helicopter Landing Site:* A site, other than an emergency medical service landing site at or near a medical facility, which is used for landing and taking off of helicopters and

(1) is used or intended to be used for less than one year, except for recurrent annual events, and

(2) is not marked or lighted to be distinguishable as a heliport and

(3) is not used exclusively for helicopter operations.

Ambient Noise Level: The level of noise that is all-encompassing within a given environment for which a single source cannot be determined. It is usually a composite of sounds from many and varied sources near to and far from the receiver.

Approach Protection Easement: A form of easement which both conveys all of the rights of an avigation easement and sets specified limitations on the type of land uses allowed to be developed on the property.

Approach Speed: The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration. (AIM)

Aviation-Related Use: Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. Such uses specifically include runways, taxiways, and their associated protected areas defined by the Federal Aviation Administration, together with aircraft aprons, hangars, fixed base operations facilities, terminal buildings, etc.

Avigation Easement: A type of easement which typically conveys the following rights:

- A right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above a surface specified in the easement (usually set in accordance with FAR Part 77 criteria).
- A right to subject the property to noise, vibrations, fumes, dust, and fuel particle emissions associated with normal airport activity.
- A right to prohibit the erection or growth of any structure, tree, or other object that would enter the acquired airspace.
- A right-of-entry onto the property, with proper advance notice, for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace.
- A right to prohibit electrical interference, glare, misleading lights, visual impairments, and other hazards to aircraft flight from being created on the property.

Based Aircraft: Aircraft stationed at an airport on a long-term basis.

California Environmental Quality Act (CEQA): Statutes adopted by the state legislature for the purpose of maintaining a quality environment for the people of the state now and in the future. The Act establishes a process for state and local agency review of projects, as defined in the implementing guidelines, which may adversely affect the environment.

Ceiling: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena. (AIM)

Circling Approach/Circle-to-Land Maneuver: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or not desirable. (AIM)

Combining District: A zoning district which establishes development standards in areas of special concern over and above the standards applicable to basic underlying zoning districts.

Commercial Activities: Airport-related activities which may offer a facility, service or commodity for sale, hire or profit. Examples of commodities for sale are: food, lodging, entertainment, real estate, petroleum products, parts and equipment. Examples of services are: flight training, charter flights, maintenance, aircraft storage, and tie-down. (CCR)

Commercial Operator: A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1)

Commercial Service Airports: Public airports receiving scheduled passenger service and having 2,500 or more enplaned passengers per year. Commercial service airports are further broken down into Primary and Non-Primary Airports.

Community Noise Equivalent Level (CNEL): The noise metric adopted by the State of California for evaluating airport noise. It represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods relative to the daytime period. (State Airport Noise Standards)

Compatibility Plan: As used herein, a plan, usually adopted by an Airport Land Use Commission, which sets forth policies for promoting compatibility between airports and the land uses which surround them. **Controlled Airspace:** Any of several types of airspace within which some or all aircraft may be subject to air traffic control. (FAR 1)

Day-Night Average Sound Level (DNL): The noise metric adopted by the U.S. Environmental Protection Agency for measurement of environmental noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and adjusted to account for the lower tolerance of people to noise during nighttime periods. The mathematical symbol is Ldn.

Decibel (dB): A unit measuring the magnitude of a sound, equal to the logarithm of the ratio of the intensity of the sound to the intensity of an arbitrarily chosen standard sound, specifically a sound just barely audible to an unimpaired human ear. For environmental noise from aircraft and other transportation sources, an *A-weighted sound level* (abbreviated dBA) is normally used. The A-weighting scale adjusts the values of different sound frequencies to approximate the auditory sensitivity of the human ear.

Deed Notice: A formal statement added to the legal description of a deed to a property and on any subdivision map. As used in airport land use planning, a deed notice would state that the property is subject to aircraft overflights. Deed notices are used as a form of buyer notification as a means of ensuring that those who are particularly sensitive to aircraft overflights can avoid moving to the affected areas.

Departure Surface for Instrument Runways: Applied to runways with an instrument approach, this surface has a slope of 40:1 starting from the departure end of the runway with dimensions of 1,000 foot inner width, 6,466 foot outer width, and 10,200 foot length.

Designated Body: A local government entity, such as a regional planning agency or a county planning commission, chosen by the county board of supervisors and the selection committee of city mayors to act in the capacity of an airport land use commission.

Displaced Threshold: A landing threshold that is located at a point on the runway other than the designated beginning of the runway (see *Threshold*). (AIM)

Easement: A less-than-fee-title transfer of real property rights from the property owner to the holder of the easement.

Equivalent Sound Level (Leq): The level of constant sound which, in the given situation and time period, has the same average sound energy as does a time-varying sound.

FAR Part 77: The part of the Federal Aviation Regulations which deals with objects affecting navigable airspace.

FAR Part 121 Operations: Operating requirements for Domestic, Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft.

FAR Part 135 Operations: Operating requirements for Commuter, and On Demand Operations and rules governing persons on board such aircraft.

FAR Part 150 Study: A study that determines the amount of noise impact an airport generates from its operations with the purpose of reducing noise impacts on existing incompatible land use and to prevent the introduction of new incompatible land uses in the areas impacted by aircraft noise.

FAR Part 77 Surfaces: Imaginary airspace surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

Federal Aviation Administration (FAA): The U.S. government agency which is responsible for ensuring the safe and efficient use of the nation's airports and airspace.

Federal Aviation Regulations (FAR): Regulations formally issued by the FAA to regulate air commerce.

Findings: Legally relevant sub conclusions which expose a government agency's mode of analysis of facts, regulations, and policies, and which bridge the analytical gap between raw data and ultimate decision.

Fixed Base Operator (FBO): A business which operates at an airport and provides aircraft services to the general public including, but not limited to, sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tie-down or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol.

Fleet Mix: The composition of aircraft that operate at a particular airport.

Flight Tracks: Routes aircraft routinely use when arriving and departing from an airport.

Forecasts: A projection of the amount and type of aircraft operations at an airport.

General Aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers. (FAA Stats)

General Aviation Airport: Airports that do not receive scheduled commercial service, or do not meet the criteria for classification as a commercial service airport. General aviation airports have at least 10 locally based aircraft, are at least twenty miles from the nearest NPIAS airports

General Plan: A statement of policies, including text and diagrams, setting forth objectives, principles, standards, and plan proposals, for the future physical development of a city or county.

Glide Slope: An electronic signal radiated by a component of an ILS to provide vertical guidance for aircraft during approach and landing.

Global Positioning System (GPS): A navigational system which utilizes a network of satellites to determine a positional fix almost anywhere on or above the earth. Developed and operated by the U.S. Department of Defense, GPS has been made available to the civilian sector for surface, marine, and aerial navigational use. For aviation purposes, the current form of GPS guidance provides en route aerial navigation and selected types of non-precision instrument approaches. Eventual application of GPS as the principal system of navigational guidance throughout the world is anticipated.

Helipad: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/ takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM)

Heliport: A facility used for operating, basing, housing, and maintaining helicopters. (HAI)

Infill: Development which takes place on v acant property largely surrounded by existing development, especially development which is similar in character.

Inner Approach/Departure Zone: A rectangular area extending beyond the RPZ. If the RPZ widths approximately equal the runway widths, the Inner Approach/Departure Zoned extends along the sides of the RPZ from the end of the runway.

Inner Turning Zone: A triangular area over which aircraft are turning from the base to final approach legs of the standard traffic pattern. It also includes the area where

departing aircraft normally complete the transition from takeoff to climb mode and begin to turn on their en route headings.

Instrument Approach Procedure: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority (refer to *Nonprecision Approach Procedure* and *Precision Approach Procedure*). (AIM)

Instrument Flight Rules (IFR): Rules governing the procedures for conducting instrument flight. Generally, IFR applies when meteorological conditions with a ceiling below 1,000 feet and visibility less than 3 miles prevail. (AIM)

Instrument Landing System (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM)

Instrument Operation: An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA)

Instrument Runway: A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved. (AIM)

Intercounty Airport: An airport where a county line bisects a runway or any various safety compatibility zones.

Inverse Condemnation: An action brought by a property owner seeking just compensation for land taken for a public use against a government or private entity having the power of eminent domain. It is a remedy peculiar to the property owner and is exercisable by that party where it appears that the taker of the property does not intend to bring eminent domain proceedings.

Land Use Density: Land use density is a measure of the concentration of residential development in a given area. It is typically expressed as the number of dwelling units per acre using a net acreage calculation.

Land Use Intensity: Land Use Intensity is a measure of the concentration of nonresidential development in a given area. Intensity can be expressed as number of people per acre using a net acreage calculation.

Land Use Map: A map showing land-use classifications as well as other important surface features such as roads, rail lines, waterways, and jurisdictional boundaries. Land Use Maps may show either existing or proposed land uses.

Large Airplane: An airplane of more than 12,500 pounds maximum certificated takeoff weight. (Airport Design AC)

Localizer (LOC): The component of an ILS which provides course guidance to the runway. (AIM)

Minimum Descent Altitude (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1)

Missed Approach: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. (AIM)

National Transportation Safety Board (NTSB): The U.S. government agency responsible for investigating transportation accidents and incidents.

Navigational Aid (Navaid): Any visual or electronic device airborne or on the surface which provides point-to point guidance information or position data to aircraft in flight. (AIM)

Noise Contours: Continuous lines of equal noise level usually drawn around a noise source, such as an airport or highway. The lines are generally drawn in 5-decibel increments so that they resemble elevation contours in topographic maps.

Noise Level Reduction (NLR): A measure used to describe the reduction in sound level from environmental noise sources occurring between the outside and the inside of a structure.

Nonconforming Use: An existing land use which does not conform to subsequently adopted or amended zoning or other land use development standards.

Non-precision Approach Procedure: A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1)

Non-precision Instrument Runway: A runway with an approved or planned straight-in instrument approach procedure which has no existing or planned precision instrument approach procedure. (Airport Design AC)

Obstruction: Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, the height of which exceeds the standards established in

Subpart C of Federal Aviation Regulations Part 77, *Objects Affecting Navigable Airspace*.

One-Engine Inoperative (OEI) Obstacle Identification Surface: For airports with runways that support air carrier operations, this surface begins at the same elevation of the end of the departure runway and slopes upward at 1 foot vertically to 62.5 feet horizontally. The inner width of the OEI surface is 600 feet while the outer width is 12,000 feet. The surface extends for a distance of 50,000 feet along the runway centerline.

Outer Approach/Departure Zone: A rectangular area located along the extended centerline beyond the Inner Approach/Departure Zone.

Overflight: Any distinctly visible and audible passage of an aircraft in flight, not necessarily directly overhead.

Overflight Easement: An easement which describes the right to overfly the property above a specified surface and includes the right to subject the property to noise, vibrations, fumes, and emissions. An overflight easement is used primarily as a form of buyer notification.

Overflight Zone: The area(s) where aircraft maneuver to enter or leave the traffic pattern, typically defined by the FAR Part 77 horizontal surface.

Overlay Zone: See *Combining District*.

Precision Approach Procedure: A standard instrument approach procedure where an electronic glide slope is provided. (FAR 1)

Precision Instrument Runway: A runway with an existing or planned precision instrument approach procedure. (Airport Design AC)

Referral Area: The area around an airport defined by the planning area boundary adopted by an airport land use commission within which certain land use proposals are to be referred to the commission for review.

Runway Capacity: The number of landings and take-offs, or a combination of both, that can be accommodated without undue delays to aircraft with the minimal approach spacing published for IFR (instrument flight rules) and VFR (visual flight rules).

Runway Protection Zone (RPZ): An area (formerly called a *clear zone*) off the end of a runway used to enhance the protection of people and property on the ground. (Airport Design AC)

Safety Zone: For the purpose of airport land use planning, an area near an airport in which land use restrictions are established to protect the safety of the public from potential aircraft accidents.

Sideline Zone: A rectangular area in close proximity and parallel to the runway.

Single-Event Noise: As used in herein, the noise from an individual aircraft operation or overflight.

Single Event Noise Exposure Level (SENEL): A measure, in decibels, of the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of the event exceeds a threshold noise level and normalized to a reference duration of one second. SENEL is a noise metric established for use in California by the state Airport Noise Standards and is essentially identical to *Sound Exposure Level (SEL)*.

Site Approval Permit: A written approval issued by the California Department of Transportation authorizing construction of an airport in accordance with approved plans, specifications, and conditions. Both public use and special-use airports require a site approval permit. (CCR)

Small Airplane: An airplane of 12,500 pounds or less maximum certificated takeoff weight. (Airport Design AC)

Sound Exposure Level (SEL): A time-integrated metric (i.e., continuously summed over a time period) which quantifies the total energy in the A-weighted sound level measured during a transient noise event. The time period for this measurement is generally taken to be that between the moments when the A-weighted sound level is 10 dB below the maximum.

Straight-In Instrument Approach: An instrument approach wherein a final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM)

Taking: Government appropriation of private land for which compensation must be paid as required by the Fifth Amendment of the U.S. Constitution. It is not essential that there be physical seizure or appropriation for a *taking* to occur, only that the government action directly interferes with or substantially disturbs the owner's right to use and enjoyment of the property.

Terminal Instrument Procedures (TERPS): Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: precision approach, non-precision approach, circling, and departure.

Threshold: The beginning of that portion of the runway usable for landing (also see *Displaced Threshold*). (AIM)

Touch-and-Go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. (AIM)

Traffic Pattern: The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM)

Traffic Pattern Zone: An elliptical area that includes the majority of other portions of regular air traffic patterns and pattern entry routes, and generally extends to the farthest point of 6,000 foot radius arcs from the centers of each of the primary surfaces and connecting lines tangent to those arcs.

Visual Approach: An approach where the pilot must use visual reference to the runway for landing under VFR conditions.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions. VFR applies when meteorological conditions are equal to or greater than the specified minimum-generally, a 1,000-foot ceiling and 3-mile visibility.

Visual Runway: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan. (Airport Design AC)

Zoning: A police power measure, enacted primarily by units of local government, in which the community is divided into districts or zones within which permitted and special uses are established, as are regulations governing lot size, building bulk, placement, and other development standards. Requirements vary from district to

district, but they must be uniform within districts. A zoning ordinance consists of two parts: the text and a map.

Glossary Sources

FAR 1: *Federal Aviation Regulations Part 1, Definitions and Abbreviations*

AIM: *Aeronautical Information Manual*

Airport Design AC: Federal Aviation Administration, *Airport Design* Advisory Circular 150/5300-13

CCR: California Code of Regulations, Title 21, Section 3525 et. seq. *Division of Aeronautics*

FAA ATA: Federal Aviation Administration, *Air Traffic Activity*

FAA Stats: Federal Aviation Administration, *Statistical Handbook of Aviation*

HAI: Helicopter Association International

NTSB: National Transportation and Safety Board

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APPENDIX J-5:

Avigation Easement, May 1, 1997

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RECORDING REQUEST BY
The City of Claremont

WHEN RECORDED MAIL TO

CITY CLERK
CITY OF CLAREMONT
P. O. BOX 880
CLAREMONT, CA 91711

97- 917067

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
3:21 PM JUN 19 1997

Free recording under Govt. Sec. 6103

SPACE ABOVE THIS LINE RESERVED FOR RECORDER'S USE

FREE P
7

TITLE(S)

AVIGATION EASEMENT

2

RECORDING REQUESTED BY
AND WHEN RECORDED RETURN TO:

CITY OF CLAREMONT
Attn: City Clerk, City of Claremont
207 Harvard Avenue
P.O. Box 880
Claremont, CA 91711-0880

Free recording under Government Code §6103

SPACE ABOVE THIS LINE FOR RECORDER'S USE

AVIGATION EASEMENT

Dated: May 1, 1997

RECITALS

Columbia Group Ltd. ("Columbia Group") is the owner in fee of a parcel of land ("Parcel") located in the City of Claremont, California ("Claremont") more particularly described in Exhibit A.

Cable Airport, a privately owned airport open to the public, is located in the City of Upland which adjoins Claremont. Aircraft using Cable Airport fly over the Parcel.

The San Bernardino County West Valley Airport Land Use Commission (ALUC) adopted the Cable Airport Comprehensive Airport Land Use Plan in 1981 which dealt with the effects of aircraft using Cable Airport on surrounding land (the "Cable Airport Plan"). To the best of Claremont's knowledge, the Cable Airport Plan has no legal significance in Claremont because the ALUC was abolished in 1990-91, but does provide useful information concerning the effects of aircraft using Cable Airport on the Parcel and aircraft impacts on Claremont in general.

Claremont has requested, and Columbia Group is willing to provide, an avigation easement such that aircraft using Cable Airport will have the right, and ability, to fly in the airspace over the Parcel as long as such flights are in compliance with regulations promulgated by the Federal Aviation Administration.

Therefore, Columbia Group, for itself and its successors and assigns, hereby grants and conveys to Claremont, its successors and assigns, for and on behalf of the public who pilot, or are passengers within, aircraft utilizing Cable Airport an avigation easement upon the following terms and conditions:

1. Aircraft, of any and all kinds now known or hereinafter invented, used or designated for navigation or flight in the air, of the class, size, and category

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operationally compatible with Cable Airport shall have the right to use the airspace above a plane located 400 feet above the Parcel.

2. The right of unobstructed passage in flight granted herein shall include the right to allow, make, and emit such noise, light, vibrations, fumes, exhaust, smoke, air currents, dust, fuel particles, radio, television, and other electromagnetic interferences, and all other incidents inherent in the operation of aircraft for navigation or flight in the air, or reasonable pre- or post-flight operations, not otherwise in violation of law or regulation.

3. Nothing in the grant of this avigation easement shall operate to deprive Columbia Group, its successors or assigns, of any rights that it or they may have from time to time against any individual or private operator for negligent or unlawful operation of aircraft in any legal, equitable, or administrative proceeding.

4. No structure or object on the Parcel shall be allowed to intrude into the space above a plane located 400 feet above the Parcel.

5. The rights and obligations under this avigation easement shall continue in effect only while Cable Airport remains in operation and shall cease to be effective for all purposes if Cable Airport ceases to be used as an airport open for public use. A discontinuation of use of Cable Airport for a period of 180 days shall be conclusively deemed to be a cessation of the use of Cable Airport for public use and Claremont shall thereupon immediately provide the written consent required under paragraph 6 upon request by Columbia Group or its successor or assign.

6. This avigation easement may not be amended or canceled without the written consent of Claremont, which shall not be unreasonably withheld, and any such amendment or cancellation shall not be effective until Claremont's written consent has been recorded in the office of the County Recorder of Los Angeles County.

7. This grant of an avigation easement is expressly conditioned on the non-enforceability of the Cable Airport Plan by Claremont. The limitations imposed by this avigation easement are intended to be the only limitations, enforceable by Claremont, on the use and development of the Parcel resulting from, or associated with, the operation of Cable Airport regardless of anything to the contrary contained in the Cable Airport Plan.

8. This avigation easement will automatically terminate, and Claremont shall thereupon immediately provide the written consent required under paragraph 6 upon request by Columbia Group or its successor or assign, upon Claremont's imposition of any additional limitation by Claremont on the use or development of the Parcel resulting from, or associated with, the operation of Cable Airport at its existing location and pursuant to the conditions that existed at the Cable Airport site prior to, or upon the date this avigation easement is fully executed and recorded.

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IN WITNESS WHEREOF, the parties have executed this Agreement on the date shown below, but this Agreement is effective as of the date and year first above written.

Property Owners:

DATE: May 1, 1997

COLUMBIA GROUP LTD.
A California Limited Partnership

By: Jaywin, Inc.
A California Corporation
Its General Partner

By: _____

CITY OF CLAREMONT

DATE: 5-13-97

By: _____
City Manager

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ACKNOWLEDGEMENTS

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)

On MAY 1, 1997, before me, ARLISHA WILLIAMS,
Notary Public, personally appeared RICHARD N. NEWBEE,
personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

ARLISHA WILLIAMS
Commission # 1115407
Notary Public — California
Los Angeles County
My Comm. Expires Jan 24, 2001

Arlisha Williams (seal)
Signature

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CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California)
County of Los Angeles)

On May 13, 1997, before me, JoAnne Vall, Notary Public, personally appeared Glenn D. Southard, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature JoAnne Vall (Seal)

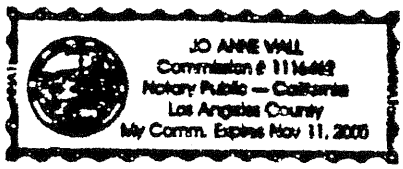

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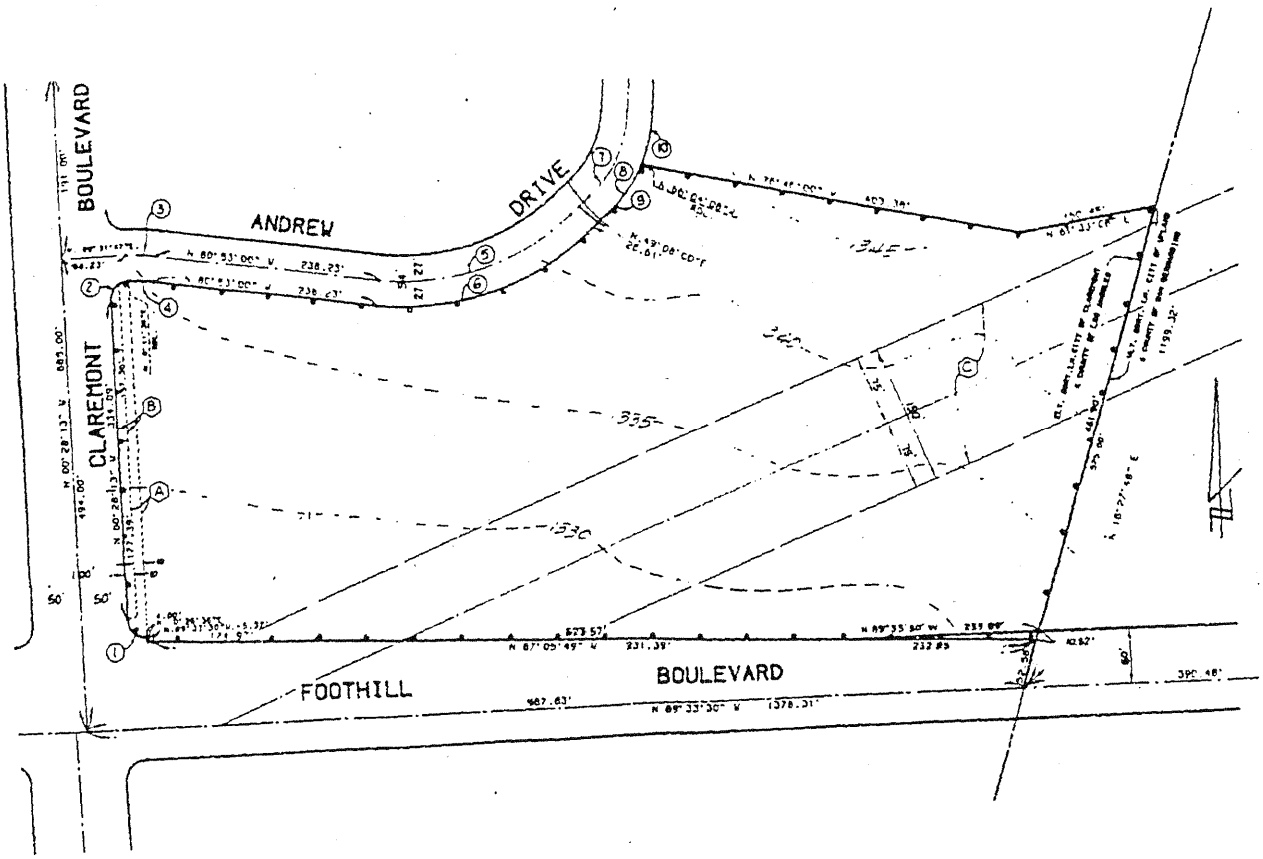
Exhibit A

LEGAL DESCRIPTION FOR SUBJECT PROPERTY ("PARCEL")

That certain real property in the City of Claremont, County of Los Angeles, State of California, described as follows:

Said property being legally described as Parcel 1 of Parcel Map No. 6175 as per map recorded in Book 84, Pages 2 and 3 of Maps, Records of the County of Los Angeles, State of California.



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